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2022								
Self Paced Deep Learning for Weakly Supervised Object Detection	Gadi Nirmala	CSE	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2022	ISSN : 2456-3307	ijsrceit.com	Self Paced Deep Learning for Weakly Supervised Object Detection (ijsrceit.com)	UGC
Machine Learning Algorithms for Predicting Heart Disease	Dr. B. MadhavaRao	CSE	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2022	ISSN : 2456-3307	ijsrceit.com	https://ijsrceit.com/CSE/1228211	UGC

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Cyber security Approach for secured Online trading	Ch. Srinivas	CSE	Journal of Interdisciplinary Cycle Research	2022	ISSN: 0022-1945	https://www.researchgate.net/	https://www.researchgate.net/profile/Dr-Krishna-3/publication/358877282/Cyber_Security_Approach_for_Secured_Online_Trading/links/6219f3d76051a16582fa2e1/Cyber-Security-Approach-for-Secured-Online-	WOS
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Density And Latency Optimized Digital Transpose Fir Filter Using Raidx-16 Booth Multiplier	CH. Madhava	ECE	International Journal of Engineering in Advanced Research Science and Technology	2022	ISSN: 2352-8648	www.ijearst.co.in	https://docplayer.net/228922358-Density-and-latency-optimized-digital-transpose-fir-filter-using-raidx-16-booth-multiplier.html	SCOPUS

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Sovereign Potentiality Control and Dominance between Unattached Dc Microgrids	B.Samba Siva Rao	EEE	International Journal for Research Trends and Innovation	2022	ISSN: 2456-3315	https://www.ijrti.org/	http://www.ijrti.org/papers/LJRTI2207087.pdf	UGC

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Fault Detection in Cluster Microgrids of Urban Community using Multi-Resolution Technique based Wavelet Transforms	Mr.N.Rama Narayana	EEE	International Journal of Renewable Energy Research	2022	ISSN: 1309-0127	https://www.ijrer.org/ijrer/index.php/ijrer	https://doi.org/10.20508/ijrer.v12i3.13129.g8505	Scopus, Web of Science (ESCI)

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Machine Learning-Based Ensemble Classifiers for Anomaly Handling in Smart Home Energy Consumption Data	K.Purna Prakash	Information Technology	Sensors	2022	ISSN 1424-8220	https://www.mdpi.com/	https://doi.org/10.3390/s2239323	SCOPUS
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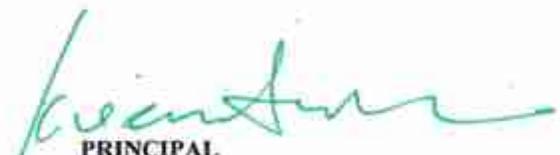
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Self Paced Deep Learning for Weakly Supervised Object Detection

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ABSTRACT

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In a weakly-supervised scenario object detectors need to be trained using image-level annotation alone. Since bounding-box-level ground truth is not available, most of the solutions proposed so far are based on an iterative, Multiple Instance Learning framework in which the current classifier is used to select the highest-confidence boxes in each image, which are treated as pseudo-ground truth in the next training iteration. However, the errors of an immature classifier can make the process drift, usually introducing many of false positives in the training dataset. To alleviate this problem, we propose in this paper a training protocol based on the self-paced learning paradigm. The main idea is to iteratively select a subset of images and boxes that are the most reliable, and use them for training.

Keywords - Weakly Supervised Learning, Object Detection, Self-Paced Learning, Curriculum Learning, Deep Learning, Training Protocol.

I. INTRODUCTION

A well-known problem in object detection is the fact that collecting ground truth data (i.e., object-level annotations) for training is usually much more time consuming and expensive than collecting image-level labels for object classification. This problem is exacerbated in the context of the current deep networks, which need to be trained or "fine-tuned" using large amounts of data. Weakly-supervised techniques for object detection (WSD) can alleviate the problem by leveraging existing datasets which provide image-level annotations only. In the common Multiple Instance Learning (MIL) formalization of the

WSD problem, an image I , associated with a label of a given class y , is described as a "bag" of Bounding Boxes (BBs), where at least one BB is a positive sample for y and the others are samples of the other classes (e.g., the background class).

The main problem is how can the classifier, while being trained, automatically guess what the positives in I are. A typical MIL-based solution alternates between 2 phases: (1) optimizing the classifier's parameters, assuming that the positive BBs in each image are known, and (2) using the current classifier to predict the most likely positives in each image [2]. However, a well known problem of MIL-like

Machine Learning Algorithms for Predicting Heart Disease

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Heart related diseases or Cardiovascular Diseases (CVDs) are the main reason for a huge number of death in the world over the last few decades and has emerged as the most life-threatening disease, not only in India but in the whole world. So, there is a need of reliable, accurate and feasible system to diagnose such diseases in time for proper treatment. Machine Learning algorithms and techniques have been applied to various medical datasets to automate the analysis of large and complex data. Many researchers, in recent times, have been using several machine learning techniques to help the health care industry and the professionals in the diagnosis of heart related diseases. This paper presents a survey of various models based on such algorithms and techniques and analyze their performance. Models based on supervised learning algorithms such as Support Vector Machines (SVM), K-Nearest Neighbour (KNN), NaïveBayes, Decision Trees (DT), Random Forest (RF) are found very popular among the researchers.

Keywords: Cardiovascular Diseases, Support Vector Machines, K- Nearest Neighbour, Naïve Bayes, Decision Tree, Random Forest

I. INTRODUCTION

Heart is an important organ of the human body. It pumps blood to every part of our anatomy. If it fails to function correctly, then the brain and various other organs will stop working, and within few minutes, the person will die. Change in lifestyle, work related stress and bad food habits contribute to the increase in rate of several heart related diseases. Heart diseases have emerged as one of the most prominent cause of death all around the world. According to World Health Organisation, heart related diseases are responsible for the taking 17.7 million lives every

year, 31% of all global deaths. In India too, heart related diseases have become the leading cause of mortality [1]. Heart diseases have killed 1.7 million Indians in 2016, according to the 2016 Global Burden of Disease Report, released on September 15, 2017. Heart related diseases increase the spending on health care and also reduce the productivity of an individual. Estimates made by the World Health Organization (WHO), suggest that India have lost up to \$237 billion, from 2005-2015, due to heart related or Cardiovascular diseases [2]. Thus, feasible and accurate prediction of heart related diseases is very important. Medical organizations, all around the

A Novel Ensemble Bagging Classification Method for Breast Cancer Classification Using Machine Learning Techniques



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ABSTRACT

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Breast cancer is observed as a dangerous disease type for women in the world. The clinical experts stated that early detection of cancer helps in saving lives. To detect cancer in the early stage, medical image processing is observed as an effective field. Medical Image processing with an appropriate classification mechanism improves accuracy and image resource with minimal processing time. To detect breast cancer several machine learning techniques are evolved for cancer classification. However, those machine learning techniques are subjected to increased time consumption and limitation in the accuracy of classification. This paper proposed an Ensemble Bagging Weighted Voting Classification (EBWvc) for the classification of breast cancer. Initially, to resolve to overfit in machine learning bagging is applied for collected data. The ensemble bagging classification provides effective training to machine learning for reduced computational time and improved performance characteristics. The weighted voting is adopted for the classification of cancer in the breast. The performance of proposed EBWvc is analyzed comparatively with consideration accuracy, precision, recall, and F1 -Score. The comparative analysis of results exhibited that proposed EBWvc exhibits improved performance than existing classification techniques.

1. INTRODUCTION

In recent years, cancer is stated as abnormal cell growth in which body cells are classified into a continuous manner and invade nearby tissues. The terms cancer is names based on the human body it originates [1]. Generally, cancer is classified as malignant and benign. In those, benign is stated as simple cysts which does not exhibit significant impacts on nearer tissues. Even benign is not a class of cancerous. Whereas malignant spread to other human bodies and grow such as bones and organs. Worldwide, breast cancer is the second leading cause of death among women [2]. To reduce the mortality rate caused by breast cancer, earlier detection and treatment are considered an important factor. To diagnosis breast cancer Mammography and Ultrasound (US) is utilized for screening and diagnosis of a breast cancer diagnosis. Recent studies stated that breast cancer diagnosis uses an imaging model using mammography [3].

Breast cancer starts in the lump of the breast with a diagnosis of cancer in women [4]. In western countries, analysis of the survey expressed that for every 11 women 1 are affected by breast cancer. The prolonged growth of breast cancer leads to change in the shape of the breast, skin dimpling, fluid in nipples, or red patch scaly skin. To increase the lifetime of breast cancer patients it is necessary to detect cancer at an early stage and provide appropriate treatment for increasing survival rate [1]. In breast cancer detection, X-ray mammography is considered a golden standard but it provides false negative and positive rates. However, this method is not appropriate for women with denser tissues in the breast [5].

The statistical model of mammographic texture provides spatial variation in the structure. However, this technique is not an effective method for the analysis of very low-speed analysis [6].

For high-risk analysis, MRI is considered an efficient method for cancer diagnosis. But with an effective determination of sensitivity and specificity increases the overall accuracy [7]. In the microwave imaging process, backscatter leads to image falsification [8]. On other hand, electrical impedence tomography leads to the increased cost of processing [9]. However, UltraSound imaging is also a complex factor due to the decomposition of data, which describes the speckle information. To explore the inner parts of the human body Ultrasound imaging is adopted through high-frequency waves, which is destructive and non-invasive technology. This implies that it does not impact on tested target without any discomfort and pain. Ultrasound waves transmitted from the sound waves return if any crack or impurity in the objects. The analysis of resultant echoes exhibited an analysis of various parameters [10]. The high-resolution detection process leads to reduced cost and increased flexibility with significant advantages of ultrasound imaging. Ultrasound Imaging (UT) provides an effective characterization of soft tissues. It is involved in the classification of Computer-Aided Design. The lesion segmentation act as a crucial role in the CAD system for feature computation for the analysis of lesion shape for estimation of classification accuracy [11].

Radial Gradient Index (RGI) filtering is involved in lesion detection of ultrasound image automatic classification. The

Cyber Security Approach for Secured Online Trading

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Abstract—The Internet technologies transformed many business services into online services. Online trading facilitates as a financial platform form for buying and selling shares, bidding, product sale or purchase using computers. The vital online trading between B2B, B2C and C2C transaction data may be under siege due to spywares, malwares, Hijackers and intruders. Often trading secrets and portfolios are in risk with network attackers who tracks unauthorizedly the personalized data of business clients. The Cyber Security is one domain which significantly supports strategies and algorithms for securing sensitive data in cyber space. In this paper we discussed about Cyber Security issues and implementation over a key business portal deals with market trading. Various strategies to handle security risks highlighted along with an approach to secure online trading transactional data in E-Commerce. The 3-phased Cyber security pipeline approach proposed for high end security maintenance over online trading transactions.

Keywords— Cryptography, Encryption, Key, Cookies, Digital Signatures

I. INTRODUCTION

Cyber security is a strategic collection of defensive systems which protects computers, servers, mobile devices, electronic systems, networks and data from malicious attacks [1][2]. The global security breaches over cyber space are enormously increasing at high rate of confidentiality risks [5]. The early detection and recommendation of risk avoidance strategies are keen interest of Cyber Security [3]. The US government introduced Cyber laws to enforce security with a legal framework over cyber space earlier to 2012. The Network Security innovations led to discover strong cryptographic environments in protecting business data among open networks. Increased data explosion and vulnerabilities caused by advanced hackers placing many challenges daily upon cyber security framework [6]. The process of buying and selling of things over Internet is referred as E-Commerce activity [7]. The trading now is becoming online in majority of companies to enhance their business borders and increasing the investors [9]. E-commerce is providing a platform for mobile commerce, internet marketing, electronic fund transfer, online transaction processing, automated data collection, legal notaries and electronic fund transfer [4]. As Internet is unsafe and exploits security breaches, data misuse, frauds and malicious attacks [10]. Cyber Security originated with principles to protect digital electronic systems and data from malicious attacks [11]. The applications involved in business trading must maintain strong authentication, validating rules to support safe transactions among B2B and B2C [12]. Wide range of policies and frameworks developed in cyber security to support trusted business transactions [13]. The advancement in cryptography and Network Security facilitating more advanced digital signatures, cryptographic algorithms and Hashing techniques [5]. The modern integration of electronic systems with microprocessor used to gather data from heterogeneous smart systems, which increasing vulnerability in E-Commerce activities [14]. The Cyber Security Management providing good policies to compliance assessment, cyber maturity assessment, data leakage identification, Identity and access management. Moreover often policies should be validated according to current business technologies and environments where E-Commerce services are handled [15].

II. CYBER SECURITY MANAGEMENT

Financial Institutions, premier industries, public sector business organizations and allied companies are becoming the major target for Cyber attacks. The volumes of online transactions in different platforms are under risk of security threats daily. US government statistics shows that during 2010-2020 around 1.5 Billion Dollars loss caused to business domain due to cyber attacks.

A Systematic Approach for Exploration, Behavior Analysis, and Visualization of Redundant Data Anomalies in Smart Home Energy Consumption Dataset

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Abstract - The increase of smart home culture for improved efficiency and comfort in the present energy sector requires paying much attention to big data analytics. Here, the data refers to the energy consumption readings that are continuously captured through smart meters and transmitted to the central computing centres. The entire analysis and decision making in such cases depend on the availability of quality data. However, this data often contains anomalies such as redundancy (duplicated data), which affects their quality. Thus, a systematic approach with three steps (exploration, behavior analysis, and visualization) is proposed in this paper to precisely analyze the redundant data anomalies and their behavior. In exploration, the identification and quantification of redundant data anomalies will be done for all appliances for all available days. This provides the information of the highest and lowest counts of redundancies for all appliances. In behavior analysis, the behavior of redundant data anomalies during various parts of a day will be analysed. The visualization finds the occurrence of redundant data anomalies at the day/hour/minute level. Altogether, these three steps provide a comprehensive analysis of redundant data anomaly behavior that is present in the smart home energy consumption dataset. For the analysis, this paper considers a real-time smart home dataset 'Tracebase'. From this dataset, the appliance 'WaterKettle' is used as an example for the proposed analysis as it exhibits the highest redundancy count when compared to all other appliances. From the implementation of the proposed approach, it is revealed that there is a high occurrence of redundancy during Daylight hours and is visualized.

Keywords Behavior analysis; Data analysis; Energy consumption data; Redundant data anomaly; Smart home; Visualization.

1. Introduction

Across the world, the conventional power grids are in transition towards smart grids. This transition is not only limited to macrogrids but also applicable to microgrids such as homes, buildings, and cities. The smartness can be embedded into homes by using the equipment viz., sensors, advanced metering infrastructure, computer-operated and controlled power networks, etc. Further, it enables demand-side management, automatic restoration from power supply

faults and blackouts, effective consumer interaction and involvement, precise billing, etc. A home is referred to as a smart home whenever it is furnished with the abovementioned equipment and features. The smart home facilitates the integration of renewable energy sources and electric vehicles for efficient demand-side management. This enables the smart meters to effectively communicate with the smart appliances of smart homes connected in the power network to collect the energy consumption data continuously at a predefined rate. Thus, the identification of all the



Attention based Heterogeneous Relational Model to Improve the multi-modal Social Image Sentiment Analysis

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Abstract: We propose an interest-based totally heterogeneous relational model (ahrm) to improve the multi-modal sentiment evaluation performance by using incorporating rich social facts. Especially, we endorse an innovative dual attention module to capture the correlations between image and text, after which learn the joint image-text representation from the perspective of content material records. A channel attention schema is proposed right here to focus on semantically-wealthyphoto channels and a location attention schema is further designed to spotlight the emotional regions based totally at the attended channels. After that, we assemble a heterogeneous relation community andextend graph convolutional community to aggregate the content material facts from social contexts as complements to study excessive quality representations of social pictures. Our notion is thoroughly evaluated on benchmark datasets, andexperimental effects exhibit the superiorityof the proposed model.

1. Introduction: The Non-stop prosperity of social networks, people have a tendency to increasingly percentage their daily lives And explicit private reviews on-line. The automated identification of sentiment is critical to apprehend the character behavior and plenty of packages can benefit from it, which include commercial evaluation [1] and mental healthcare [2]. But, conventional sentiment analysis techniques in particular focus on one single modality like textual content [3] or photograph [4], that is now not applicable to the contemporary conditions that the superiority of cell internet has fueled an

increasing number of diverse content material with both image and textual content. Consequently, combining one-of- a-kind modalities to perform sentiment evaluation for social media facts is of vital realistic significance. Although an increasing number of multi-modal records seem at the social website, multi-modal sentiment evaluation is still in its infancy, which may be kind of categorized into two categories. Maximum early works arefeature choice models [5]. For instance, Wang et al. [5] utilize a uniform approach to encode the texts and images into bag-of-words representations, based totally on which a logistic regression technique is

Article

Fuzzy Hysteresis Current Controller for Power Quality Enhancement in Renewable Energy Integrated Clusters

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Abstract: Steady increase in electricity consumption, fossil fuel depletion, higher erection times of conventional plants, etc., are encouraging the use of more and more onsite renewable energy. However, due to the dynamic changes in environmental factors as well as the customer load, renewable energy generation is facing issues with reliability and quality of the supply. As a solution to all these factors, renewable energy integrated cluster microgrids are being formed globally in urban communities. However, their effectiveness in generating quality power depends on the power electronic converters that are used as an integral part of the microgrids. Thus, this paper proposes the “Fuzzy Hysteresis Current Controller (FHCC)-based Inverter” for improving the power quality in renewable energy integrated cluster microgrids that are operated either in grid-connected or autonomous mode. Here, the inverter is controlled through a fuzzy logic-based hysteresis current control loop, thereby achieving superior performance. System modelling and simulations are done using MATLAB/Simulink[®]. The performance analysis of the proposed and conventional inverter configurations is done by computing various power quality indices, namely voltage characteristics (swell, sag, and imbalance), frequency characteristics (deviations), and total harmonic distortion. The results reveal that the proposed FHCC-based inverter achieves a better quality of power than the traditional ST-PWM-based multilevel inverter in terms of IEEE/IEC/EN global standards for renewable energy integrated cluster microgrids application.

Keywords: cluster microgrids; fuzzy logic; hysteresis current control; microgrids; power quality; renewable energy sources; urban community

1. Introduction

Energy is a key component of any country's economic development. In the twenty-first century, people in both urban and rural areas around the world have higher and more sophisticated demands for their quality of life. Urbanization is expected to account for

Original Article

Heart Disease Prediction based on Ensemble Classification Model with Tuned Training Weights

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Abstract - Heart disease (HD) is the most serious human disease, causing havoc on people's health. Heart disease detection must be accurate and timely to prevent and cure heart failure. In many instances, the diagnosis of HD based on standard medical history is seen as unreliable. Therefore, this paper introduces a novel HD prediction system that includes five major phases such as (a) Preprocessing, (b) Imbalance processing, (c) Feature extraction, (d) Feature Selection and (e) Classification. Originally, the input data is given to the preprocessing phase. Subsequently, the imbalance processing phase is carried out, where an improved strategy for the class imbalance process is performed. The features, including raw features, improved mutual information, higher-order statistical features, entropy, correlation, and statistical features, are extracted in the feature extraction phase. Moreover, appropriate features will be selected from the extracted features in the feature selection phase, for which an improved ReliefF process will be carried out. These selected features are then subjected to the classification phase, where the ensemble classifiers include Neural Network (NN), Recurrent Neural Network (RNN), Random Forest (RF), and K-Nearest Neighbour (k-NN) model. Here, the output of NN, RNN, and RF is given as the input of k-NN. To make the system more precise in disease prediction, the weights of NN and RNN are optimally tuned by a Self-improved Shark Smell Optimization with Gaussmap Estimation and Cycle crossover Operation (SISSGECO) model. Then, the final output is obtained effectively in a precise manner. Finally, the outcomes of the adopted scheme are computed to the other extant schemes in terms of various measures like precision, sensitivity, accuracy, specificity, NPV, MCC, FPR, F1-score, and FNR, respectively.

Keywords - Heart Disease Prediction, Imbalance Processing, Improved ReliefF, Ensemble Classifiers, Optimization.

Nomenclature

Abbreviation	Description
OCFS	Optimality Criterion Feature Selection
SMOTE	Synthetic Minority Oversampling Technique
EMRs	Electronic Medical Records
RNN	Recurrent Neural Network
SSO	Shark Smell Optimization
WHO	World Health Organization
NN	Neural Network
UCI	University Of California, Irvine
RF	Random Forest
DT	Decision Tree
HPO	Hyper Parameter Optimization
K-NN	K-Nearest Neighbour
GA	Genetic Algorithm
LR	Logistic Regression
NB	Naive Bayes
SVM	Support Vector Machine
RFS-IE	Rough Feature Selection based on Information Entropy
ANN	Artificial Neural Networks
PM-LU	PSO Merged LA Update
LA	Lion Algorithm
PSO	Particle Swarm Optimization
HD	Heart Disease
WOA	Whale Optimization Algorithm

XGBoost	Extreme Gradient Boosting
OH	One-Hot
AUC	Area Under the Curve
FPR	False Positive Rate
RMSE	Root Mean Square Error
AI	Artificial Intelligence
DBN	Deep Belief Network
ROC	Receiver Operating Characteristic
LM	Levenberg-Marquardt
MCC	Matthews Correlation Coefficient
FF	Firefly
CHD	Cleveland Heart Disease
TPOT	Tree-Based Pipeline Optimization Tool
PCA	Principle Component Analysis
DBNKELM	Deep Belief Network and Extreme Learning Machine
CMBO	Cat Mouse Based Optimizer
NPV	Net Present Value
BOA	Butterfly Optimization Algorithm
FNR	False Negative Rate
PRO	Poor and Rich Optimization
SISSGECO	Self-Improved Shark Smell Optimization with Gaussmap Estimation and Cycle Crossover Operation
Social SO	Social Spider Optimization





Research Article

Analytical Approach to Exploring the Missing Data Behavior in Smart Home Energy Consumption Dataset

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Behavior Analysis,
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Smart Homes,
Smart Meter Data

A B S T R A C T

Smart homes are considered to be the subset of smart grids that have gained widespread popularity and significance in the present energy sector. These homes are usually equipped with different kinds of sensors that communicate between appliances and the metering infrastructure to monitor and trace the energy consumption details. The smart meters trace the energy consumption data continuously or in a period of intervals as required. Sometimes, these traces will be missed due to errors in communication channels, an unexpected breakdown of networks, malfunctioning of smart meters, etc. This missingness greatly impacts smart home operations such as load estimation and management, energy pricing, optimizing assets, planning, decision making, etc. Moreover, to implement a suitable precautionary measure to eliminate missing of data traces, it is required to understand the past behavior of the data anomalies. Hence, it is essential to comprehend the behavior of missing data in the smart home energy consumption dataset. In this regard, this paper proposes an analytical approach to detect and quantify the missing data instants in all days for all appliances. Using this quantification, the behavior of missing data anomalies is analyzed during the day. For the analysis, a practical smart home energy consumption dataset 'Tracebase' is considered. Initially, the existence and the count of missing instants are computed. From this, the appliance 'MicrowaveOven' is considered for further analysis as it comprises the highest count of missing instants (84740) in a day when compared to all other appliances. Finally, the proposed analysis reveals that the large number of missing instants is occurring during the daylight period of a day.

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1. INTRODUCTION

In recent years, smart homes have become very popular and grabbed the attention of people around the world. Smart homes provide access to a modern style of living with greater comfort and security. Besides, smart homes enable control over the appliance functionality, energy usage, billing, etc. Hence, the consumers are ready to avail the benefits of smart homes and make their homes automated. This automation includes different kinds of sensors, communication channels, computer-controlled equipment, etc., which are formed as a controlled network. This installed equipment captures the energy consumption data 24×7 from all the appliances connected in a smart home. The analysis of this data is essential to understanding the functionality of appliances. For this purpose, the availability of high-quality data is always desired. But, the data capturing process is often associated with certain anomalies due to several problems and failures in the power and communication networks. Among such anomalies, missing data records is a major issue, which

deludes the analysis and decision-making about energy consumption.

There are several literature works available on the analysis of smart home datasets and detection of various anomalies present in it, as described in Table 1. All these state-of-the-art literature works can be segregated as works related to general concepts, complexities, challenges, and advancements in smart homes; IoT role in the smart home application; smart home environment, technology, and energy management; data analytics in smart grids/homes; data anomalies and their detection. As per the description provided in Table 1 on these works, it is clearly understood that all these works represent the preliminary requirements or supports for the smart home deployments. Further, in the context of data anomalies and missing data, conventional works have focused on identification, preprocessing, and visualization. These approaches help to rectify the data anomalies, thereby improving the data quality.

Along with the preprocessing methods available in the literature, it is also important to have some precautionary measures to avoid data quality issues. To identify the cause of data quality issues or implement a suitable precautionary measure, it is important to know the behavior of the data

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Design and Analysis of 18 nm FinFET Device with High Density Meshing for High-speed and Ultra-low Power Applications

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Abstract

Although the performance and power consumption of VLSI circuits have increased as a result, the designs' dependability has worsened. Circuits become more sensitive when technology scales down due to a decrease in noise barrier and an increase in uncertainty from various sources of variability. Three-dimensional electrical devices such as double gate, tri-gate, and nanowire field-effect transistors (FETs) provide an alternate way by better electrostatically regulating the device channel. One at the source/channel region and the other at the drain/channel region, advanced transistors have dual metallurgical junctions. A high doping profile at these junctions is required to scale semiconductor devices below 20 nm. This study presents the results of simulations for a unique form of FinFET for high-speed applications with germanium composition and gate and source/drain connections. According to benchmarking data, when the current density of FinFETs grows, the short-channel behaviour improves. FinFETs with a high aspect ratio provide more current per unit area with fewer horizontal geometry constraints, making them appropriate for circumstances when conventional scaling has reached its physical limits. The proposed FinFET at the 18 nm technology node increases low-power and high-frequency performance, according to the findings of the trials.

Keywords Junctionless FinFET · TFET · 18nm FinFET · Impurity · Short channel effects · Gradient

1 Introduction

Over the last four decades, electronics has progressed from heavy, expensive vacuum tubes to lighter, less expensive bipolar junction transistors, unipolar FETs, and now CMOS technology. Several studies have indicated that when the energy consumed by one technology became extraordinarily high, one technology was displaced by another [1, 2]. CMOS scaling, which entails increasing the power density and number of transistors in an integrated circuit, is fraught with challenges. Scaling is achieved by reducing the gate length L_G and raising the oxide capacitance C_{ox} to the point where the current I_{ON} increases. Even when using the best

materials, however, short channel effects can occur from time to time.

It is a technique for reducing the size of a MOSFET while maintaining its functionality. The term used to describe the process is CMOS scaling. Scaling down MOS transistors to increase their size is a way of lowering total device dimensions as far as technology allows while maintaining geometric ratios similar to those of larger devices. Dennard was the first to propose this idea, which he published in 1974 [3]. Until recently, the primary goal of MOSFET researchers was to reduce the size of transistors, allowing for the integration of ever-larger numbers of components on a given silicon surface area.

Moore's law has been true for the past five decades, and it is now considered as a benchmark for gauging industry growth [4]. Furthermore, one of the advantages of CMOS scaling is that the MOSFET's input capacitance is reduced while its current driving capability is increased. Despite the fact that MOSFETs' drive current increases as a result of their limitations due to short channel effects, their OFF current also increases due to the shorter gate length [9], which is attributable to the shorter gate length. The increased OFF current causes an increase in static power dissipation. According to

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Design and Analysis on Rear Axle Housing of a Truck

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Abstract - Axle housing is one of the main component to play vital role in the various automobiles which is placed to rear end at the vehicle and carries different loads and stresses both static and dynamically at the same time transmit the power. Both the front and rear axle openings have centre housing. This project analyzing the static and model analysis of rear axle housing on different materials like steel, aluminium alloy, carbon/epoxy, jute-glass fibre composite. This results may give von-misses, deformation in static analysis and also find frequency in model analysis by using various software's. These both analysis are find out the performance on materials it means which material is withstand the loads and estimate the deformation ,stresses and vibrations while working conditions. The design safety is ensured was based upon the strength and rigidity.

Keywords: Axle housing, static analysis, model analysis, maximum displacements, maximum stresses and natural frequencies.

I. INTRODUCTION

Now a day's automobiles are major platform and play key role in the world to serving the various services like import, export the goods and transport the passengers from one to another locations. And many companies invest their profits in automobile industries. While during these transportations various failures may occur and acting various loads on the various components like self-weight, passengers weight, chassis and body weight and many companies looking to increase the vehicle performance by their modifying the various parts and change the design and modeling and adding the various composite materials to their parts.

In automobile each and every part is very important with standard specifications and calculations like weight ratios, damping capacity of the composite materials, tolerances and stresses etc. In that way axle-housing is the most precious part in automobiles. Axle means it is fixed shaft and it is fixed between the two wheels and supports the body weight and the housing is in symmetrical shape which is carries and cover axle mounting parts. The axles are commonly made from chrome-molybdenum steel and carbon-steel and it is actually located at centre of the shaft at rear end of the vehicle. It is used to transmit the power, supports the heavy loads and it gives the smooth wheel

turning experience to the driver without slippage on the road.

The axle-housing is mostly constructing by banjo type and their parts that are needed for structural capability as well as for carrying the drivelines parts, bearings and sealing's of the axle. In this axle housing completely remain stationary, do not move with the wheels. In axle housing there are different types of mounts their which is help to the shafts, wheels for smooth turning. The bearing and bushings are mounting parts which is centrally fit in to the axle-housing to help the rotate wheel proper way.

II. OBJECTIVES

The main objective of this work to analysis the automobile rear axle housing of a truck. It achieves through following set of objectives:

- Modelling of axle housing using CREO parametric 3.0 and use of ANSYS workbench 14.5 for analysis.
- To study of static analysis of rear axle housing to understand the maximum stress and deformation.
- To find out the natural frequencies of the optimized rear axle housing.

Surface Potential Model of Double Metal Fin Gate Tunnel FET

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Abstract

In this paper, we have proposed a surface model of double material Fin-shape gatetunnel FET (DM Fin TFET) analyzed based on a perimeter-weighted method for low voltage applications. The model obtained by the total device is separated into symmetrical and asymmetrical, and then solved by the 3D Poisson equation. The surface potential and the electrical field are obtained by solving the Poisson equation and the drain current is finally estimated using Kane's model to measure the tunneling generation rate. As compared with exiting model of single metal fin TFET is improved performance of the DM Fin-Gate TFET device i.e., enhanced ON-state current (I_{ON}), and low off-state current (I_{OFF}) and also improved the subthreshold swing(SS) of the proposed device. Our proposed model outputs are evaluated with TCAD device simulation software.

Keywords: Double-metal (DM) gate; FinTFET; Kane's tunneling model; surface potential, electric field.

1 Introduction

To resolve the constraints of the MOS transistor, TFET has gained significant interest as an alternative device that likely reaches the nanometer dimensions of the MOSFET. The TFET is one of the most successful devices for minimum-consumption power i.e., Because of their least sub-threshold swing (SS) (even the minimum limit for standard MOS transistors is below 60 mV / decade) and low OFF-current. To enrichment of the electrostatic control and adequate ON/OFF performance is one of the most important factors. In these point of view traditional transistor architectures the same as the FinFET[1] are considered to be excellent solutions, because of FinFET has been proven possessing strong gate control ability[2]. These two device combinations are designed to achieve excellent performance. Researchers investigated a sum of possible strategies, for instance low band gap substances[3], metal gate work function, Source(S)/Drain(D) material engineering[4], strain channel engineering[5], high-k dielectric (or) partially mixture with SiO₂ Gate-oxide engineering[6], and multi-gate techniques[7] to enhance the TFETs drive current.

In this work, an effort has been made to report a 3-D analytical model for the asymmetrical doped channel of SOI based Fin Gate TFETs[8] with a dual gate oxide [9] structure. In this



DENSITY AND LATENCY OPTIMIZED DIGITAL TRANSPOSE FIR FILTER USING RAIDX-16 BOOTH MULTIPLIER

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ABSTRACT Transpose form finite-impulse response (FIR) filters are inherently pipelined and support multiple constant multiplications (MCM) technique that results in significant saving of computation. This concept presents a multiplier-free realization of the block finite impulse response (FIR) filter in transpose form configuration using binary constant shifts method (BCSM). As an extension of this concept, proposed structure involves significantly less area delay product (ADP) and less energy per sample (EPS) than the existing block implementation of Transpose form structure for medium or large filter lengths using radix16 modified booth encoding multiplier, while for the short-length filters, the block implementation of FIR structure has less ADP than the existing structure.

Keywords: finite impulse response, multiple constant multiplications, area delay product, Binary constant Shift, Booth encoding.

INTRODUCTION FIR DIGITAL filters find extensive applications in mobile communication systems for applications such as channelization, channel equalization, matched filtering, and pulse shaping, due to their absolute stability and linear phase properties. The filters employed in mobile systems must be realized to consume less power and operate at high speed. Recently, with the advent of software defined radio (SDR) technology, finite impulse response (FIR) filter research has been focused on reconfigurable realizations. The fundamental idea of an SDR is to replace most of the analog signal processing in the transceivers with digital signal processing in order to provide the advantage of flexibility through reconfiguration. This will enable different air-interfaces to be implemented on a single generic hardware platform to support multistandard wireless communications [1]. Wideband receivers in SDR must be realized to meet the stringent specifications of low power consumption and high speed. Reconfigurability of the receiver to work with different wireless communication standards is another key requirement in an SDR. The most computationally intensive part of an SDR receiver is the channelizer since it operates at the highest sampling rate [2]. It extracts multiple narrowband channels from a wideband signal using a bank of FIR filters, called channel filters. Using polyphase filter structure, decimation can be done prior to channel filtering so that the channel filters need to operate only at relatively low sampling rates. This can relax the speed of operation of the filters to a good extent [3]. However due to the stringent adjacent channel attenuation specifications of wireless communication standards, higher order filters are required for channelization and consequently the



DENSITY AND LATENCY OPTIMIZED DIGITAL TRANSPOSE FIR FILTER USING RAIDX-16 BOOTH MULTIPLIER

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COMPUTER AIDED IDENTIFICATION OF BIPYRAZOLE AND TETRAZOLE DERIVATIVES AS POSSIBLE BTK INHIBITORS

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Bruton's Tyrosine Kinase (BTK) has been regarded as target for the treatment of Rheumatoid Arthritis (RA), multiple sclerosis and B-cell malignancies. Among different Tec family of kinases, BTK is the one associated with pathogenesis in humans. Several BTK inhibitors were evolved consisting of reversible and covalent irreversible ones. Despite the discovery of several inhibitors to treat RA, research is continually growing to develop diverse pharmacophoric groups as BTK inhibitors. Hence, in this paper we report computer-aided virtual screening analysis on diverse pharmacophoric groups of ligands such as bipyrzole systems, pyrazole, arylpyrazoline derivatives, indoles, pyrazolopyridine, indazoles, imidazo[4,5-c]pyridines, tetrazoles, oxadiazoles and benzimidazole derivatives etc. to evaluate the efficacy of binding affinity towards BTK. Our analysis suggested that the presence of freely flexible torsions with increase in molecular weight would favour Btk inhibition. It is therefore proposed that tetrazole derivatives and bipyrzole ring systems enhanced BTK inhibition and hence these analogs should be widely explored.

4475

Keywords: Docking; Bruton's Tyrosine Kinase; binding affinity; Rheumatoid Arthritis.

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1. Introduction

Bruton's Tyrosine Kinase (BTK) is known to assume significant part in the progression, separation and reproduction of B-lineage cells.¹ BTK has been an alluring objective for the treatment of Rheumatoid Arthritis (RA), multiple sclerosis and B-cell malignancies.² BTK has a place with Tec own circle of relatives of

kinases that are the second one greatest own circle of relatives of cytoplasmic tyrosine kinases in mammalian cells¹ and BTK is the most effective member of this own circle of relatives that is related to pathogenesis in humans. Deficiency in BTK gene results in a condition called X-linked agammaglobulinemia.⁴ Loss of function mutations in the BTK gene prevent the



VEHICLE-TO-GRID TECHNOLOGY IN A MICRO-GRID USING DC FAST CHARGING ARCHITECTURE

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ABSTRACT

Electric vehicle (EV) batteries are now being used as potential energy storage devices in microgrids. EV batteries can help with micro-grid energy management by storing the energy when there is a surplus (Grid-To-Vehicle, G2V) and supplying energy back to the grid when there is a demand (Vehicle-To-Grid, V2G). To realise this concept, proper atmosphere and control systems must be developed. This principle defines an architecture for instituting a V2G-G2V system in a micro-grid using level-3 EV charging. A micro-grid test system with a DC fast charging station for EV interface is modelled. To illustrate V2G-G2V power transfer, simulation studies are carried out. The test results show that EV batteries can purposefully regulate power in a microgrid using G2V-V2G modes of operation. The charging station design ensures that the grid injected current has minimal harmonic distortion, and the controller provides better dynamic performance in terms of DC bus voltage stability.

INTRODUCTION

Energy storage systems are major elements of a microgrid because they enable for the integration of intermittent renewable energy sources. When electric vehicle (EV) batteries are plugged in for charging, they can be used as effective storage devices in micro-grids. Most personal transportation vehicles are parked for approximately 22 hours per day, showing an idle asset. EVs could potentially aid in microgrid power management by storing surplus power (Grid-To-Vehicle, G2V) and returning it to the grid when there is a demand for it (Vehicle-To-Grid). V2G applied to the general power grid faces some challenges, such as being difficult to control, needs a large number of EVs, and being difficult to realise in the short term [1]. It is simple to implement a V2G system in a micro-grid in this scenario. The Society of Automotive Engineers defines three charging levels for EVs. Level 1 charging connects the vehicle's on-board charger to a standard household (120 V) outlet through a plug.

This is the slowest charging technique and is suitable for people who travel less than 60 kilometres per day and have all night to charge. Level 2 charging allows use of a dedicated Electric Vehicle Supply Equipment (EVSE) at home or at a public station to provide power at 220 or 240 volts and up to 30 amps. DC fast charging is another name for level 3 charging. DC fast charging stations deliver up to 90 kW of charging power at 200/450 V, reducing charging time to 20-30 minutes. Due to the quick power transfer required when EVs are used for energy storage, DC fast charging is preferred for trying to implement a V2G architecture in micro-grid. The dc bus can also be used to integrate renewable energy sources into the system. The majority of previous studies have used the V2G concept in the general power grid for services like as peak shaving, valley filling, regulation, and spinning reserves. V2G development in a microgrid facility to support power generation from intermittent renewable energy sources is still in its early stages. In addition, most of the works reported use level 1 and level 2 ac charging for V2G technology. The power

FUZZYBASEDPOWERQUALITYIMPROVEMENT FORFACTSCONTROLLEDPOWERSYSTEM

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ABSTRACT: Power Quality is an essential concern in the modern power system that can affect consumers and utility. The integration of renewable energy sources, smart grid systems and extensive use of power electronics equipment caused myriad problems in the modern electric power system. Current and voltage harmonics, voltage sag, and swell can damage the sensitive equipment. These devices are susceptible to input voltage variations created by interference with other parts of the system. Hence, in the modern age, with an increase in sensitive and expensive electronic equipment, power quality is essential for the power system's reliable and safe operation. Dynamic Voltage Restorer (DVR) is a potential Distribution Flexible AC Transmission System (D-FACTS) device widely adopted to surmount the problems of non-standard voltage, current, or frequency in the distribution grid. It injects voltages in the distribution line to maintain the voltage profile and assures constant load voltage. The simulations were conducted in MATLAB/Simulink to show the DVR-based proposed strategy's effectiveness to smooth the distorted voltage due to harmonics. A power system model with a programmable power source is used to include 3rd and 5th harmonics. The systems' response for load voltage is evaluated for with and without DVR scenarios. It has been noted that the proposed DVR based strategy has effectively managed the voltage distortion, and a smooth compensated load voltage was achieved. The load voltage THD percentage was approximately 18% and 23% with insertion 3rd and 5th harmonics in the supply voltage, respectively. The inclusion of the proposed DVR has reduced THD around less than 4% in both cases.

1.INTRODUCTION

Electrical Energy is invisible, a universal commodity that is immediately available in most of the world, and it has now been recognized as everyday consumer need [1]. Renewable Energy Systems (RESs) is used to aid the primary energy demand in solar, Solar thermal, wind energy, etc. The intermittent nature of RESs, harmonics, and reactive power problems halt the power system's performance by originating stability concerns in the power system [2], [3]. The Flexible AC Transmission Systems (FACTS) devices are widely adapted for reactive power compensation, voltage stability, and power quality in distribution grids around the world [4], [5]. However, FACT devices also alter different parameters on the transmission and distribution system [6]. This work presents a study of the power quality and aims at identifying the causes of poor power quality and provide the solutions to these power quality problems. Some equipment like computers, laptops, relays, solid-state devices, adjustable speed drives, and optical devices are known as sensitive equipment. These devices are susceptible to input voltage variations created by interference with other parts of the system. The power system is divided into the following parts as generation, transmission, distribution, and by using other transmission line power systems is fed to different loads on the distribution side. Power quality plays a vital role in the power system when variable power is supplied to the load. Subsequently, the domestic and industrial customers with delicate loads are affected by the poor quality of power. Even there is various type of load on the distribution side, but poor power quality affects the sensitive loads more than others. There are many applications where the sensitive load has an increasing demand, like in hospital's operation theatres, semiconductor systems in processing plants, database systems, instruments to control air pollution in crowded areas, precise and accurate equipment are required by data processing, and service providers. If the power system causes the dips and distorted voltages, these devices may fail, and such a device's failure leads to wastage of a significant amount of money. Therefore, the distribution side is dependent on power quality. Electrical characteristics are set by the power system that does not disturb the system's performance and perform its function in a controlled manner. In this article, voltage swell and distorted voltage with high harmonics in it are discussed. When the load voltage being disturbed, it causes voltage sag, transient, swell, and high distorted voltage with harmonics and Total Harmonic Distortion (THD) due to the occurrence of the faults. The vulnerability of voltage sags and harmonics problems is mostly to the delicate instruments. Few problems occur in the result of voltage sag that may also cause disturbance of torques in the motors, device burning, misfiring in the device, etc. The harmonic is an essential issue for power quality to be solved effectively. When the faults occur in the power system that causes a large current drawn from the power system, a short duration reduction RMS voltage appears, commonly known as voltage sag or Dips [7]. For example, when someone starts an air conditioner or a heavy motor, the startup of the load and remote fault clearance done by utility instrument, are the fundamental cause of sag production. When the motor starts, it causes six times more current than actual current. While the motor's startup, a substantial amount of reactive power is absorbed that will lead to the introduction of voltage sag. The voltage profile of the voltage sag is presented in Figure 1.

SOVEREIGN POTENTIALITY CONTROL AND DOMINANCE BETWEEN UNATTACHED DC MICROGRIDS

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Abstract

Owing to the intermittent nature of renewable energy, micro grids are popular in remote areas in qualifiable and quantifiable manner. Reliability of automatic DC micro grids (ADCMG) depends on battery capacity and size due to stochastic behavior of reusable. The overcharging and discharging of battery force the micro grid into insecure zone. Increasing storage capacity is not a thrifty solution because of additional maintenance and capital cost. The power management strategy for an autonomous DC micro grid based on a photovoltaic source, storage, battery. The main contribution of this paper centered on a power management strategy solving the above issues integrally, and analysis of micro grid. Furthermore, the study provided a comparison between the micro grids and controlling methods. Thus interconnecting neighbor micro grids increases virtual storing and discharging capacity when excess power and deficit scenario arises respectively in any of the DCMG.

Introduction

The smart grid is a next generation power system, in which the micro grid gathers the loads, storages and distributed energy resources operating as a single controllable electrical power systems. The micro grids power generation is mainly for self-consumption to decrease influence on the utility grid. With wide adoption of renewable DC power sources, the rapid progress of power electronics technology, and the gradual increase of DC loads in commercial, industrial, and residential applications, the DC micro grid largely attracts public attention due to its merits over the AC micro grid. The different control modes based on bus voltage deviation for regulating the DC micro grid under variable generation and storage. Well defined control loops are employed under each mode for enhancing the system working which requires frequent switching between control loops that causes switching transients and also increases burden on control processor. The deviation of bus voltage is more than 10% of nominal value in islanded mode which that affects the sensitive loads connected.

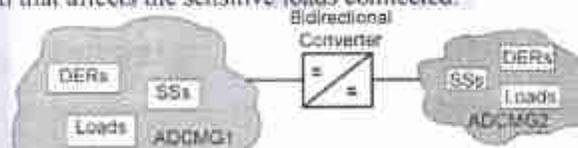


Fig. 1. Typical interconnection of two ADCMGs

Various sources can shift their operating modes by extracting the information from different frequency signals. Besides, it consumes additional current from battery for dispatching the various signals. A power control and management strategy (PCMS) is developed based on DCBSM for individual ADCMGs and as well as between ADCMGs without any dedicated communication infrastructure.

System Structure

System contemplated is shown in fig 2 which consists of two ADCMGs broadly apart from each other with considerable line resistance between them. Each ADCMG consists of one photovoltaic (PV) source and battery as equivalent to group of sources from renewable sources and storage devices family respectively in order to simplify the analysis for proposed PCMS between the ADCMGs.

Performance Investigation of DVR & IPFC under different fault and operating conditions

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Abstract: Power quality is the most important aspect in the power system environment. Most frequently occurring disturbances, affecting the quality of power are voltage sags and swells. Custom power device, Dynamic Voltage Restorer(DVR) connected in series with a goal to protect the loads from source side voltage disturbances. In this paper voltage type Impedance Source Inverter(ISI) is employed to compensate deep voltage sags/swells under sudden load switching/removal conditions, respectively. The functionality of DVR is studied under different fault conditions, such as three phase and line to line faults. Unbalanced sags/swells are also compensated by DVR in this paper. The capability of DVR is checked under source outage condition. DVR's employed as series compensators in IPFC scheme to compensate voltage disturbances in individual feeders. Comparative study between PI and Fuzzy controllers is done.

Keywords: Dynamic voltage restorer(DVR), Impedance source inverter(ISI), Interline power flow controller(IPFC)

I. INTRODUCTION

Modern industrial processes containing voltage sensitive devices, vulnerable to degradation in the quality of power supply. The power quality problems occurs either on source side or load side. Load side problems are associated with change in current, shunt compensation is required. But if load exceeds beyond the source power rating causes voltage fluctuations at load end. Similarly source side problems are associated with change in voltage, series compensation is required. The deviation of voltage, current and frequency which can be described as a power quality problems. Voltage sag/swell, flicker, harmonics distortion, impulse transients and interruptions are the various power quality problems addressed in the distribution system. Of the above power quality problems, a voltage sag/swell disturbance poses a serious threat to the industries. It can occur more frequently than any other power quality phenomenon[1-3].

Voltage sag is defined by the IEEE 1159 as the decrease in the RMS voltage level to 10%-90% of nominal, at the power frequency for duration of half to one minute. Voltage swell is defined by IEEE 1159 as the increase in the RMS voltage level to 110%-180% of nominal, at the power frequency for duration of half cycles to one minute[4]. Voltage fluctuations, often in the form of voltage sags/swells, can cause severe process disruptions and result in substantial economic loss. So cost-effective solutions which can help such sensitive loads ride through momentary power supply disturbances have attracted much research attention. Among recently developed custom power devices, the dynamic voltage restorer (DVR) for application in distribution systems is gaining acceptance. Occurrence of three phase fault causes voltage dropped equally in all the three phases. Fault is to be cleared as early as possible, otherwise as in interconnected power system network, load side fault may be reflected as source side fault for another existing load. Due to sudden switching of extra loads beyond the source power rating causes voltage sag, sudden removal of existing loads causes voltage swell in the interconnected power system network. Irrespective of the causes of occurrence of voltage disturbances, DVR has to protect the critical loads by maintaining the load voltage at its desired level. Due to switching On and Off of single phase loads of different power ratings causes unbalance between the three phases. DVR has to compensate unbalanced sags/swells also.

II. DYNAMIC VOLTAGE RESTORER

In Custom Power applications, the DVR is connected in series with the distribution feeder. By inserting voltages of controllable amplitude, phase angle and frequency (fundamental and harmonic) into the distribution feeder via a series insertion transformer, the DVR can "restore" the quality of voltage at its load-side terminals when the quality of the source-side terminal voltage is significantly out of specification for sensitive load equipment. The sum of the line voltage and the insertion voltage becomes the restored voltage seen by the critical load[5-8].

DVR consists of major components like inverter bridge circuit, filter, energy source/energy storage device and injection transformers as shown in fig.1.

The injected voltages generated by the inverter are introduced into the distribution system by means of using either a three phase injection transformer or three single phase individual transformers. Filter is there to eliminate high frequency switching harmonics.

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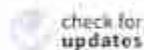
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Article

Power Quality Improvement in Renewable-Energy-Based Microgrid Clusters Using Fuzzy Space Vector PWM Controlled Inverter

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Abstract: An increased electricity demand and dynamic load changes are creating a huge burden on the modern utility grid, thereby affecting supply reliability and quality. It is thus crucial for modern power system researchers to focus on these aspects to reduce grid outages. High-quality power is always desired to run various businesses smoothly, but power-electronic-converter-based renewable energy integrated into the utility grid is the major source of power quality issues. Many solutions are constantly being invented, yet a continuous effort and new optimized solutions are encouraged to address these issues by adhering to various global standards (IEC, IEEE, EN, etc.). This paper therefore proposes a concept of establishing a renewable-energy-based microgrid cluster by integrating various buildings located in an urban community. This enhances power supply reliability by managing the available energy in the cluster without depending on the utility grid. Further, a “fuzzy space vector pulse width modulation” (FSV-PWM) technique is proposed to control the inverter, which improves the power supply quality. This work uniquely optimized the dq reference currents using fuzzy logic theory, which were used to plot the space vectors with effective sector selection to generate accurate PWM signals for inverter control. The modeling/simulation of the microgrid cluster involving the FSV-PWM-based inverter was carried out using MATLAB/Simulink[®]. The efficacy of the proposed FSV-PWM over the conventional ST-PWM was verified by plotting voltage, frequency, real/reactive power, and harmonic distortion characteristics. Various power quality indices were calculated, under different disturbance conditions. The results showed that the use of the proposed FSV-PWM-based inverter adhered to all the key standard requirements, while the conventional system failed in most of the indices.

Keywords: cluster microgrids; fuzzy logic control; power quality; space vector pulse width modulation; urban community

1. Introduction

The electricity demand of any country is a reflection of its economic growth. The

VEHICLE-TO-GRID TECHNOLOGY IN A MICRO-GRID USING DC FAST CHARGING ARCHITECTURE

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ABSTRACT

Electric vehicle (EV) batteries are now being used as potential energy storage devices in microgrids. EV batteries can help with micro-grid energy management by storing the energy when there is a surplus (Grid-To-Vehicle, G2V) and supplying energy back to the grid when there is a demand (Vehicle-To-Grid, V2G). To realise this concept, proper atmosphere and control systems must be developed. This principle defines an architecture for instituting a V2G-G2V system in a microgrid using level-3 EV charging. A micro-grid test system with a DC fast charging station for EV interfacing is modelled. To illustrate V2G-G2V power transfer, simulation studies are carried out. The test results show that EV batteries can purposefully regulate power in a microgrid using G2V-V2G modes of operation. The charging station design ensures that the grid injected current has minimal harmonic distortion, and the controller provides better dynamic performance in terms of DC bus voltage stability.

INTRODUCTION

Energy storage systems are major elements of a microgrid because they enable for the integration of intermittent renewable energy sources. When electric vehicle (EV) batteries are plugged in for charging, they can be used as effective storage devices in micro-grids. Most personal transportation vehicles are parked for approximately 22 hours per day, showing an idle asset. EVs could potentially aid in microgrid power management by storing surplus power (Grid-To-Vehicle, G2V) and returning it to the grid when there is a demand for it (Vehicle-To-Grid). V2G applied to the general power grid faces some challenges, such as being difficult to control, needs a large number of EVs, and being difficult to realise in the short term [1]. It is simple to implement a V2G system in a micro-grid in this scenario. The Society of Automotive Engineers defines three charging levels for EVs. Level 1 charging connects the vehicle's on-board charger to a standard household (120 V) outlet through a plug.

This is the slowest charging technique and is suitable for people who travel less than 60 kilometres per day and have all night to charge. Level 2 charging allows use of a dedicated Electric Vehicle Supply Equipment (EVSE) at home or at a public station to provide power at 220 or 240 volts and up to 30 amps. DC fast charging is another name for level 3 charging. DC fast charging stations deliver up to 90 kW of charging power at 200/450 V, reducing charging time to 20-30 minutes. Due to the quick power transfer required when EVs are used for energy storage, DC fast charging is preferred for trying to implement a V2G architecture in micro-grid. The dc bus can also be used to integrate renewable energy sources into the system. The majority of previous studies have used the V2G concept in the general power grid for services like as peak shaving, valley filling, regulation, and spinning reserves. V2G development in a microgrid facility to support power generation from intermittent renewable energy sources is still in its early stages. In addition, most of the works reported use level 1 and level 2 ac charging for V2G technology. The power

Article

Day-Ahead Load Demand Forecasting in Urban Community Cluster Microgrids Using Machine Learning Methods

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Abstract: The modern-day urban energy sector possesses the integrated operation of various microgrids located in a vicinity, named cluster microgrids, which helps to reduce the utility grid burden. However, these cluster microgrids require a precise electric load projection to manage the operations, as the integrated operation of multiple microgrids leads to dynamic load demand. Thus, load forecasting is a complicated operation that requires more than statistical methods. There are different machine learning methods available in the literature that are applied to single microgrid cases. In this line, the cluster microgrids concept is a new application, which is very limitedly discussed in the literature. Thus, to identify the best load forecasting method in cluster microgrids, this article implements a variety of machine learning algorithms, including linear regression (quadratic), support vector machines, long short-term memory, and artificial neural networks (ANN) to forecast the load demand in the short term. The effectiveness of these methods is analyzed by computing various factors such as root mean square error, R-square, mean square error, mean absolute error, mean absolute percentage error, and time of computation. From this, it is observed that the ANN provides effective forecasting results. In addition, three distinct optimization techniques are used to find the optimum ANN training algorithm: Levenberg–Marquardt, Bayesian Regularization, and Scaled Conjugate Gradient. The effectiveness of these optimization algorithms is verified in terms of training, test, validation, and error analysis. The proposed system simulation is carried out using the MATLAB/Simulink-2021a[®] software. From the results, it is found that the Levenberg–Marquardt optimization algorithm-based ANN model gives the best electrical load forecasting results.

Keywords: ANN training algorithms; cluster microgrids; load demand forecasting; machine learning methods; urban energy community



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1. Introduction

Electricity is a need and a strategic asset for national economies. As a result, electric utilities strive to balance power generation and demand to provide a decent service at a reasonable cost. The microgrid is the integration of several renewable energy sources with adjustable or nonadjustable loads and storage systems, such as batteries/fly-wheels [1]. With more penetration of distribution generation (DG) sources, it is a big challenge for the service provider to supply reliable and consistent power to the customer premises due to time-varying weather conditions. Similarly, energy consumption also varies according to

Article

Analytical Enumeration of Redundant Data Anomalies in Energy Consumption Readings of Smart Buildings with a Case Study of Darmstadt Smart City in Germany

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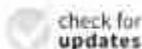
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Abstract: High-quality data are always desirable for superior decision-making in smart buildings. However, latency issues, communication failures, meter glitches, etc., create data anomalies. Especially, the redundant/duplicate records captured at the same time instants are critical anomalies. Two such cases are the same timestamps with the same energy consumption reading and the same timestamps with different energy consumption readings. This causes data inconsistency that deludes decision-making and analytics. Thus, such anomalies must be properly identified. So, this paper performs an enumeration of redundant data anomalies in smart building energy consumption readings using an analytical approach with 4-phases (sub-dataset extraction, quantification, visualization, and analysis). This provides the count, distribution, type, and correlation of redundancies. Smart buildings' energy consumption dataset of Darmstadt city, Germany, was used in this study. From this study, the highest count of redundancies is observed as 5060 on 26 January 2012 with the average count of redundancies at the hour level being 211 and the minute level being 7. Similarly, the lowest count of redundancies is observed as 89 on 24 January 2012. Further, out of these 5060 redundancies, 1453 redundancies are found with the same readings and 3607 redundancies are found with different readings. Additionally, it is identified that there are only 14 min out of 1440 min on 26 January 2012 without having any redundancy. This means that almost 99% of the minutes in the day possess some kind of redundancies, where the energy consumption readings were recorded mostly with two occurrences, moderately with three occurrences, and very few with four and five occurrences. Thus, these findings help in enhancing the quality of data for better analytics.

Keywords: data analysis; data anomalies; data enumeration; data visualization; energy consumption data; redundant data; smart building; tracebase dataset



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1. Introduction

their energy consumption by sending timely notifications. Moreover, it helps the utilities these benefits, in recent years, people are showing greater interest in making their buildings

OPTIMIZATION ASSISTED HYBRID INTELLIGENT SYSTEM FOR HEART DISEASE PREDICTION

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This research work proposes a new intelligent technique for predicting heart disease. The heart disease prediction model consists of three major processes like feature extraction, optimal feature selection, and classification. The input data are first fed into the feature extraction process, which extracts features based on central tendency, degree of dispersion, qualitative variation, the spread feature, kurtosis, and moment-based skewness (MS). However, the issue of dimensionality is the fundamental concern in this circumstance. Thus, it is rather essential to choose the optimal or best features to proceed with the disease prediction. To choose the right feature, this study uses a new hybrid algorithm called the Sea Lion Shuffled Hierarchical Algorithm (SLSHA). Following that, the selected characteristics are fed into a hybrid classifier that combines the Convolutional Neural Network (CNN) and the Recurrent Neural Network (RNN). The suggested approach optimizes the result of filter use in CNN to make the system more accurate in disease prediction (SLSHA). Finally, the performance of the proposed work is analyzed and verified using various models for specific performance metrics.

Keywords: Heart disease prediction, feature extraction, optimal feature selection, classification, optimization.

1. Introduction

Heart disease is regarded as one of the world's deadliest and most complex human diseases.¹ In this disease, the heart is unable to pump the necessary amount of blood

Password or Pin Encryption and Migration Technique using Catalan number Sequence and Polygon Triangulation

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Abstract: User password or PIN Number has become mandatory in every secret communication, financial and monetary transactions these days. Communicating and strong one-time password or PIN number increases the potential rise of the security. Crypto Council for Innovation (CCI) is developing many PIN security requirements as encrypted symmetric keys in structures called key blocks, which contain protected keys, usage constraints. In these key blocks, there is no expectation that previously established keys can be reused. In the present paper, password or PIN encryption and migration technique is explained using Catalan number sequences. Here the encrypted password or PIN is inserted in a long random text at different positions and the text is communicated to receiver. The positions of the inserted PIN characters are secret between the sender and the receiver.

Key words: Catalan Number C_n , Polygon triangulation T_n , Encryption, Decryption

I. INTRODUCTION

Due to the COVID pandemic many financial transactions are being done online via confirmation of OTP sent to mobile phones which is expected to be well secured. As the password or PIN is very small in size, it can be broken easily in communication mechanism. Crypto currency is a digital or virtual form of currency which uses cryptography for securing the transactions. It is ever expanding, runs on block chain where one exchanges currency with a peer using digital wallet. For the transaction, we need password. Crypto currency units are created through mining process. Text based and numerical based password or PIN is a popular authentication mechanism, but it is troublesome in communication aspects. As password or PIN is very small, main problem arises from memorability and reusing issues resulting into vulnerability to dictionary attacks. Moreover, migration of the user Password or PIN from one source to the other is quite difficult in Client/Server systems. Encrypted password or PIN can be stored securely in the directory of server and can be migrated across the internet with protection. Also unauthorized access of user password or PIN from the server can be prevented. The present paper explains password or PIN encryption and migration technique from one source to the other based on Catalan number sequence and polygon triangulation technique. A double encrypted password or PIN is inserted at different positions of a random text, communicated across the public channel. Encrypted mechanism is

Distinguish Certification Mobile IP to Ranked Mobile IP

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Abstract- Cellular phone IP represents the essential Transportability administration protocol to backing the Transportability in IP-based machines. Although, Cellular phone IP isn't capable for quarantine sensitive Applications. The Quick Certification Cellular phone IP protocol (QICA) is usually recommended to dodge the problems of Cellular phone IP and to contest the necessities of time period Applications. So, QICA doesn't want hierarchic specification as is that the container with best mini Transportability administration protocols, e.g. Rank Cellular phone IP (RCIP). A study show that QICA accomplish kind of like RCIP though the Cellular Nodule (CN) shift inside a site reside of 2 hierarchic slabs solely and surpass RCIP. Rather, During the one paper we have a tendency to evolve a close exemplary to examine QICA and distinction it to RCIP. Our subject targets a distinction of the signal price of the 2 protocols. Our study displays that QICA plainly surpass RCIP with honor to the bundle cargo value. What is more, the region amend value though increasing QICA is commensurate to the region amend price exploitation RCIP. Therefore QICA is bigger productive than RCIP with honor to the entire signal price.

Keywords- Index Terms- Fast handout, Transportability administration, Cellular phone IP, Wi-Fi

1. INTRODUCTION

Most Applications square measure very swamped by the interruption of the communication throughout the amendment from one telephone to alternative. Still, because the user Transportability of IP-based Cellular grows and also the telephone size of the machines shrinks, handouts can cause common service layoffs. Consequently the evolution of Transportability administration solutions is massive despite in expected IP-based Cellular networks.

Though the Cellular Nodule (CN) respect that the present corporation purpose (CP) is not any longer accessible, it starts to examine the midway for alternative way there rate. At the moment the CN substantiates and re-associates itself with the recently detected CP. The above mentioned process square measure referred to as Slab2 handout. No further processes square measure needed if the new CP exits to a similar subnet.

Still, if the new CP exits to alternative subnet, the CN should sight the new Alien Agent (AA) portion the one subnet, sign and substantiate itself with the house Agent (HA) or alternative agent over the one AA. The particular

further processes square measure referred to as Slab3 handout.

There square measure varied outlines to decrease the handout recess over away the amendment betwixt the telephone. The define to backing Transportability will be principally divided into four categories. The primary category supports international Transportability that is termed giant Transportability. The second category aims at the cut of the time needed to sign with the network by deal with the handout method regionally, e.g. Victimization stratified specification. The one category supports mini Transportability administration. The third category tries to decrease the address call time applying Slab2 knowledge to quicken the Slab2 handout. The fourth category associates the third category with the second category to decrease the address call times and to backing mini Transportability administration.

The remainder of the paper is developed because the succeeding: partly II we tend to support the background and also the relevant work. At the moment we tend to depict the Quick Certification Cellular phone IP protocol (QICA) partly III. The careful exemplary to evolve the signal value is elucidated partly IV. Careful results distinction QICA to stratified telephone information science (RCIP) is given partly V.

II. RELEVANT WORK

In procedure to appliance the Slab2 handout, varied protocols are recommended. With cell phone science version four (MIPv4) [1], [2] or version six (MIPv6) [3], the CN needs to be signed and verified by the angular distance whenever it shift from one subnet to disparate. The one present more recess to the communication, notably though the angular distance is much removed from the AA. Moreover, the production of hidden keys [4] for the protection corporation betwixt the angular distance and therefore the present AA, and/or betwixt the one AA and therefore the CN, is disparate reason for recess. Even if the one can be ex gratia with CIP, it's extraordinarily suggested for security reasons. Additionally, the above mentioned keys area unit necessary for a few enlargement of CIP, e.g. CIP with defect overpowering development [5].

Therefore CIP is just appropriate for the administration of world (large) Transportability. So as to dodge the above mentioned sources of extra recess, varied Accesses are unit prompt to backing native (mini) Transportability.

In [6] associate degree Access to use associate degree Anchor AA (AAA) has been prompt. If the CN is far

Fault Detection in Cluster Microgrids of Urban Community using Multi-Resolution Technique Based Wavelet Transforms

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Abstract- Due to significant distributed generator penetrations, microgrid protection issues have an impact on power system reliability. As a result, fault identification and protection in microgrids are critical and must be addressed to improve the power system's robustness. If any fault arises in or outside the microgrid (MG), the microgrid should get disconnected from the main grid promptly using a static switch like a circuit breaker situated near the point of common coupling (PCC). To supply reliable and quality power to the consumer by reducing the burden on the utility grid this paper proposes a "Cluster Microgrid System". The proposed system is formed by integrating neighbourhood microgrids and is designed to operate both in autonomous and grid-connected modes. Moreover, Wavelet Transformation based frequency multi-resolution technique is also proposed for detecting different type's faults appearing in different locations of a cluster microgrid system. To locate these faults, the Daubechies-4 wavelet decomposes the extracted signal into detailed and approximated signals along with the two-terminal traveling wave phenomenon. The proposed wavelet transform-based cluster microgrid system is implemented in MATLAB/Simulink 2021a environment. To verify the robustness of the proposed system, the proposed Wavelet Transform (WT), and Wavelet Packet Transform (WPT) techniques are analyzed and compared by considering performance indices such as standard deviation and mean absolute deviation, median absolute deviation, and entropy. From the results, it is observed that WPT gives fruitful results when compared with WT.

Keywords Microgrid, Wavelet Transform (WT), Wavelet Packet Transform (WPT), Cluster Microgrid, Utility grid.

Nomenclature

CMG	Cluster Microgrid	MG	Microgrid
DG	Distributed Generation	PCC	Point of Common Coupling
DWT	Discrete Wavelet Transform	WT	Wavelet Transform
EMS	Energy Management System	WPT	Wavelet Packet Transform
HPF	High Pass Filter		
LPF	Low Pass Filter		

1. Introduction

FUZZY BASED ACTIVE POWER DECOUPLING AND CONTROLLING FOR SINGLE-PHASE FACTS DEVICE

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Abstract: Single-phase FACTS device has a bulky and short-life electrolytic capacitor to absorb the ripple pulsating at twice of the line frequency in DC side, resulting in lower power density. This paper introduced a structure of three-phase Bridge which added an additional leg connected to an AC capacitor based on single-phase H-bridge with fuzzy system. The 2-ripple energy of the electrolytic capacitor in single-phase H-bridge could be transformed to the film capacitor of the AC side in three-phase H Bridge. The size of single-phase FACTS is reduced by ten times compared to the single-phase H-bridge. A simple control strategy had been studied, through two kinds of controllers: the digital quasi-PR controller had been used to control grid current and AC capacitor voltage and current; the two cosine controller had been used to eliminate the rest of two-ripple harmonic in the DC side, there was no controller to maintain DC voltage. The experiments verified the feasibility of the control strategy.

1. INTRODUCTION

The single-phase flexible AC transmission systems (FACTS) [1-5] have played an important role for power grids because FACTS device can improve the grid stability, controllability, and reliability, which in turn, enhance power quality and system transmission capability. As we know, all FACTS devices must set an electrolytic capacitor in DC side, resulting in short life-time, bulky volume, and low power density. The DC capacitance is given by [2] $C_{dc} = \frac{I_s}{\omega \Delta U_{dc}} U_{dc}$ (1) where I_s is grid-rated current, ω is grid angular frequency, U_{dc} is the average voltage in DC side, ΔU_{dc} is the allowed peak-to-peak voltage ripple. In order to extend the FACTS's lifetime and reduce the DC capacitor bank, a great many researches have been done on topologies and control strategies [6-20]. The basic idea of topologies is adding extra-bridge arms and energy storage components such as inductor or capacitor, which permit to transform the two-ripple energy from DC electrolytic capacitor to energy storage component in AC branch. The DC capacitor is only used to filter switching ripples, thus the capacitance is been reduced. The control strategies contain three parts: DC voltage control, grid current control, and AC energy storage component voltage and current controls. The PI controller is used for DC voltage to maintain a constant. The quasi-PR controllers are used to control grid current and insure two-ripple energy transform. In [13, 14], three H-bridge circuit in Fig. 1 is proposed for PWM rectifier application. By adding an auxiliary leg to single phase H-bridge inverter, an AC film capacitor with minimal energy component is controlled to absorb two-ripple energy. The total capacitor volume is reduced by 13 times. In order to analyse remaining two-ripple in DC side and obtain the voltage and current references for AC capacitor, the control methods in [13, 14] are very complicated and time-consuming. Here, the new topology is proposed as Fig. 1, and a novel control strategy has been studied. The DC voltage has been proved to be self-stabilised without controlling. Through a band-pass FIR filter, the remaining two-ripple energy can be analysed totally. Furthermore, the fast algorithm has been deducted. Then, the references of the AC voltage and current have been received based on total energy transform. This topology and control strategy can transfer the two-ripple energy completely, so that the electrolytic capacitor can be replaced by other kinds of ones.

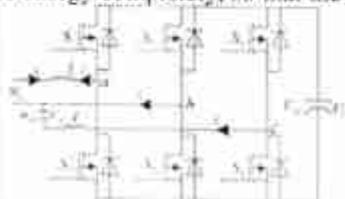


Fig. 1. Three H-bridge inverter.

2. FLEXIBLE AC TRANSMISSION SYSTEMS

Flexible ac transmission systems, called facts, got in the recent years a well known term for higher controllability in power systems by means of power electronic devices. Several facts-devices have been introduced for various applications worldwide. A number of new types of devices are in the stage of being introduced in practice.

In most of the applications the controllability is used to avoid cost intensive or landscape requiring extensions of power systems, for instance like upgrades or additions of substations and power lines. Facts-devices provide a better adaptation to varying operational conditions and improve the usage of existing installations.

2.1 STATCOM

The STATCOM is a solid-state-based power converter version of the SVC. Operating as a shunt-connected SVC, its capacitive or inductive output currents can be controlled independently from its terminal AC bus voltage. Because of the fast-switching characteristic of power converters, STATCOM provides much faster response as compared to the SVC. In addition, in the event

Fault Detection in Cluster Microgrids of Urban Community using Multi-Resolution Technique Based Wavelet Transforms

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1. Introduction

Fault Detection in Cluster Microgrids of Urban Community using Multi-Resolution Technique Based Wavelet Transforms

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Abstract- Due to significant distributed generator penetrations, microgrid protection issues have an impact on power system reliability. As a result, fault identification and protection in microgrids are critical and must be addressed to improve the power system's robustness. If any fault arises in or outside the microgrid (MG), the microgrid should get disconnected from the main grid promptly using a static switch like a circuit breaker situated near the point of common coupling (PCC). To supply reliable and quality power to the consumer by reducing the burden on the utility grid this paper proposes a "Cluster Microgrid System". The proposed system is formed by integrating neighbourhood microgrids and is designed to operate both in autonomous and grid-connected modes. Moreover, Wavelet Transformation based frequency multi-resolution technique is also proposed for detecting different type's faults appearing in different locations of a cluster microgrid system. To locate these faults, the Daubechies-4 wavelet decomposes the extracted signal into detailed and approximated signals along with the two-terminal traveling wave phenomenon. The proposed wavelet transform-based cluster microgrid system is implemented in MATLAB/Simulink 2021a environment. To verify the robustness of the proposed system, the proposed Wavelet Transform (WT), and Wavelet Packet Transform (WPT) techniques are analyzed and compared by considering performance indices such as standard deviation and mean absolute deviation, median absolute deviation, and entropy. From the results, it is observed that WPT gives fruitful results when compared with WT.

Keywords Microgrid, Wavelet Transform (WT), Wavelet Packet Transform (WPT), Cluster Microgrid, Utility grid.

Nomenclature

CMG	Cluster Microgrid	MG	Microgrid
DG	Distributed Generation	PCC	Point of Common Coupling
DWT	Discrete Wavelet Transform	WT	Wavelet Transform
EMS	Energy Management System	WPT	Wavelet Packet Transform
HPF	High Pass Filter		
LPF	Low Pass Filter		

1. Introduction



POWER QUALITY IMPROVEMENT OF GRID CONNECTED SOLAR PLANT USING FUZZY LOGIC CONTROLLER

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ABSTRACT

Integration of solar photovoltaic plants into the distribution systems using various power processing units produces the harmonics that may cause malfunctioning of sensitive equipment connected to the point of common coupling. To overcome this drawback, a novel adaptive current regulator is employed for the grid interfacing voltage source inverter. In addition, a high-gain dc-dc converter with a Kalman-based maximum power point tracking algorithm is designed to achieve the high voltage level at the common dc bus. Power Quality is improved in a Solar PV Plant Integrated Utility Grid by Employing a Novel Adaptive Current Regulator consists of the controlling topology which has the PI Controllers are incorporated in it. But by using of PI Controllers will have high starting overshoot, sensitivity to controller gains and sluggish response to sudden disturbances. So, to overcome these issues, we will place Fuzzy Logic Controllers in the place of PI Controllers. Fuzzy logic controllers are easy to implement and have good speed response. So, by using of this FLC, the speed response of the system will increase. The simulation results of this extension method can be evaluated by using MATLAB/Simulink Software

Keywords- PV array, Power Quality, Kalman MPPT algorithm, DC-DC boost converter, VSI, PWM, Hebbian-LMS network, PI controller, Fuzzy logic controller,

1.INTRODUCTION

Renewable power injection to existing utility grid is becoming essential to meet the electricity demand in the future to come. The massive penetration of renewable energy sources (RES) can reduce the use of fossil-fuel as well as protect the environment from greenhouse gas emission. These factors are the driving force for the researchers to orient their research work toward integration of RES to the utility grid along with their operation and control. Among existing renewable sources, photovoltaic (PV) based power generation has the better performance characteristics. However, it has few limitations like low generating voltages, difficult in tracking maximum power point (MPP) due to sporadic nature of solar irradiance, and poor power quality due to the presence of power electronic converters and varying connected loads in the system. DC-DC boost converters are utilized to match low voltages of the PV system at the common dc-link bus terminals. The drawbacks with the conventional dc-dc converters are sudden rise in input current, high power loss during switching, and maximum diode reverse current. In order to defeat the difficulties incorporated with conventional converters, a high-gain, high-efficient power processing units are employed for the microgrid system. In this project, a

Fault Detection in Cluster Microgrids of Urban Community using Multi-Resolution Technique Based Wavelet Transforms

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Keywords Microgrid, Wavelet Transform (WT), Wavelet Packet Transform (WPT), Cluster Microgrid, Utility grid.

Nomenclature

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EMS	Energy Management System	WPT	Wavelet Packet Transform
HPF	High Pass Filter		
LPF	Low Pass Filter		

1. Introduction

Systematic Statistical Analysis to Ascertain the Missing Data Patterns in Energy Consumption Data of Smart Homes

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Abstract - The evolution of smart homes is very rapid and the benefits, comfort, as well as flexibility in controlling energy consumption, attract the development of smart home culture across the globe. The energy consumption data collected from these smart homes play a major role in energy pricing, understanding consumers' behaviour, demand-side management, etc., functionalities. But, sometimes, this collected data may suffer from the anomalies such as missing data, redundancy, outliers, etc., which affect the energy data analytics. Among these anomalies, the missing data is one of the anomalies to be concentrated more as it makes data incomplete and significantly hinders the further analysis of the data. This missing of data may take place in three different patterns viz. missing completely at random, missing at random, and missing not at random. Therefore, capturing the pattern of the missing data is highly preferred to better handle them. Although there are a few works on the missing data, they are focused only on the occurrence behaviour, impacts, recovery, and imputation of the missing data rather than identifying the pattern of missing data. Hence to address this problem, this paper proposes a statistical approach to ascertain the pattern of missing data in the energy consumption data of smart homes. The proposed statistical approach revealed that the data are missing at random in the energy consumption data. An energy consumption database named 'Tracebase' is used for implementing the proposed approach.

Keywords Energy consumption data; MAR; MCAR; Missing data pattern; MNAR; Smart home data; Statistical analysis.

1. Introduction

Smart grids/homes and their technologies fulfil the needs of inhabitants by monitoring and controlling in-house actions with self-governance capability, thereby offer them a high standard of living [1-3]. These smart homes are equipped with advanced metering infrastructure to automatically capture the bidirectional data that flow in the power network [4-6]. This household metering infrastructure collects energy consumption data in huge amounts from various smart appliances connected to this power network in smart homes [7, 8]. It is highly desired that this collected data should be error-free to carry out more fruitful analytics [9]. Further, this data should be secured to preserve the privacy of consumers [10]. Thus, the privacy and security of the data

are the elementary concepts of smart homes [11]. Sometimes, this data exhibit abnormal behaviour with missing values, which makes the data incomplete and further affect the analytics. This abnormality in the data is referred to as an anomaly. The analysis of anomalies in energy consumption data has gained prime importance in the last few years [12].

The proper identification of anomalies in the smart home data is essential for conducting effective analytics to load forecasting, demand-side management, elude power wastages and further promise the safety of companies [13]-[16]. The challenges involved in the detection of anomalies need to be analyzed to achieve higher detection rates [17]. Besides, detecting the causes of anomalies at an early stage will play a key role in averting the risk of anomalies [18].



The removal of ammonia from contaminated water by using various solid waste biosorbents



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ABSTRACT

Water is an essential natural resource for sustaining life and it is not free everywhere. Ammonia (NH_3) in drinking water may be beneficial or harmful depending on their concentration in water. NH_3 is colorless, pungent gas composed of nitrogen and hydrogen. The acute exposures to high levels of ammonia have also been associated with diseases of the lower airways and interstitial lung. Ammonia occurs naturally and is produced by human activity. It is an important source of nitrogen which is needed by plants and animals. The removal of ammonia from contaminated water by treatment with biosorbents is one of the most effective methods. Biosorption is a simple, economical and environment-friendly method for removal of ammonia from water. Every biosorbent had different physical, chemical and biological properties for removal of ammonia by biosorption from the water. The order of percentage removal of ammonia from water by using three different biosorbents was as follows: Orange peels > Coconut waste > Tea waste. The optimum sorption was obtained at basic pH is 4, dosage is 3.9gm, contact time is 60min, temperature is 30°C and agitation speed is 60rpm. In the SEM and XRD characterization observed that the particle size and crystallite size of orange peels biosorbent was 2.54 μm and 3.02nm respectively with the end-centered cubic structures. In the FTIR analysis of orange peels biosorbents observed that the O-H, C-H, alkyties with C=C stretch, carbonyls, amines and aromatics group peaks are presence. In the BET characterization observed that orange peels biosorbents has a higher surface area (45.42m²/g) and pore volume (0.512cm³/g) as compared to other biosorbents. In orange peels biosorbents observed that the presence of heterogeneous surface with non-uniform distribution of heat adsorption and the adsorption process is multilayer. In the regeneration process observed that the reusing of orange peels biosorbent continuously for three times the adsorption capacity of ammonia from water reduced by 100 to 93.32%. This procedure can be made economical by regenerating and reusing of the biosorbent after removing the ammonia from water.

1. Introduction

The presence of pollutants in aqueous solution, mainly from hazardous heavy metals and metalloids, is an important environmental and social problem. As many of these elements are stable they are bio-accumulative and estimation of their safe limits is very difficult in the ecosystem. Ammonia (NH_3) is colorless, pungent gas composed of nitrogen and hydrogen. It is an element and serves as starting material for the production of many commercially important nitrogen compounds. Ammonia is an irritant with the pungent odor that is widely applied in the industry. In ammonia is highly soluble in water and upon inhalation, is deposited in the upper airways, occupational exposures to ammonia have commonly been associated with sinusitis, upper airway and eye irritation [1,2]. Ammonia occurs naturally and is produced by human activity. It is an important source of nitrogen which is needed by plants and animals. Bacteria found in the intestines can produce ammonia. Am-

monia is a colorless gas with a very distinct odor. Ammonia gas can be dissolved in water. This kind of ammonia is called liquid ammonia or aqueous ammonia. Once exposed to open air, liquid ammonia quickly turns into the gas. An ammonia level in the air is low as 5ppm can be recognized by odor. An average person can detects ammonia by odor at around 17ppm. Most people can taste ammonia in water at levels of about 35ppm. Ammonia is applied directly into soil on farm fields and is used to make fertilizers for farm crops, lawns and plants. Many household and industrial cleaners contain ammonia [3,4]. Ammonia is produced for commercial fertilizations and other industrial applications. Natural sources of ammonia include the decomposition or breakdown of organic waste matter, gas exchange with the atmosphere, forest fires, animal and human waste and nitrogen fixation processes. Ammonia can enter the aquatic environment via direct means such as municipal effluent discharges and emission of nitrogenous wastes from animals and indirect means such as nitrogen fixation, air deposition and runoff from the agricultural lands. Ammonia concentrations in water vary seasonally

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RECENT TRENDS IN ENGLISH LANGUAGE TEACHING

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Abstract

English language teaching has undergone tremendous changes over the years, especially the last ten years. Students are burdened with studying, learning and grasping the materials, and of course, lectures with the collection of relevant information from prescribed texts. Many career alternatives once regarded insignificant are gaining importance at present such as communication skills, soft skills, technical skills, interpersonal skills, ICT literacy etc. The need for chiseled graduates to merge successfully in the tough competition of survival in the global market is in great demand nowadays. For this, a change in the trend especially the teaching learning process of English language has to undergo a transition for the betterment. Seasons change, fashion changes, attitudes of human beings change but it is disheartening to note that in the last century English curriculum has hardly undergone any change

Key Words: communication skills, information, learning, soft skills, teaching, trends

Changes in goals of English teaching and learning

The goals of ELT have changed from focusing solely on developing language skills and mimicking native English speakers to fostering a sense of social responsibility in students. With this growing awareness of the importance of producing responsible citizens for society, teachers now well recognize that the teaching of English is not simply a project to prepare students to imitate native English speakers as language learners but that it should produce fully competent language users, critical thinkers, and constructive social change agents, as Crystal (2004) and Cook (2005) noted.

Change in the Approach to Teaching Culture

Long gone are the days when focus in ELT was on "Keeping the foreign culture island alive". In the last two decades both the local or native and international culture dominate in English language classes. There is less focus on teaching the culture of native speakers of English unless there is a specific purpose for doing so.

Content and Language Integrated Learning (CLIL)

The CLIL is an approach where the English teacher uses cross curricular content and so the students learn both the content and English. CLIL is an innovative methodological approach that aims to foster the integrated learning of languages and other curricular contents. Besides, it has been proved that CLIL benefits and bolsters learners' foreign language skills as well as motivation and attention. Nonetheless, the correct implementation of CLIL implies reinforcement in areas such as teacher training, team teaching, education and assessment planning, and additional resources. Luisa and Renau (2016).

According to Coyle (1999-in Lusía and Renau, 2016) a well-planned CLIL lesson should combine the 4Cs of the curriculum, these are the following ones:

- a) **Content:** enabling progress in the knowledge, skills and understanding of the specific issues of a particular curriculum.

XGBoost Classifier with Hyperband Optimization for Cancer Prediction Based on Geneselection by Using Machine Learning Techniques

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Keywords:

hyperband optimization, NCBI gene dataset, normalization, principal component analysis, XGBoost classifier

ABSTRACT

In the medical field, gene selection is critical, and it has the ability to diagnose diseases at an early stage. Data imbalance and poor feature selection performance are limitations in current techniques. Hyperband optimization is proposed in this paper to increase the performance of the XGBoost classifier. The NCBI gene dataset is utilised to evaluate the developed technique's performance in gene selection. The normalization procedure is used to scale the input data and decrease data discrepancies. When the Principal Component Analysis (PCA) method is used on input data to choose important features for classification, the independence variable becomes more difficult to interpret. To execute the gene selection for disease diagnosis, the selected features are applied to the XGBoost classifier. The hyperband optimization method searches in a distributed fashion to increase parameter exploration. The accuracy of the XGB-PCA-HO approach is 97.06%, XGB is 88.24%, and Random Forest is 85.29%.

1. INTRODUCTION

Early and accurate cancer prediction helps determine the best treatment option, and DNA microarray technology has shown considerable promise in cancer diagnosis and categorization. Tens of thousands of gene expressions are commonly recorded from each biological sample in cancer datasets gathered with microarray technology [1]. In DNA microarray datasets, tumor classification based on gene expression profiles has garnered a lot of attention, and gene selection plays an important role in improving microarray data classification performance [2]. One of the most difficult difficulties in microarray data analysis is gene selection as a key data preparation strategy for cancer classification. To find the optimum features for gene classification in detecting the lung cancer selection of optimum gene features was the main objective. The goal is to produce the most representative gene subset with the highest level of resolution by removing redundant and irrelevant genes [3]. In gene expression, two types of data reduction exist: relevant and redundant data reduction. Genes and label data are valued in terms of class labels, which are proportionate to a gene's importance in the classification process [4]. There are three types of gene selection methods: (1) filter, (2) wrapper, and (3) hybrid. Rather of considering each gene separately, filter-based approaches select genes based on the overall features of the data. Wrapper approaches, on the other hand, look at gene-to-gene relationships and use a classification model to rate the different gene subsets before selecting the most promising [5].

For analyzing biological data, machine learning has proven to be a highly successful tool. It has primarily been employed in the previous two decades in a range of biological sciences fields. The building of prediction models is one of the most fascinating applications of machine learning [6]. Many genes

in high-dimensional gene expression data are likely to be irrelevant, and there is a strong link between them. The accuracy of several categorization systems has been demonstrated to improve with gene selection [7]. Several contemporary approaches were employed to apply gene selection for disease classification. Existing methods have drawbacks such as an unbalanced dataset, a small sample size, and overfitting [8-10].

The literature review is found in Section 2, the proposed approach is explained in Section 3, the findings are presented in Section 4, and the conclusion is presented in Section 5.

2. LITERATURE REVIEW

Gene selection approach has recently been utilized for cancer categorization for early diagnosis, and this is a hot study area. Many studies for cancer categorization based on gene selection have been conducted, and some of the most noteworthy methods are reviewed in this section.

Huang et al. [11] combined data from the Cancer Linker Degree (CLD), the weighted Domain Frequency Score (DFS), the Domain-Domain Interaction (DDI), and the Protein-Protein Interaction (PPI) for gene classification and cancer prediction (PPI). Individual methods, coupled methods, and combinations of identical sorts of methods for prediction were used. In terms of prediction, the created machine learning with voting method outperforms the current method. The weighted DFS technique measures the probability of domain occurrence in non-cancer and cancer proteins in an adaptive way. The performance of the feature selection approach is poor, which leads to an overfitting problem in the machine learning method.

Using microarray data, Azzawi et al. [12] used a Gene Expression Programming (GEP)-based algorithm to predict

DESIGN AND IMPLEMENTATION OF HYBRID ENERGY STORAGE SYSTEM (HESS) FOR ELECTRIC VEHICLE BY USING FUZZY LOGIC CONTROLLER

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Abstract

In this research, a battery and an ultra-capacitor were integrated into an electric vehicle to evaluate its performance. Utilizing internal combustion engines (ICE)-based vehicles frequently has had a significant negative impact on the environment and has accelerated the depletion of fossil fuel supplies, which has caused gas prices to significantly increase over the past two decades. The shortcomings of the traditional approach to determining precise values for factors relating to current and motors the fuzzy logic controller-based system was created to overcome the drawbacks of the traditional controller-implemented fuzzy logic controller-based system. Multiple iterations were performed by the logic controller, which produced precise values. The DC link voltage is controlled by the fuzzy logic controller. Using the MATLAB/SIMULINK software, the performance of the proposed controller and the electric vehicle at variable input speed with an interleaved bidirectional buck-boost converter was evaluated.

Introduction

The electrification of the vehicular systems with energy storage systems will leads to high performance and efficient working. Due to this electrification of vehicular systems there is a possibility to implement Electric Vehicles(EVs) and Hybrid Electric Vehicles. Currently it is not possible to meet all requirements imposed by vehicles by using single type of energy storage.Now a days Li-Ion batteries are offering most efficient performance for vehicular applications.when compared with lead-acid and NiMH batteries due to its high specific energy and relatively higher specific power will gives more efficient performance [1]. But there is a limitation for these batteries that If the Li-Ion batteries are exposed to fast charging(or discharging) currents the life span of Li-ion batteries is greatly reduced. In other hand, Ultra capacitor has a very high specific power but with very low specific energy. To combine the capabilities of both the systems In this paper it is worth trying to combine these energy storage devices to achieve high performance of ESS[2],[3].

The most efficient technology for power electronic converter topology is identified for HESS application.

In the following sections the development of power management systems is presented and it is integrated with a closed loop controller which can drives the power requirements driven a vehicle on a certain drive cycle.

Hybridenergy Storage System Configuration

Unit and Controller Unit.This implementation leads the lower weight and smaller size.Either ultra capacitor unit or battery unit is directly connected with DC bus.

When Battery unit connected directly with the DC bus, Ultra capacitor can offers wide range of terminal voltages due topartial presence of dc-dc converter interfacing ultra capacitor with the DC bus.In this case, Bus unit is exposed to fast charging and Discharging currents, which results in fast changes in the torque and power of the traction motors. The partially Decoupled Hybrid EnergyStorage Systems topology with ultra capacitor is directly connected to the DC bus, and battery unit placed behind a dc to dc converter in order to overcome the short_comings.

A small in size converter is going to be used in this case compared to the where battery unit is directly connected to the DC bus and ultra capacitor is placed behind a dc to dc converter.The DC bus voltage is free from fluctuations when both the battery unit and ultra capacitor unit is being interfaced to the DC bus via dedicated dc to dc converters in fully_decoupled configuration.

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RESEARCH ARTICLE

An Adaptive Neuro-Fuzzy Control Strategy for Improved Power Quality in Multi-Microgrid Clusters

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ABSTRACT Microgrids are being evolved as a potential alternative to reduce unrelenting dependency on central utility grids. Moreover, integrated multi-microgrid based clusters are forming in closed vicinities to enhance the benefits of microgrids. However, the power quality problem is one of the key issues to be solved in such systems, which is mainly caused by the rising penetration of nonlinear loads and interfacing of power electronic converters. To address this issue, this paper proposes a new control technique, named “adaptive neuro-fuzzy control strategy”. This controls the inverter of each microgrid in the cluster as well as the voltage source converter-based distribution static compensator located at the point of common coupling between the cluster and the utility grid. This proposed control strategy uses the advantages of both fuzzy logic and artificial neural networks, thereby effectively controlling the system. The proposed technique is modelled in MATLAB/Simulink software 2021a. For the analysis, various power quality indices such as voltage sag/swell, voltage unbalance, frequency deviations, power characteristics, total harmonic distortion, and neutral current compensation are measured. These indices of the proposed controller are compared with conventional PI and fuzzy logic-based controllers in view of various key IEEE/IEC standard tolerances. From these results, the proposed controller has proved its superiority.

INDEX TERMS Power quality, multi-microgrids, adaptive neuro-fuzzy control strategy, distribution static compensator, proportional integral, fuzzy control.

NOMENCLATURE

Parameters

θ	Phase angle.
P_G	Power generation.
e	Error.
Δe	Change in error.
$V_{M,D}$	Maximum deviation in voltage.
$\tilde{\omega}_b$	Normalized firing strength.
\tilde{y}_i	Forecasted value.
ω	Fundamental angular frequency.
$i_{\alpha L}^{MG,i}, i_{\beta L}^{MG,i}$	Stationary frame variables.

K_{pid}, K_{id}	PI controller gain.
V_{DC}^*	Reference DC value.

Abbreviations

ANFCS	Adaptive neuro-fuzzy control strategy.
DNN	Deep neural network.
D-STATCOM	Distributed static compensator.
FLC	Fuzzy logic controller.
LAC	Local agent controller.
MAE	Mean average error.
MMGs	Multi-microgrids.
MFs	Membership functions.

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Article

Influence of Filler Materials on Wettability and Mechanical Properties of Basalt/E-Glass Woven Fabric-Reinforced Composites for Microfluidics

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Abstract: This paper presents the development of novel hybrid composites in the presence of filler particles and manufactured using a proposed new fabrication technique. The hybrid composites were fabricated using a basalt and E-glass woven fabric-reinforced epoxy resin matrix combined with graphite powder nanoparticles. Six sets of samples were fabricated using the vacuum-assisted free lamination compression molding technique. After the fabrication, wettability, mechanical properties (tensile, flexural and impact properties) and moisture properties were evaluated. Surface morphology and chemical composition of the composite samples were examined using a scanning electron microscope (SEM) and spectroscopy. The obtained results showed that the use of filler materials in hybrid composites improves the properties of hybrid composites. Basalt/E-glass hybrid composites with 10% graphite material exhibited superior mechanical properties over the other composites, with high-quality, improved adhesion and surface morphology. Thus, novel composites with the combination of exceptional properties may be integrated in the design of flexible electronics and microfluidics devices as a structural layer of the system. High flexibility and good surface tension of the designed composites makes them attractive for using the thermal imprint technique for microfluidics channel design.

Keywords: basalt; E-glass; epoxy resin; graphite particles; wettability; mechanical properties



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1. Introduction

The importance of natural fibers in the development of fiber-reinforced hybrid polymer composites is increasing day by day in the modern era because it is directly associated with environmental concerns as well as with a circular economy [1,2]. The combination of natural fibers with synthetic fibers in reinforced hybrid polymer composites offers several attractive features such as light weight, condensed lifecycle costs, high adhesion properties, flexibility and superior mechanical properties [3]. Nature is a decent source for the creation of composite materials using hemp, flax, sisal, palm [4], okra, banana, wood, bamboo, jute, sugarcane, or cowhide. Thus, all these natural materials can be a portion of the regular fiber composites, providing exceptional properties and expanding the application areas in various fields [5].

In recent years, synthetic fiber-based composites have become the leading progressive composite materials for automotive, construction, marine, sporting goods, biomedical, microfluidics and other engineering applications due to their ease of availability, high strength and modulus and also good corrosion and fatigue resistance behavior [6]. Despite the advantages to the presence of natural fibers in composite materials, there are some disadvantages, such as fiber shrinkage, poor adhesion and moisture, which may have a high effect on the mechanical properties. At the same time, most synthetic fibers are



Efficient Design of Rounding-Based Approximate Multiplier Using Modified Karatsuba Algorithm

E. Jagadeeswara Rao¹ · K. Tarakeswara Rao² · K. Sudha Ramya³ · D. Ajaykumar⁴ · R. Trinadh⁴

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Abstract

Arithmetic operations play a substantial role in many applications, such as image processing. In image processing applications, a multiplier is a predominantly used arithmetic operation. In recent designs of Approximate Multipliers (AMs), the design metrics of multipliers are made better at the cost of Error metrics and vice versa. So, in order to balance both the error and design metrics in a multiplier design with increasing the width of the input operands, a Rounding-based AM (RAM) using a modified Karatsuba algorithm is proposed, in which the usage of the number of multipliers is reduced. Small multipliers are used with shifting and rounding operations so as to reduce power consumption, delay, and area. Both the prior and proposed AMs are later synthesized in Verilog HDL using the Cadence RTL compiler. The simulation results divulge that the proposed RAM of sizes 8 and 16 bits are designed and their performance metrics in terms of delay, and area are decreased on an average of 61.8%, and 52.6% with an improvement in power by 53.8% for 8-bit AM and also the delay, area and power are reduced on an average of 53.2%, 59.7%, and 25% for a 16-bit AM's, in comparison with the prior AMs. The proposed RAM is demonstrated using the smoothening image application, and we observe that an improved image quality is obtained with SSIM and PSNR of the ISFA incorporated proposed RAM within the range of 1.44%–84.47% and 0.28%–24.4%, over the ISFA incorporated existing AMs.

Keywords Arithmetic operations · Wallace tree multiplier · Karatsuba multipliers

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1 Introduction

Approximate Arithmetic operations like multiplication and division, play a significant role in many applications related to machine learning and data mining [1]. But they also show some computational errors when used in certain signal processing applications [2]. So, energy minimization is the dominant requirement in any electronic system to curtail these computational errors [3]. Moreover, there are many techniques at different levels to diminish power or energy consumption [4–11]. Out of these diverse techniques, the most in-demand method is approximate computing [4]. To be clearer, consider error-resilient applications, which are nothing but applications that reduce power consumption [5]. The error resilience occurs due to the prolixity of input data, iterative computations, and the non-existence of single golden output. So, in approximate designs, the modern techniques are utilized to efficiently design error-resilient applications [5].

Recently, energy-efficient AMs are being developed as they affect processing core's performance [5–19]. The prior

ORIGINAL ARTICLE

Open Access



An efficient approach for anti-jamming in IRNSS receivers using improved PSO based parametric wavelet packet thresholding

Jacob Silva Lorraine Kambham* and Madhu Ramarakula

Abstract

The Indian Regional Navigation Satellite System provides accurate positioning service to the users within and around India, extending up to 1500 km. However, when a receiver encounters a Continuous Wave Interference, its positioning accuracy degrades, or sometimes it even fails to work. Wavelet Packet Transform (WPT) is the most widely used technique for anti-jamming in Global Navigation Satellite System receivers. But the conventional method suffers from threshold drifting and employs inflexible thresholding functions. So, to address these issues, an efficient approach using Improved Particle Swarm Optimization based Parametric Wavelet Packet Thresholding (IPSO-PWPT) is proposed. Firstly, a new parameter adaptive thresholding function is constructed. Then, a new form of inertia weight is presented to enhance the performance of PSO. Later, IPSO is used to optimize the key parameters of WPT. Finally, the implementation of the IPSO-PWPT anti-jamming algorithm is discussed. The performance of the proposed technique is evaluated for various performance metrics in four jamming environments. The evaluation results manifest the proposed method's efficacy compared to the conventional WPT in terms of anti-jamming capability. Also, the results show the ability of the new thresholding function to process various signals effectively. Furthermore, the findings reveal that the improved PSO outperforms the variants of PSO.

Keywords: Continuous wave interference (CWI), IRNSS, Particle swarm optimization (PSO), Wavelet packet transform (WPT)

Introduction

Global Navigation Satellite System (GNSS) provide the users with position, velocity, and timing services anytime and anywhere. The utilization of GNSS in diverse applications is growing rapidly due to the increasing demand for location-based services. At present, the United States' Global Positioning System (GPS), Russia's Global Navigation Satellite System (GLONASS), European Galileo, and China's BeiDou Navigation Satellite System (BDS) are the fully operational GNSS. In contrast, Indian Regional Navigational Satellite System (IRNSS) and Japan's Quasi-Zenith Satellite System (QZSS) are independent and

autonomous regional navigation systems. As GNSS uses spread spectrum technology, it possesses inherent anti-jamming capability. However, as the GNSS satellites are placed at an altitude of nearly 20,000 km to more than 30,000 km, the signal's strength will be very weak when it reaches a receiver. Hence, the GNSS signals are easily prone to intentional (jamming) and unintentional interferences.

IRNSS, developed by the Indian Space Research Organization (ISRO), is a regional navigation satellite system. It utilizes the L5 band (1176.45 MHz) and S-band (2492.028 MHz) frequencies for navigation solutions. However, the S-band of IRNSS is usually congested by the signals from various unintentional sources such as Wireless Fidelity (Wi-Fi), Bluetooth, and Industrial Scientific Medical (ISM) band (Jagiwala & Shah, 2019).

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Efficient Design of Rounding-Based Approximate Multiplier Using Modified Karatsuba Algorithm

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Abstract

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Keywords Arithmetic operations · Wallace tree multiplier · Karatsuba multipliers

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1 Introduction

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Recently, energy-efficient AMs are being developed as they affect processing core's performance [5–19]. The prior

Performance Analysis of Various Fin Patterns of Hybrid Tunnel FET

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ABSTRACT- High speed and low power dissipation devices are expected from future generation technology of Nano-electronic devices. Tunnel field effect transistor (TFET) technology is unique to the prominent devices in low power applications. To minimize leakage currents, the tunnel switching technology of TFETs is superior to conventional MOS FETs. The gate coverage area of different fin shape hybrid tunnel field-effect transistors is more impacted on electric characteristics of drive current, leakage current and subthreshold slope. In this paper design various fin patterns of hybrid TFET devices and shows on better performance as compared with other fin shape hybrid tunnel FET. The TCAD simulation tool is used to determine the characteristics of different fin shape tunnel FET.

General Terms: MOSFET device, Nano technology, TFET, subthreshold slope.

Keywords: Tunnel FET, band to band tunneling, fin shape TFET, drive current, leakage current, subthreshold slope.

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1. INTRODUCTION

Due to rapid advancements in nanotechnology, device structures are shrinking beyond their limitations, resulting in inadequate gate control over the channel at typical room temperature (i.e., 300 K), and a progressive rise in short channel effects. The sub-threshold slope (SS) of conventional MOSFET device is bound to be greater than 60mV/decade because of the thermal diffusion mechanism.

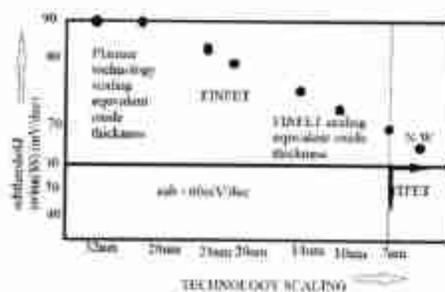


Figure 1: The relationship between Nano-scale device and sub-threshold swing

One of the most well-known solutions is the use of TFET [1]. The band-to-band tunneling (BTBT) [2] mechanism is used in Tunnel FET to overcome the physical limitations of SS value in MOSFET. Figure 1 shows the Nano-scale devices trend. At ambient temperature, SS in TFETs may be reduced to below 60mV/decade [3], indicating that important technical barriers have been overcome and that there is less off current.

2. LITERATURE SURVEY

In simple TFETs, source and drain terminals are doped with opposites of each other. As shown in figure 2(a), the TFET is a reversed biased P-I-N diode [4] with gate-varying tunneling probabilities. In this case, source carriers are injected via the BTBT mechanism. The standard TFET device features a p-type source and n-type drain and also works to different gate biases.

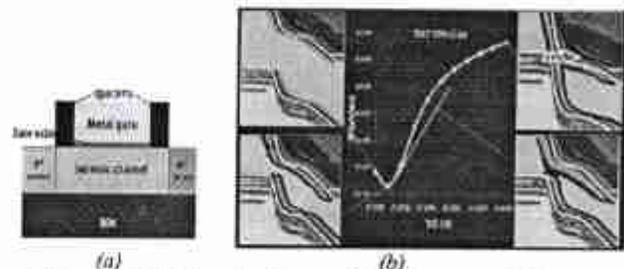


Figure 2: (a) Schematic diagram (b) Bands vary at different switching conditions of TFET

The extremely doped with p+ region near the source, moderately doped n-type channel and also extremely doped n-type drain. In General, TFET involves a number of parameters like as I_{GEN} , I_{BTBT} and I_D . ' I_{GEN} ' is a generation current in reverse-biased voltage that is reliant on the formation of holes



Article

Machine Learning-Based Ensemble Classifiers for Anomaly Handling in Smart Home Energy Consumption Data

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Abstract: Addressing data anomalies (e.g., garbage data, outliers, redundant data, and missing data) plays a vital role in performing accurate analytics (billing, forecasting, load profiling, etc.) on smart homes' energy consumption data. From the literature, it has been identified that the data imputation with machine learning (ML)-based single-classifier approaches are used to address data quality issues. However, these approaches are not effective to address the hidden issues of smart home energy consumption data due to the presence of a variety of anomalies. Hence, this paper proposes ML-based ensemble classifiers using random forest (RF), support vector machine (SVM), decision tree (DT), naive Bayes, K-nearest neighbor, and neural networks to handle all the possible anomalies in smart home energy consumption data. The proposed approach initially identifies all anomalies and removes them, and then imputes this removed/missing information. The entire implementation consists of four parts. Part 1 presents anomaly detection and removal, part 2 presents data imputation, part 3 presents single-classifier approaches, and part 4 presents ensemble classifiers approaches. To assess the classifiers' performance, various metrics, namely, accuracy, precision, recall/sensitivity, specificity, and F1 score are computed. From these metrics, it is identified that the ensemble classifier "RF+SVM+DT" has shown superior performance over the conventional single classifiers as well the other ensemble classifiers for anomaly handling.

Keywords: classification; data anomalies; data imputation; energy consumption data; ensemble classifiers; machine learning; smart home data; smart meter data; tracebase dataset



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1. Introduction

energy systems for addressing the unrelenting growth of loads as well as environmental pollution, smart home and renewable energy-based microgrid culture has been increasing worldwide. Smart cities are new-era establishments where all the smart homes are jointly operated to consolidate and optimize electricity utilization. As these establishments are realized with a combination of electrical, communication, and information technology, the

load profiling, forecasting, contingency analysis, device health condition analysis, etc. All



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Research paper

A comprehensive analytical exploration and customer behaviour analysis of smart home energy consumption data with a practical case study

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ABSTRACT

Over the years, the automation of traditional power grids has been taking place to overcome difficulties such as blackouts, outages, demand-side management, load profiling, enhancing participation, etc. This automation enables the traditional grids to be transformed into or smart homes/buildings are key sub-categories of smart grids. The advanced metering infrastructure connected to these continuously captures and stores the energy consumption data in datasets. Understanding the structure of data and the behaviour of customers from energy consumption is a tedious task. There are some literature works tried to explore various smart home consumption datasets as well as investigate customer behaviour, however, most of them are complex in implementation. Hence, this paper proposes a simple approach on the comprehensive exploration of the smart home energy consumption dataset. This approach can be used to explore smart home datasets that contain seasonal data. Further, using the exploratory analysis, it analyses the customers' energy consumption behaviour by identifying peak hours in cost and electrical perspectives. To implement the proposed approach, an energy consumption 'Tramaine' is considered as a case study. The exploration of the considered dataset results in distributed among various dimensions for customer behaviour analysis; the energy consumption of all 43 appliances (with more than 95 million records) is considered from the 'Tramaine' dataset. This analysis revealed the peak hours as hour-23 from the cost perspective and hour-9 from the electrical perspective. These represent the customer behaviour of their participation in the power network, which further helps for better load management. © 2022 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY license.

1. Introduction

The evolution and characteristics of the smart grids were countries across the world (toward automating their traditional power grids using advanced metering infrastructure).

The capabilities such as high-quality power, automatic restoration from blackouts, better customer participation, resource optimization, generation load balancing, reliability, etc.,

capabilities have a greater impact on the socio-economic status of the countries. The collection and analysis of precise data help in achieving all such advanced capabilities. The importance and challenges of big data analytics in power grids were discussed in the literature. On the other hand, versatile and sophisticated, dynamic requirements of the customers, cost patterns, etc., are greatly affecting the functioning of smart grids or smart homes. Hence, it is much desired to understand customer behaviour in terms of energy consumption patterns to operate smart grids and homes fruitfully. With this motivation, various state-of-the-art research works discuss three major aspects of customer behaviour, namely, energy consumption/load patterns, its

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Wrapper Fuzzy Approach with 3d Fast Convolution Neural Network (FCNN) Based Feature Selection in Protein Sequence Classification

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Abstract: In research area, an emerging field is Bioinformatics in the past decades. Biological data storage and management was the definite motivation of bioinformatics and the tools for computation are developed and analyzed for enhancing their understanding. The data size is gathered under different project sequence is exponentially increased, that provides the problems for the methods of experiment. Newly sequenced protein and known functions proteins have gap and this gap is reduced by several techniques of computation incorporating classification and algorithms of clustering were presented in the past. The sequences of protein are classified into superfamilies exists in literature is useful for the prediction of structure and function of huge proteins that are discovered newly. The existing classification's results are unacceptable because of larger feature size acquired by several approaches of feature encoding. This paper proposes noise removal technique depending on selection of feature for protein sequence classification. Here we use wrapper fuzzy model with fast convolution neural network (FCNN) for feature selection and remove the noise. This research involved in removal of noisy or unwanted data related to protein composite. To improve classification accuracy, wrapper fuzzy is utilized for selection of features. Wrapper algorithm involved in selection of protein features for accurate identification of protein composites. For classification we use 3D FCNN which can improve the accuracy of classification. The classification of protein proposed in this method proves momentous enhancement with respect to measuring the metrics of performance: accuracy, sensitivity, specificity, recall, F-measure, and etc.

Keywords: Bioinformatics, protein sequences, classification, feature selection, noise removal, wrapper fuzzy, Classification using 3D-Fast Convolution neural network (3D-FCNN)

I. Introduction

Protein 3D- structure was predicted by the sequence of amino acid was the major aim of bioinformatics for the past decades [1] and there was no definite solution. Highly consistent method recently incorporates modelling of homology, and permits for assigning the structure of protein which is defined already to given unknown protein which are similar among two detectable sequence. De novo approaches are required for viable homology modelling depending on either physical-based potential [2] or knowledge-based potentials. The function of energy is utilized for the approximation of free energy amount in the provided protein conformation present also with function of search that efforts various conformation of structure for minimising some function of energy [3]. Inappropriately, huge molecule structures are defined as protein with numerous conformations although for comparatively small protein making it unaffordable for folding them even on modified computer hardware.

Binded amino acid sequence is referred as protein having peptide bond playing important character in life maintenance [4].

Organ functioning and human tissues were improved by protein structures. Primary, secondary and tertiary are the three basic protein structure. Protein structure assists in the determination of protein's functional behaviour and predicting functions. Similarity of sequence are found for clustering the protein's similar kinds for finding protein interaction among protein and several other literatures. Prediction of protein function are the basis for biological research and this prediction are performed by sequence or similarity structure. Also this prediction type picks huge resources and time of computation. For improving the accuracy of computation with resource reduction and time of computation and using the approach of classifying machine learning [5].

In bioinformatics, biological sequences are the classification of important task. Family identification are uninterruptedly interested by biologists. Protein evolution is possibly studied and its biological functions are discovered. In general, for classification of new biological sequences into classes or families that are known already through the similarity search and sequences homologies, some alignments were used by the biologists. Though, this method is frequently inefficient e.g: Metagenomics, which is a main issue in run into the application of these method which is in between 25% and 65% of sequences without homologous in databases, and this is a

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Scientific understanding of learning through deep learning algorithms

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Abstract:

Deep learning (DL), a branch of machine learning (ML) and artificial intelligence (AI), is recognized as a core technology of today's Fourth Industrial Revolution (4IR or Industry 4.0). Originating from artificial neural networks (ANNs), DL technology has become a hot topic in computing due to its ability to learn from data, and is widely applied in various application areas such as healthcare, visual recognition, text analysis, and cyber security. It has been much more. However, creating good DL models is a difficult task due to the dynamic nature and fluctuations of real-world problems and data. Moreover, the lack of understanding of the core makes DL methods a black-box machine that prevents standard-level development. This article provides a structured and comprehensive overview of DL techniques. This includes classifications that consider different kinds of real-world tasks, such as supervised or unsupervised. Our taxonomy considers supervised or discriminative learning, unsupervised or generative learning, hybrid learning and other related deep networks. It also summarizes practical use cases where deep learning techniques can be used. Finally, we point out ten potential aspects of next-generation DL modelling, along with research directions. Overall, this article aims to paint a picture of DL modelling that can be used as a reference guide for academic and industry professionals.

Keywords: Deep learning, Artificial neural network, Artificial intelligence, Discriminative learning, Generative learning, Hybrid learning, Intelligent systems

Introduction:

In the late 1980s, neural networks became a prevalent topic in the area of Machine Learning (ML) as well as Artificial Intelligence (AI), due to the invention of various efficient learning methods and network structures [52]. Multilayer perceptron network trained by "Backpropagation" type algorithms, self-organizing maps, and radial basis function networks were such innovative methods [26,36,37]. While neural networks are successfully used in many applications, the interest in researching this topic decreased later on. After that, in 2006, "Deep Learning" (DL) was introduced by Hinton et al. [41], which was based on the concept of artificial neural network (ANN). Deep learning became a prominent topic after that, resulting in a rebirth in neural network research, hence, sometimes referred to as "new-generation neural networks". This is because deep networks, when properly trained, have produced significant success in a variety of classification and regression challenges [42].

Nowadays, DL technology is considered as one of the intelligences as well as data science and analytics, due to its learning capabilities from the given data. Many corporations including Google, Microsoft, Nokia, etc., study it actively as it can provide significant results in different classification and regression problems and datasets [42]. In terms of working domain, DL is considered as a subset of ML and AI, and thus DL can be seen as an AI function that mimics the human brain's processing of data. The worldwide popularity of "Deep learning" is increasing day by day, which is shown in our earlier paper [26] based on the historical data collected from Google trends [33]. Deep learning differs from standard machine learning in terms of efficiency as the volume of data increases, discussed briefly in Section "Why Deep Learning in Today's Research and Applications?". DL technology uses multiple layers to represent the abstraction of data to build computational models. While deep learning takes a long time to train a model due to a large number of parameters, it takes a short amount of time to run during testing as compared to other machine learning algorithms [12].

While today's Fourth Industrial Revolution (4IR or Industry 4.0) is typically focusing on technology-driven "automation, smart and intelligent systems", DL technology, which is originated from ANN, has become one of the core technologies to achieve the goal [10,11]. A typical neural network is mainly composed of many simple, connected processing elements or

Review of Skin disease classification using machine learning methods

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A significant worldwide health issue with a large population is skin disease. The advancement of dermatological predictive categorization has grown more accurate and predictive in recent years due to the rapid growth of technology and the use of various data mining approaches. Therefore, it is crucial to develop machine learning approaches that can classify skin diseases differently and effectively. So far, no machine learning technique has performed better than the others in terms of predicting skin diseases. Due to its physical and psychological impact on individuals, skin diseases are a serious and concerning problem in communities. Early skin disease detection is crucial for effective therapy. The ability and experience of the specialist doctor is relevant to the process of identifying and treating skin damage. Diagnostic procedures need to be precise and timely. Through the application of machine learning algorithms and the utilisation of the enormous amount of data present in healthcare facilities and hospitals, artificial intelligence research has recently been utilised in the field of diagnosing skin diseases. The classification of skin diseases using machine learning was the subject of a large number of earlier studies that were compiled in this research.

Keywords: Health care, skin disease, machine learning algorithms, diagnosis, Dermatology

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INTRODUCTION :

The most important component of the human body is the skin. The skin assists in the production of vitamin D and shields the body from UV radiation, infections, wounds, heat, and harmful radiation. It is crucial to maintain excellent health and shield the body from skin illnesses because the skin is crucial in regulating body temperature. The use of data mining technology, which has seen rapid progress in recent years, is extremely important in the analysis of skin diseases. While numerous prediction techniques are continually being developed by academics, the majority of them rely on a small number

of classification algorithms rather than ensemble methods. To find predictions, the ensemble method integrates many data mining techniques.

A human's skin covers 20 square feet of their entire body. It defends the human body's various critical organs against external harm, shields it from pathogens and the environment, controls body temperature, and permits the feelings of touch, heat, and cold. The skin, however, may be affected by a range of extrinsic and genetic variables. Basically, three different sorts of skin conditions affect human skin. Viral, fungus, and allergic types are the first three categories. If diagnosed correctly and caught





Application of Artificial Neural Networks to Forecast ITK Inhibitor Activity Data

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Abstract: An innovative method of testing the artificial neural network's effectiveness for ITK inhibitor data prediction was used. As a comparison, a multiple linear regression model was also developed. Using back propagation training, a multilayer perceptron MLP neural network was given the bioactivity estimate task. It was determined that there were enough buried neurons and that the learning rate was enough based on changes in RMSE. Thus, the final neural network consists of one output variable as the output layer, six input variables, eight hidden neurons, three nodes for bias accounting, and a 0.55 learning rate. To assess the robustness of the neural network model, test set data were forecasted, and forecast accuracy was measured.

Keywords: Back propagation, hidden layer, Neurons, Neural Network.

1. Introduction

Due to their high processing speed and capability to handle complex non-linear functions, artificial neural networks (ANNs) have emerged as one of the most successful technologies in recent years. ANNs are used extensively in a variety of fields, including engineering [3], measurement and control [2], and sensors [1]. In order for connected information processing units to convert input into output, they need a model called a "neural network," which is characterized by an activation function [4]. It has always been done to compare the genetic makeup of neural networks with the human nervous system. Information is transmitted by interconnected units, much like how it does in human neurons. The neural network's first layer receives the raw input, processes it, and then sends the result to the hidden layers. The last layer, which creates the output, receives the processed information from the hidden layer [5]. The most fundamental type of neural network is the perceptron. A weighted summation and an activation function are used by a perceptron to process multidimensional information. The perceptron model's inability to handle non-linearity is a significant drawback. This restriction is removed by a multilayered neural network, which also aids in the resolution of non-linear issues. The output layer is connected to the hidden layer through the input layer. The connections are weighted,

and the weights are optimized via a learning rule [6].

The primary goal of the research is to create a neural network model that estimates the biological activity of ITK inhibitors in order to evaluate the model's prediction power using particular, significant physico-chemical characteristics rather than experimental data. The two machine learning techniques that deal with function approximation issues are neural networks and support vector machines [7]. To predict activity data of physiologically relevant inhibitors against several protein targets, a variety of regression approaches have been used and proposed. The dimensionality of the dataset increases as the number of independent variables rises, making regression models built on a machine learning concept appear to be simpler, but controlling numerous aspects and understanding domain knowledge remain challenging. Creating a more straightforward prediction model, perhaps one that uses an empirical methodology, is therefore imperative [8]. In terms of empirical methods, multilayer perceptrons (MLP), a type of artificial neural network (ANN), have been used extensively in the domains of bioinformatics during the past few decades [9]. In this investigation, we assess the efficacy of neural networks in predicting ITK inhibitor activity data.

2. Materials And Methods

Using the back propagation method, neural net software was employed to train neural networks. Resilient back propagation (RPROP) is a technique that can be used with or without weight backtracking [10, 11], as well as the modified globally convergent version (GRPROP) developed by Anastasiadis et al. [12]. By letting users

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Chronic Kidney Disease Prediction Using ML-Based Neuro-Fuzzy Model

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Nowadays, in most countries, the most dangerous and life threatening infection is Chronic Kidney Disease (CKD). A progressive malfunctioning of the kidneys and less effectiveness of the

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Performance of Hybrid Energy Storage Based Electrical Vehicle Using Fuzzy Logic Controller

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Abstract:

For the hybrid energy storage system, the paper proposes an optimal control algorithm designed using a Li-ion battery power dynamic limitation rule-based control based on the SOC of the super-capacitor. Using a dc-link voltage-regulated PI-based controller, magnetic integration technology with a second-order Bessel low-pass filter is simultaneously introduced to DC-DC converters of electric vehicles. The PI controller gives more harmonic distortion and less accurate results. In place of the PI controller, a fuzzy logic controller was used to reduce harmonic distortion and error value. The proposed method evaluates the results in terms of voltage, current, and power. The proposed method's and conventional method's results were compared using MATLAB and Simulink software.

Keywords: Hybrid energy storage system, integrated magnetic structure, electric vehicles, DC-DC converter, power dynamic limitation, fuzzy logic controller.

Introduction:

Due to the pollution caused by fossil fuel, new energy sources have been continuously developed. Nowadays, embedded energy storage systems in current generation electric vehicles are mostly based on the Li-ion batteries which, with high energy density, can provide long distance endurance for electric vehicles. While compared to the super capacitor, the response of Li-ion batteries is slower than that of super capacitors. Therefore, in order to make electric vehicles comparable to fuel vehicles with regards to fast transient acceleration, energy, and long-distance endurance, a hybrid energy storage system (HESS) consisting of Li-ion batteries and super-capacitors is applied to electric vehicles. For the development of electric vehicles, optimizing the energy storage device is critical, and it is necessary to consider increasing the capacity of the battery, while reducing the size and weight of the battery to increase the charging rate. DC-DC converters which play an important role in hybrid energy storage system have been developed rapidly over the years.

Experimental Study on the Performance Analysis of Vapour Compression Refrigeration Test Rig with and without Phase Change Materials

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Abstract

The performance of heat transfer is the essential area of research in the field of thermal engineering. For the process of heat transfer, there are numbers of refrigerants which used in domestic refrigeration to transfer the heat from low-temperature reservoir to high-temperature reservoir. The vapour compression refrigeration technology has made a great improvement over a few decades in the form of the efficiency of cycle through significant efforts of thermal engineers and manufacturers. The modification of the cycle should be investigated to enhance the efficiency of the system.

In this paper, the experimental study is conducted to predict the comparison between the Simple VCR with and without Phase change materials such as potassium chloride solution, Ethylene Glycol. Hence the proposed system could be a new option for performance improvement of a VCR system by enhancing heat transfer of the evaporator with the help of Phase Change Materials.

Keywords: Vapour Compression refrigeration, coefficient of performance, phase change materials.

Introduction

Phase Change Material (PCM) is a material which absorbs or releases the maximum heat during its state change due to change in temperature. It uses chemical bonds to store and releases the heat. The energy transfer takes place when a material changes from a solid to a liquid or from a liquid to a solid which is called a change in state or phase. Ice is an excellent phase change material.

Phase Change Materials (PCMs) are able to change its state at constant temperature and therefore store large quantities of energy. The most commonly used PCM for are paraffin's (organic), salt hydrates (inorganic) and fatty acids (organic) for technical applications. For cooling applications, it is also possible to use ice storage.

A substance with a high heat of fusion which melts and solidifies at certain temperatures and is capable of storing or releasing large amounts of energy are called as Phase change materials. Within the

AN EFFECTIVE TUMOR DETECTION FROM MRI IMAGES USING DEEP LEARNING-BASED DEPTHWISE SEPARABLE CNN

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Abstract: Brain tumors' tumors continue to rise, making them a major global health problem. When it comes to processing medical images, tumor detection is a particularly challenging image. Medical research demonstrates that human-assisted manual classification may result in inaccurate prognoses and diagnoses. The detection process is complicated because brain tumors may take on various images and textures. Recently, deep learning techniques have shown promise in increasing the accuracy of brain tumor detection and classification using MRI results (MRI). To grade (classify) the brain tumors into three groups, we employed Depthwise Separable CNN, one of the most popular deep learning architectures, using a dataset of 3064 T1 weighted contrast-enhanced brain MR images (Glioma, Meningioma, and Pituitary Tumor). It turns out that the suggested CNN classifier is somewhat effective, with an overall performance of 98.93% accuracy and 98.18% sensitivity for the cropped lesions, 99% accuracy and 98.52% sensitivity for the uncropped lesions, and 97.62% accuracy and 97.40% sensitivity for the segmented lesion images.

Keywords: Deep learning, convolutional neural network, Transfer learning, Brain tumor, medical image classification, MobileNet architecture, etc.

1. Introduction

Nearly 10 million people will have lost their lives to cancer in 2020 alone, making it one of the significant causes of death globally. Breast cancer, lung cancer, colon and rectum cancer, prostate cancer, skin cancer (other than melanoma), and stomach cancer are the top six most prevalent cancers, as the World Health Organization (WHO) reported. Although brain cancer (also known as a brain tumor) is not now the most frequent illness, it is steadily on the rise.

From 26.7 million in 2021, the number of Indians with cancer is expected to increase to 29.8 million in 2025. The North (2,408 patients per 100,000) and the Northeast (2,409 patients per 100,000) had the most excellent rates of occurrence in the previous year (2,177 per 100,000). The pace was higher among men.

[1]The Indian Council for Medical Research published a report titled "Burden of cancers in India," which found that the top 10 cancer sites in the country were the cancers (10.6%), breasts (10.5%), esophagus (5.8%), mouth (5.7%), stomach (5.2%), liver (4.6%), and cervix uteri (4.3%).

Dr. Prasant Mathur, Director of the National Center for Disease Informatics and Research (NCDIR), explained the projections for the years 2021-2025, stating that men will be responsible for 14.7 million YLLs, 0.72 million YLDs, and 15.5 million DALYs (Years of Life Lost, Years of Life Lost Due to Disability, and Years of Adjusted Life Due to

Disability). 13.6 million YLLs, 0.69 million YLDs, and 14.3 DALYs will be the total for females.

The report's results have been published in the journal BMC Cancer.

According to Dr. Mathur, those between 65 and 69 are the most at risk, and Mizoram, Delhi, and Meghalaya had the highest cancer DALYs.

Dr. Mathur believes this data will help shed light on regional variations in cancer burden, assist in allocating scarce resources, prioritize initiatives, and keep tabs on key performance metrics at the federal and state levels.

Experts in cancer research have pointed to the possible role of the rising popularity of processed and fast food, both of which are high in unhealthy preservatives.

A growing cancer epidemic is a significant cause for concern. Formerly, it was believed that using tobacco products and drinking alcohol were essential contributors to cancer. Dr. Anshuman Kumar, director of surgical oncology at Dharamshila Narayana Superspeciality Hospital, says that cancer risk factors include obesity, exposure to mobile phone tower radiation, consumption of vegetables grown in toxic water (such as rivers near industrial areas), food adulteration, and consumption of foods and vegetables dyed with artificial colors.

It complements our other initiatives to raise cancer awareness and is, thus, very important. People of low socioeconomic status (SES) who have survived a cancer diagnosis require more support to help them

AN EFFECTIVE TASK SCHEDULING METHODOLOGY FOR CLOUD COMPUTING USING EXTENSION CUCKOO SEARCH ALGORITHM AND FMPSO

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ABSTRACT: Cloud computing is the on-demand availability of computer system resources, especially data storage (cloud storage) and computing power, without direct active management by the user. Large clouds often have functions distributed over multiple locations, each of which is a data center. To improve load balancing and cloud throughput, this research suggests a hybrid task scheduling algorithm called FMPSO. The input parameters of the proposed fuzzy system are task length, CPU speed, RAM size, and execution time. This paper addresses this issue by using the CUCKOO search algorithm as an extension. Cuckoo search algorithms pool all virtual machines with constant load and choose the fastest ones. The CloudSim toolbox is used to analyze the FMPSO algorithm. Simulation results show it performs better than other methods in terms of makespan, improvement ratio, imbalance degree, efficiency, and execution time. However, if the processing speed of the first VM is low, processing will take a long time.

Keywords – FMPSO strategy, Fuzzy theory, CUCKOO search algorithm.

1. INTRODUCTION

Computing resources (hardware, software, and platforms) are pooled and provided available to users on demand through the Internet in what is called "cloud computing," a relatively new technology that evolved from grid computing and distributed computing [1]. It's the first technology to market the idea of incorporating computer science for general users [2]. It takes advantage of virtualization to allow

users to pool their access to shared resources. Cloud computing's high performance comes from its ability to distribute workloads over all available resources equitably and efficiently, resulting in shorter wait times, faster execution times, higher throughputs, and more efficient resource use. There are still numerous obstacles to cloud computing, but task scheduling and load balancing stand out as two of the greatest since they are seen as the primary Drivers of other

THE INFLUENCE OF PROFESSIONAL IDENTITIES OF TEACHERS AND THEIR EFFECT ON TEACHING PRACTICE: AN EXPLORATORY STUDY

SYED ZAREENA¹, Dr. PANKAJ KUMAR²

Abstract: - *The present research explores language teacher professional identities and their impact on teaching practice. The main purpose of this study is to explore the awareness of formation of professional identities of teachers. In the microcosm of the classroom, teachers sometimes act out multiple roles of an educator, facilitator, prompter, participant, resource, tutor, language teacher and culture teacher, discipline keeper, supervisor of all the pupils, motivator, leader of learning, culture educator etc. These roles and responsibilities form a particular professional identity of a teacher and this identity affects their teaching practice. The sample includes government schoolteachers. The data is collected through questionnaire and classroom observation. Based on the hypothesis that language teachers possess multiple professional (academic background, teaching experience, training etc.) identities and these affect teaching practice. The findings of the study reveal that teachers are aware of the professional identities that they possess and they affect their teaching practice (professional factors such as educational background, roles and responsibilities in and outside the classroom). The study suggests that awareness of the formation of teacher's professional identity helps in growing professionally by attending seminars, conferences and presenting papers at national and international conferences, which will enhance their teaching quality.*

Key words: *Teacher Identity, Professional identities and Teaching Practice*

I. INTRODUCTION

The concept of identity has been explored in the context of English Language Teaching, though not as extensively as in other educational contexts. Many of the studies within ELT have focussed largely on cultural attributes of teachers. Professional identities are conceptualised as stories professionals tell about themselves at a specific moment in a specific context (Vloet & van Swet, 2010: p.149), characterised by attributes reflected upon in their stories that have shared meaning with others as well as meaning for the individuals. Professional identity of teachers can be described as a tension between the subjective or personal aspects of teaching and inter-subjective or collective aspects. The identity of

QUANTUM ANT LION OPTIMIZATION AND SUPPORT VECTOR MACHINE FOR THE FEATURE SELECTION AND GENE CLASSIFICATION

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Abstract

Gene selection for cancer prediction is a required model for the medical domain to effectively treat cancer patients. The presence of large information related to genes makes the existing model difficult to analyze the relationship between the features for gene classification. The existing models have the limitations of local optima trap, lower convergence and overfitting. To improve gene classification performance this research proposes the Quantum Ant Lion (QAL) optimization for feature selection. The Quantum search process is applied in the Ant Lion method to increase the search efficiency which helps to increase the exploration and overcome the local optima trap. The Archimedes spiral search is applied in the QAL method to increase exploitation in the feature selection based on the fitness function. The QAL method increases exploration and exploitation which helps to improve the convergence rate of the QAL method. The QAL method has 97.4 % accuracy and DNN-CNN model has 93.5 % accuracy for gene classification.

Keywords: Archimedes Spiral, Exploration, Gene Selection, Quantum Ant Lion, Quantum Search.

1 Introduction

Generally, two essential phases of Gene expression are translation and transcription. Gene information encodes of translation process into an end gene product such as snRNA or tRNA, rRNA, and protein in gene expression. Similar to translation and transcription, a gene is a sequence of the process that collects various sub-processes like post-translation, termination, translation, and initiation processing. Gene expression is the basis for the various life-developing process, specialized functions, develop their shape and essential cells grow [1]. Microarray datasets have a high potential for disease prediction and diagnosis that are high dimensional datasets. The microarray dataset consists of thousands of genes and many genes are irrelevant, noisy, and redundant. The irrelevant genes in the dataset degrade the performance of the machine learning techniques and therefore, dimensionality needs to be reduced. Imbalanced datasets, low sample-sized, and high dimensional datasets are other reasons for dimensionality reduction that result in high computational cost and poor performance of machine learning methods [2, 3]. for handling large dimensional data many algorithms are available. The irrelevant gene not only affects the learning of the machine learning algorithms and also causes the overfitting problem in the training. One solution is to apply the feature selection methods to select high dimensional small sample data for gene selection [4]. Recently, several metaheuristic algorithms were applied for cancer classification problems and gene selection. Continuous optimization problems are solved using

FIXED HEAD SHORT TERM SCHEDULING IN PRESENCE OF SOLAR AND WIND POWER

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1 RAVI CHANDRA NAMBURI, 2 A. SURYA PRAKASARAO

Abstract:

A probabilistic short-term hydro-thermal-wind-photovoltaic scheduling based on point estimate method (PEM) is proposed in this project. To model the uncertainties related with wind and solar power, point estimate method is applied. The Weibull and Beta distributions are employed to handle the uncertain input variables. The average generation cost of the system is optimized based on optimization algorithm named Whale optimization algorithm (WOA). Three test systems have been considered, the first system is having only hydro and thermal units, and rest of the two systems are based on wind and solar including hydro and thermal units to investigate the effect of renewable energy sources in the selected test systems. Furthermore, under and over estimation of available wind power has also been included in the problem. The simulation results show that when the penetration of renewable energy sources increases, the average generation cost decreases. The results obtained by WOA have been compared with other well-known methods. Moreover, the accurate distribution of generation cost for the next day ahead can be found out using Gram Charlier series expansion.

Introduction:

Being a large and complex network, power system must deal with generation, transmission, and distribution of power. The power system is expected to supply the changing load demand of the consumer at an economical way. Thus, the importance of short-term hydrothermal scheduling (SHTS) problem has increased in recent years. The primary goal of SHTS problem is to minimize the generation cost of the thermal unit within a specified time interval by utilizing the available water of the hydro reservoir in an optimum manner. The reservoirs are basically connected in a cascaded way. The present SHTS problem has certain equality and inequality constraints which makes the problem complex and very interesting for power system engineers.

FUZZYBASEDPOWERQUALITYIMPROVEMENT FORFACTSCONTROLLEDPOWERSYSTEM

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ABSTRACT: Power Quality is an essential concern in the modern power system that can affect consumers and utility. The integration of renewable energy sources, smart grid systems and extensive use of power electronics equipment caused myriad problems in the modern electric power system. Current and voltage harmonics, voltage sag, and swell can damage the sensitive equipment. These devices are susceptible to input voltage variations created by interference with other parts of the system. Hence, in the modern age, with an increase in sensitive and expensive electronic equipment, power quality is essential for the power system's reliable and safe operation. Dynamic Voltage Restorer (DVR) is a potential Distribution Flexible AC Transmission System (D-FACTS) device widely adopted to surmount the problems of non-standard voltage, current, or frequency in the distribution grid. It injects voltages in the distribution line to maintain the voltage profile and assures constant load voltage. The simulations were conducted in MATLAB/Simulink to show the DVR-based proposed strategy's effectiveness to smooth the distorted voltage due to harmonics. A power system model with a programmable power source is used to include 3rd and 5th harmonics. The systems' response for load voltage is evaluated for with and without DVR scenarios. It has been noted that the proposed DVR based strategy has effectively managed the voltage distortion, and a smooth compensated load voltage was achieved. The load voltage THD percentage was approximately 8% and 23% with insertion 3rd and 5th harmonics in the supply voltage, respectively. The inclusion of the proposed DVR has reduced THD around less than 4% in both cases.

1. INTRODUCTION

Electrical Energy is invisible, a universal commodity that is immediately available in most of the world, and it has now been recognized as everyday consumer need [1]. Renewable Energy Systems (RESs) is used to aid the primary energy demand in solar, Solar thermal, wind energy, etc. The intermittent nature of RESs, harmonics, and reactive power problems halt the power system's performance by originating stability concerns in the power system [2], [3]. The Flexible AC Transmission Systems (FACTS) devices are widely adapted for reactive power compensation, voltage stability, and power quality in distribution grids around the world [4], [5]. However, FACT devices also alter different parameters on the transmission and distribution system [6]. This work presents a study of the power quality and aims at identifying the causes of poor power quality and provide the solutions to these power quality problems. Some equipment like computers, laptops, relays, solid-state devices, adjustable speed drives, and optical devices are known as sensitive equipment. These devices are susceptible to input voltage variations created by interference with other parts of the system. The power system is divided into the following parts as generation, transmission, distribution, and by using other transmission line power systems is fed to different loads on the distribution side. Power quality plays a vital role in the power system when variable power is supplied to the load. Subsequently, the domestic and industrial customers with delicate loads are affected by the poor quality of power. Even there is various type of load on the distribution side, but poor power quality affects the sensitive loads more than others. There are many applications where the sensitive load has an increasing demand, like in hospital's operation theatres, semiconductor systems in processing plants, database systems, instruments to control air pollution in crowded areas, precise and accurate equipment are required by data processing, and service providers. If the power system causes the dips and distorted voltages, these devices may fail, and such a device's failure leads to wastage of a significant amount of money. Therefore, the distribution side is dependent on power quality. Electrical characteristics are set by the power system that does not disturb the system's performance and perform its function in a controlled manner. In this article, voltage swell and distorted voltage with high harmonics in it are discussed. When the load voltage being disturbed, it causes voltage sag, transient, swell, and high distorted voltage with harmonics and Total Harmonic Distortion (THD) due to the occurrence of the faults. The vulnerability of voltage sags and harmonics problems is mostly to the delicate instruments. Few problems occur in the result of voltage sag that may also cause disturbance of torques in the motors, device burning, misfiring in the device, etc. The harmonic is an essential issue for power quality to be solved effectively. When the faults occur in the power system that causes a large current drawn from the power system, a short duration reduction RMS voltage appears, commonly known as voltage sag or Dips [7]. For example, when someone starts an air conditioner or a heavy motor, the startup of the load and remote fault clearance done by utility instrument, are the fundamental cause of sag production. When the motor starts, it causes six times more current than actual current. While the motor's startup, a substantial amount of reactive power is absorbed that will lead to the introduction of voltage sag. The voltage profile of the voltage sag is presented in Figure 1.



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3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the last five years

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISBN/ISSN number	Link of the recognition in UGC enlistment of the Journal		
						Link to the website of the Journal	Link to article/paper/abstract of the article	Is it listed in UGC Care list/Scopus/Web of Science / other mention
2021								
A Novel Method for Rainfall Prediction and Classification using Neural Networks	K. VaradaRaj kumar	CSE	International Journal of Advanced Computer Science and Applications	2021	Vol. 12, No. 7	https://thesai.org/	https://thesai.org/Publications/ViewPaper?Volume=12&Issue=7&Code=1JACSA&SerialNo=60	WOS+SCOPUS

A new segmentation method for non-ideal iris images using morphological reconstruction FCM based on improved DSA	N. Bhupesh Kumar	EEE	SN Applied Sciences	2021	(2021) 3:53	https://link.springer.com/	https://doi.org/10.1007/s42452-020-04110-1	SCOPUS
A new segmentation method for non-ideal iris images using morphological reconstruction FCM based on improved DSA	Miranji Katta	ECE	SN Applied Sciences	2021	ISSN: 2523-3971	https://link.springer.com/	https://doi.org/10.1007/s42452-020-04110-1	SCI
A new segmentation method for non-ideal iris images using morphological reconstruction FCM based on improved DSA	Dr R Satish	ECE	Spinger Nature - Applied Science	2021	ISSN: 2523-3971	https://link.springer.com/	https://doi.org/10.1007/s42452-020-04110-1	ESCI
Detection of Volatile Organic Compounds Using Mems Based Microcantilever	Ch Jayaprakash	ECE	ARNP Journal of Engineering and Applied Sciences	2021	ISSN: 1819-6608	http://www.arpnjournals.com/jeas/volume_01_2021.htm	jeas.0121_8468.pdf(arpnjournals.org)	SCOPUS

Hybrid anti-jamming algorithm for IRNSS receivers using variational mode decomposition and wavelet packet transform	K. J. Silva Lorraine	ECE	International Journal of Communication Systems, Wiley	2021	ISSN: 1099-1131	https://onlinelibrary.wiley.com/	https://doi.org/10.1002/dae.4734	SCI
Analysis of Principal Components and Classification Enhancement For Rainfall Prediction	K. Varada Rajkumar	CSE	Indian Journal of Computer Science and Engineering	2021	ISSN : 2231-3850	https://www.ijcse.com/	https://www.ijcse.com/docs/INDJCSE21-12-02-047.pdf	SCOPUS
Preprocessing of Colorectal Cancer Protein Expressions Using Correlation Coefficient Factor and Disease Score	B Madhav Rao	CSE	International Journal of Research In Electronics and Computer Engineering	2021	ISSN: 2393-9028	http://www.i2or-ijrece.com/	N/A	UGC
Preprocessing of Colorectal Cancer Protein Expressions Using Correlation Coefficient Factor and Disease Score	M Sampath Kumar	CSE	International Journal of Research In Electronics and Computer Engineering	2021	ISSN: 2393-9028	http://www.i2or-ijrece.com/	N/A	UGC

Frequency Stabilization of Multi Area Autonomous Hybrid Power System using Single and Multi-Objective SALP Swarm Algorithm	V.S.R.Pavan Kumar.Neeli	EEE	i-Manager's Journal on Power Systems Engineering	2021	Vol. 8, No. 4	https://web.p.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jmi=23217499&AN=150180521&h=SooYvzP2gqnGwuU3Nz3sMFkwnjvJszemNekXmi%2bKilP%2bnekccaIj0ABaT7	UGC	
ANN based Day-Ahead Load Demand Forecasting for Energy Transactions at Urban Community Level with Interoperable Green Microgrid Cluster	S. N. V. Bramareswara Rao	EEE	International Journal of Renewable Energy Research	2021	ISSN: 1309-0127	https://doi.org/10.20508/ijrer.v1i11.11731.g8121	https://www.researchgate.net/publication/350966972_ANN_Based_Day-Ahead_Load_Demand_Forecasting_for_Energy_Transactions_at_Urban_Community_Level_with_Interoperable_Green_Microgrid_Cluster	Scopus, Web of Science (ESCI)
An efficient interference mitigation approach for NavIC receivers using improved variational mode decomposition and wavelet packet decomposition	K. J. Silva Lorraine	ECE	Transactions on Emerging Telecommunications Technologies, Wiley	2021	ISSN: 2161-3915	https://onlinelibrary.wiley.com/	https://doi.org/10.1002/ett.4242	SCI
Simultaneous tropical disease identification with PZT-5H piezoelectric material including molecular mass biosensor microcantilever collection	Miranji Katta	ECE	Sensing and Bio-Sensing Research	2021	100413	https://www.sciencedirect.com/	https://doi.org/10.1016/j.sbsr.2021.100413	SCI

Development and Analysis of Mechanical Properties of Caryota and Sisal Natural Fibers Reinforced Epoxy Hybrid Composites	Dr.K. Lalit Narayan	Mechanical Engineering	MDPI	2021	ISSN: 2073-4360	https://www.mdpi.com/	https://doi.org/10.3390/polym13060864	SCI
Transfer Learning-Based Plant Disease Detection	Dr.S.Krishna Rao	Information Technology	International Journal for Innovative Engineering and Management Research	2021	ISSN 2456 – 5083	https://www.ijiemr.org/	https://www.ijiemr.org/public/uploads/paper/228371617019627.pdf	UGC
Dynamic frequency adjuster with respect to user allocation in fiber wireless systems	Dr. T. Venkateswara Rao	ECE	International Journal of Creative Research Thoughts	2021	ISSN: 2320-2882	https://ijert.org/	https://ijert.org/papers/IJERT2104300.pdf	UGC
Simulation approach to design high sensitive NEMS based sensor for molecular Bio-Sensing	Miranji Katta	ECE	European Journal of Molecular and Clinical Medicine	2021	ISSN: 2515-8260	https://ejmcm.com/	https://www.researchgate.net/publication/356439570_SIMULATION_APPROACH_TO_DESIGN_HIGH_SENSITIVE_NEMS_BASED_SENSOR_FOR_MOLECULAR_BIO-SENSING_APPLICATION	SCOPUS

Simulation Approach to Design High Sensitive NEMs based Sensor for Molecular Biosensing Applications	K.Lavanya	ECE	European Journal of Molecular and Clinical Medicine	2021	ISSN: 2515-8260	https://ejmcm.com/	https://www.academia.edu/71286711/Simulation-Approach-to-Design-High-Sensitive-Nems-Based-Sensor-for-Molecular-Bio-Sensing-Applications	SCOPUS
Simulation Approach to Design High Sensitive NEMs based Sensor for Molecular Biosensing Applications	P.Srinivasulu	ECE	European Journal of Molecular and Clinical Medicine	2021	ISSN: 2515-8260	https://ejmcm.com/	https://www.researchgate.net/publication/356439570_SIMULATION_APPROACH_TO_DESIGN_HIGH_SENSITIVE_NEMS_BASED_SENSOR_FOR_MOLECULAR_BIO-SENSING_APPLICATIONS	SCOPUS
Simulation approach to design high sensitive NEMS based sensor for molecular Bio-Sensing	M Vamsi Krishna Allu	ECE	European Journal of Molecular and Clinical Medicine	2021	ISSN: 2515-8260	https://ejmcm.com/	https://www.researchgate.net/publication/356439570_SIMULATION_APPROACH_TO_DESIGN_HIGH_SENSITIVE_NEMS_BASED_SENSOR_FOR_MOLECULAR_BIO-SENSING_APPLICATIONS	SCOPUS
Impact of external surface temperature & Heat radiation of SiO ₂ based nanofluids over a vertical circular cylinder enclosed in porous medium	M Veeranjanyulu	Physics	International Journal of Pharmaceutical Research	2021	ISSN: 0975-2366	http://www.ijpronline.com	http://www.ijpronline.com/ViewArticleDetail.aspx?ID=21358	SCOPUS

Elliptic Curve Cryptography with Reduced Cipher Bandwidth-A New Approach to Conventional ECC	K. Uma Karuna Devi	Mathematics	Design Engineering	2021	ISSN: 0011-9342	https://www.thedesignengineering.com/	http://www.thedesignengineering.com/index.php/DE/article/view/3989	SCOPUS
Digital Signature Algorithm to Maintain Perfect Forward Secrecy (Pfs) Using Hyperelliptic Curve Cryptosystem	K. Uma Karuna Devi	Mathematics	Design Engineering	2021	ISSN: 0011-9342	https://www.thedesignengineering.com/	http://www.thedesignengineering.com/index.php/DE/article/view/2469	SCOPUS
Mathematical Modelling and Analysis of Temperature Effects in NEMS Based Bi-Metallic Cantilever for Molecular Biosensing Applications	Miranji Katta	ECE	Kuwait Journal of Science	2021	ISSN: 2307-4108	https://journalskuwait.org/	https://doi.org/10.48129/kjs.20495	SCI
A hybrid aco-es based optimized KNN classifier algorithm for rainfall detection & prediction	K. VaradaRaj kumar	CSE	Journal of Theoretical and Applied Information Technology	2021	ISSN: 1992-8645	https://www.jatit.org/	http://www.jatit.org/volumes/Vol199No13/17Vol99No13.pdf	SCOPUS

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Taming an Autonomous Surface Vehicle for Path Following and Collision Avoidance Using Deep Reinforcement Learning	Gadi Nirmala	CSE	International journal of Researching Electronics and Computer Engineering IJRECE	2021	ISSN:2348-2281	https://ieeexplore.ieee.org/	10.1109/ACCESS.2020.2976586	UGC
Effect of Steel Fibres on Flexural Toughness of Concrete and RC Beams	Kuppala Srinivasa Rao	Civil Engineering	Springer (AJSE)	2021	ISSN: 0967-0912.	https://link.springer.com/	https://link.springer.com/article/10.1007/s13369-021-06113-5	SCOPUS
A Comprehensive Survey on GNSS Interferences and the Application of Neural Networks for Anti-jamming	K. J. Silva Lorraine	ECE	IETE journal of research, Taylor and Francis	2021	ISSN: 0377-2063	https://www.tandfonline.com/	https://doi.org/10.1080/03772063.2021.1953407	SCI

Review on Novel Coronavirus (nCoV-19): Defensive Measures and Natural Medicine	Miranji Katta	ECE	International Journal of Clinical Studies & Medical Case Reports	2021	ISSN: 2692-5877	https://ijclinmedcasereports.com/	https://10.46998/IJCMCR.2021.12.000288	SCOPUS
Review on Novel Coronavirus (nCoV-19): Defensive Measures and Natural Medicine	P.Srinivasulu	ECE	International Journal of Clinical Studies and Medical Case Reports	2021	ISSN: 2692-5877	https://ijclinmedcasereports.com/	DOI:10.46998/IJCMCR.2021.12.000288	SCOPUS
Analysis of Excavator Bucket Using Ansys	Dr. M Sri Rama Murthy	Mechanical Engineering	International Journal for Scientific Research and Development	2021	ISSN: 2321-0613	https://www.ijserd.com/	https://www.ijserd.com/Article.php?manuscript=IJSRDV8150253	UGC
Simple and effective descriptive analysis of missing data anomalies in smart home energy consumption readings	K.Purna Prakash	Information Technology	Journal of Energy Systems	2021	ISSN: 2602-2052	https://dergipark.org.tr/en/	https://doi.org/10.30521/jes.878318	SCOPUS

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Line Segment-Based Clustering Approach with Self-Organizing Maps	Dr. G. Chamundeswari	Information Technology	Journal of Information Technology Research	2021	Vol 14, Issue 4	https://www.igi-global.com/	https://www.igi-global.com/article/line-segment-based-clustering-approach-with-self-organizing-maps/289855	UGC
A Comprehensive Study of Women Characters in the selected Novels of JANE Austen	Syed Zareena	English	IJSR(International Journal of Science and Research)	2021	ISSN: 2319-7064	https://www.ijsr.net/	https://www.ijsr.net/archive/v10i10/SR211017220253.pdf	UGC
Microgrid BSS Scheduling using Teaching Learning based optimization Algorithm	M.Veera Kumari	EEE	International Journal of Electrical and Electronics Engineering (IJEEE)	2021	ISSN: 2278-9944	https://www.researchgate.net/	https://www.researchgate.net/publication/372315632_MICROGRID_BSS_SCHEDULING_USING_TEACHING_LEARNING_BASED_OPTIMIZATION_ALGORITHM	UGC

A Novel feature selection paradigm in identifying Prominent variables from a high-dimensionality dataset	K.ChaitanyaDeepthi	CSE	International Journal of Research in Electronics and Computer Engineering (IJRECE)	2021	ISSN (Online): 2348-2281	ijrecc.com	http://nebula.wsimg.com/b75e00cb4b83df560426cd728dfb877f?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&alloworigin=1	UGC
A Novel feature selection paradigm in identifying Prominent variables from a high-dimensionality dataset	B.HomerBenny	CSE	International Journal of Research in Electronics and Computer Engineering (IJRECE)	2021	ISSN (Online): 2348-2281	ijrecc.com	http://nebula.wsimg.com/b75e00cb4b83df560426cd728dfb877f?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&alloworigin=1	UGC
Feature Extraction based Breast Cancer Detection using WPSO with CNN	Naga Deepti Ponnaganti	CSE	International Journal of Advanced Computer Science and Applications	2021	ISSN: 122158-107X	https://thesai.org/	10.14569/IJACSA.2021.0121250	WOS+SCOPUS
Optimal Infusion and Grading of Combined DGs and Capacitor Banks for Line Loss Minimization and Enhancement of Voltages in Radial Circuit System	Dr. Y Butchi Raju	EEE	Przegląd Elektrotechniczny	2021	ISSN: 0033-2097	http://pe.org.pl/	http://pe.org.pl/articles/2021/12/3.pdf	WEB OF SCIENCE

Allocation of Facts Devices for a Transmission System for Reducing Power Losses Using Tibo Algorithm	J.Ayyappa	EEE	Journal of Engineering, Computing & Architecture	2021	ISSN: 1934-7197	https://journaleca.com/	N/A	UGC
Review of Mems-Based Sensing Technology And Human-Centered Applications In Health Prespective	Miranji Katta	ECE	Nveo-Natural Volatiles & Essential Oils Journal Nveo	2021	ISSN: 2148-9637	https://www.nveo.org/	https://www.nveo.org/index.php/journal/article/view/1359/1174	SCOPUS
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Review of MEMS-based Sensing Technology and Human-Centered Applications in Health Prespective	R.Trinadh	ECE	Journal of Nat.volatiles & Essent. Oils	2021	ISSN: 4299-4315	https://www.nveo.org/	https://www.nveo.org/index.php/journal/article/view/1359	SCOPUS

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A Novel Method for Rainfall Prediction and Classification using Neural Networks

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Abstract—In the field of food production, it is an important and difficult job to maintain water sources for major population centres and reduce the risk of flooding, to forecast rainfall reliably and accurately. Accurate and genuine forecasts of rainfall on monthly and seasonal time scales help to provide beneficiaries with knowledge on the control of water supplies, farm forecasting and integrated crop insurance applications. Present rainfall prediction is the challenging task for the researchers and most of the rainfall prediction techniques are fail in accuracy. For this we propose a new effective hybrid approach for forecasting and classifying rainfall using the neural network and ACO method. The collected rainfall data were preprocessed by filling missing data and normalized by min-max normalization, the processed data is given to various classifiers for evaluating its performance. The performance of the existing and proposed models is compared. Performance comparison of existing feed-forward, cascade-forward and pattern recognition NN classifier and the proposed ACO+feed-forward backpropagation, ACO+ cascade-forward backpropagation and ACO+ pattern recognition NN classifier are done. The entire HNN forecasting protocol consists of pre-processing and choosing the input vector and maximising the number of hidden nodes using ACO and ANN modelling.

Keywords—Pattern recognition; ant colony optimization; artificial neural network; rainfall prediction; feed-forward; cascade-forward; data processing

I. INTRODUCTION

Precipitation, which is heavily dependent on space and time, is one of the most dynamic atmospheric systems. Knowledge of the rainfall phenomenon remains a challenging problem and it is also a vital job to efficiently and correctly predict rainfall, since it is important to preserve water supplies for major population centers in the food production sector and to minimize the risk of floods [1]. Reliable and true rainfall predictions help to provide beneficiaries with information on water supply control, farm planning and their integrated crop insurance applications on monthly and seasonal time scales [2,3]. In recent days, different methods have been suggested for rainfall prediction. These approaches, such as dynamic and empirical, are split into two different groups. General circulation models (GCMs) are usually based on the laws of physics and are a form of dynamic model used for climate forecasting [4].

GCM models, however, are highly complicated, so empirical models are often used to forecast monthly and seasonal precipitation during their usage in agricultural forecasting [5]. Predictive simulations are usually based on the theoretical relationships of predicate variables with various other predictors. The idea is to work out the spatial and temporal characteristics of past reports of rainfall and forecast variables in this system and to model expected rainfall. Traditional numerical model rainfall prediction approaches are carried out in order to test uncertain parameters by considering some kind of appropriate attribute through the application of regression or some other methods of data optimization [6]. The analytical techniques include statistical simulations and artificial neural networks [7,8]. Although ANN is the recipient of the simulation phase of the physical system, this model is not increased in terms of its precision as the time series is gradually non-stationary and when the hydrological function works on a broad time scale [9]. The pre-processing of input and output is achieved by normalization and function selection in order to deliver better performance in ANN models.

In this paper we propose a new effective hybrid approach for forecasting and classifying rainfall using the neural network and ACO method. The collected rainfall data were preprocessed by filling missing data and normalized by min-max normalization, the processed data is given to various classifiers for evaluating its performance. The performance of existing and proposed model is compared. Performance comparison of existing feed-forward, cascade-forward and pattern recognition NN classifier and the proposed ACO+feed-forward backpropagation, ACO+ cascade-forward backpropagation and ACO+ pattern recognition NN classifier are done. The entire HNN forecasting protocol consists of pre-processing and choosing the input vector and maximizing the number of hidden nodes using ACO and ANN modelling.

II. LITERATURE SURVEY

With the support of the k-means algorithm, a two-step prediction model, mixed Neural Network, and neural network was proposed by Chatterjee et al [10]. This contrasts the proposed model with the MLP-FFN classifier. The data source is the Dumdum meteorological station. The proposed model outperforms by achieving 84.26 percent accuracy without feature selection and 89.54 percent accuracy with feature selection. Graf et. al. [11] suggests a dual mix of discrete wavelet transforms and an artificial neural network for water



A new segmentation method for non-ideal iris images using morphological reconstruction FCM based on improved DSA

Satish Rapaka¹ · P. Rajesh Kumar² · Miranji Katta¹ · K. Lakshminarayana¹ · N. Bhupesh Kumar³

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Abstract

In any accurate iris recognition system segmentation of iris plays a vital role. The noise, specular reflections, eyelid/eyelash obstruction, and intensity inhomogeneities in an image make the segmentation more difficult. In this paper, a novel technique is proposed to segment the iris from images that are taken under uncooperative image conditions. The proposed method segments the image in two stages. Firstly, Morphological reconstruction fuzzy c-means clustering (MRFCM) based on an improved differential search algorithm is implemented before the segmentation step. The MRFCM can preserve image contours even in the presence of noise. Secondly, the iris is isolated from the undesired regions of an eye image by implementing geodesic active contours driven by a modified stopping criterion on the resultant images of the pre-segmentation step. The accuracy of the method presented has been tested on the databases such as CASIAv3-Interval, UBIRISv1, MMU1, IITDv1, and MICHE-I. The segmentation accuracy has been demonstrated and compared with other existing methods present in the literature. The obtained results are promising and the proposed model is outperformed the existing methods.

Keywords Iris segmentation · FCM clustering · Morphological reconstruction · Differential search algorithm · Geodesic active contours

1 Introduction

The individual identification based on the iris is one of the most important biometrics due to its unique and apparently stable iris patterns. The noise artifacts such as eyelashes/eyelids occlusion, specular reflections, blurring, non-circular iris boundaries, off-axis gaze, etc., make the segmentation more difficult. The segmentation algorithms can be classified broadly into two groups. Segmentation of perfect (ideal) iris images and segmentation of degraded (non-ideal) iris images. For the segmentation of ideal iris images, numerous techniques have been suggested by many researchers in the literature [1–9]. Segmentation of degraded iris images has grabbed attention for a decade.

Even though numerous approaches have been suggested for the segmentation of non-ideal iris image [10–18] there is still room for improvement in robustness and efficiency.

A wide range of segmentation approaches can be found in the literature, which include level set model [15], active contours [16], clustering [19, 20], watershed transform [21], graph cut [22], region growing [23], deep learning [24], etc. Among these varieties, clustering is employed for segmentation due to its rapidity and effectiveness. The purpose of clustering is to group the pixels of an image into various subgroups, based on pixel intensities, which are called clusters. Pixel intensities that belong to the same subgroup are as similar as possible to each other, whereas adjacent groups share the maximum difference.

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Research Article

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DETECTION OF VOLATILE ORGANIC COMPOUNDS USING MEMS BASED MICROCANTILEVER: A REVIEW

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ABSTRACT

This survey presents a literature review of metal oxide-based volatile organic compounds (VOC) sensor detection and cantilever based sensors for the checking and recognition of unpredictable natural mixes. The study contains data gave by various partners and writing concentrated on recognition of VOC gases like n-octane, toluene & n-butanone, Ethanol, Acetone, Pentaerythritol, tetra nitrate & 2,4,6-Trinitrotoluene with sensitivities, the limit of detection was presented. Parameters like resonant frequencies, quality factor and deflection properties of length versus width are measured for different MEMS cantilever structures.

Keywords: benzene, toluene, butane, cantilever, MEMS, volatile organic compounds.

INTRODUCTION

Due to chronic exposure hazardous compounds like Volatile organic compounds (VOCs) may cause damage to Human and living beings [1]. More number of techniques are available for VOC. High goal sub-atomic detachment approaches, for example, mass spectrometry and gas chromatography are all around described and offer high affectability, however are hard to execute in versatile, continuous screens, while approaches, for example, MOS resistive sensor are promising, yet at the same time requests greater affectability

Cantilevers can go about as concoction of organic sensors as soon as covered by a detecting coat or receptor atoms, the mass and firmness of the cantilever are changed by Target atoms pre-occupied by the functionalized plane. The progressions such produced causes a move on performance factor and Eigen recurrence that it distinguished by strain measures and converts to a sign corresponding to the objective focus [2].

MEMS gadgets are generally utilized in the territory of sensors, for e.g. pressure sensors, optical sensors, mouthpieces, actuators, and so forth. Cantilevers are generally designed utilizing mass micromachining, surface micromachining, or a mix of both. In each micromachining cycle, a strong structure is delivered from the wafer to make an unattached bar, moored toward one side. Contingent upon the application three stomach shapes, round, square and rectangular are utilized. The decision of stomach shape depends basically on the manufacturing cycle utilized for acknowledging it. Moreover, it relies on a few different factors, for example, the applications and appropriation of the necessary pressure field. As a rule, square and rectangular shapes are favoured because of the simplicity of creation. In mass micromachining, the cantilever is delivered from the greater part of the wafer's substrate. In surface micromachining, the cantilever is delivered from a surface layer. Both micromachining measures take into consideration the manufacture of a solitary cantilever or a

variety of cantilevers. These cycles likewise take into consideration the creation and reconciliation of the electronic hardware and different MEMS parts required to interface with the cantilevers.

MEMS-based cantilever sensor for VOC discovery is being developed. The VOC mixes comprise of aromatics, for example, xylene, toluene, benzene and ethylbenzene (BTEX) and aldehydes, for example, formaldehyde and acetaldehyde.

MOX Sensors for VOC

In industrial sensors, the property extremely estimated in sensors made up of metal oxide is the resistance. Oxide made with SnO_2 is mainly utilized because is more reactive and solid changes in obstruction. In general, the model is acknowledged, that tin oxide structure grains and the conductivity is ruled by the limit of grains. In general oxygen in the surrounding air, if there is an oxidizing gas nearby, the gas atoms respond with oxide of tin catching electrons at a superficial level, creating a positive charge space at the boundary to conduct.

MOx sensors moreover respond to inorganic gases, which quantify less number of centralizations of VOCs where gases like CO or SnO_2 , NO are in like manner exist in high obsessions. Thus, when there is use of MOx sensors, long stretch security information, cross-affectability to vaporous interfere blends, sogginess affectability is likely critical to address the response of a sensor. MOx sensors are judicious while distinguishing VOCs a small number of examinations indicate the major responsive oxides for VOCs fuse the following after sorts: WO_3 , SnO_2 , and ZnO [3,4,5].

In 2009, Ke *et al.* [6], a sensor of benzene gas based on MEMS was developed, comprising a substrate made of quartz, meagre coat WO_3 detecting layer, a coordinated Pt small scale warmer along through Pt interdigitized cathodes (IDEs). The warmed WO_3 is oxidised by benzene, directs electrical resistance between the IDEs.

Hybrid anti-jamming algorithm for Indian Regional Navigation Satellite System receivers using variational mode decomposition and wavelet packet transform

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Summary

Continuous wave interference has found to be one of the major menaces that deter the performance of the Indian Regional Navigation Satellite System (IRNSS) receivers for seamless positioning and navigation. In this paper, a novel hybrid jamming mitigation method based on variational mode decomposition (VMD) and wavelet packet transform (WPT) has been proposed. VMD is used to decompose the received signal into various components referred to as intrinsic mode functions (IMFs). To have an optimum decomposition of the signal, the mode decomposition number of VMD is determined by employing the kurtosis principle. Then, a threshold based on the mutual information index is constructed to differentiate the information dominant and interference dominant modes. The information dominant modes are then processed by the wavelet packet filter to eliminate the remaining effects of jamming and noise present. Finally, the filtered modes and the retained modes are used to reconstruct the desired signal. The performance of the technique is analyzed in the presence of single-tone, multitone, and chirp jamming scenarios with different levels of jamming power. The proposed method has been tested by simulations in comparison with the standard algorithms. Results show that the proposed hybrid algorithm outperforms the standard algorithms in reducing the jamming signal effectively.

KEYWORDS

continuous wave interference, Indian Regional Navigation Satellite System, intrinsic mode function, jamming mitigation, variational mode decomposition, wavelet packet transform

1 | INTRODUCTION

The Indian Regional Navigation Satellite System (IRNSS), which is often called Navigation with Indian Constellation (NavIC), is an all-weather Indian satellite-based positioning system developed by the Indian Space Research Organisation (ISRO). It provides reliable positioning, navigation, and timing services in India, and also the region extended up to 1500 km from its boundary. More information related to IRNSS can be found in IRNSS Signal in Space Interface Control Document (ICD) for Standard Positioning System, Version 1.1, 2017.^{1,2} Reliable positioning has become vital in many applications like the safety of life and public services; hence, the research on enhancing the performance of IRNSS receivers is of prime importance. IRNSS receivers operate on either a single frequency, i.e., L5 or S-band or dual-frequency band. However, they should be designed to be able to function in the presence of jamming, as

ANALYSIS OF PRINCIPAL COMPONENTS AND CLASSIFICATION ENHANCEMENT FOR RAINFALL PREDICTION

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Abstract - Rainfall detection becomes an important task during varying climatic conditions. It is become very essential to examine the changing patterns of the rainfall and try to detect the rain. The rainfall databases are highly susceptible to noise, inconsistent and missing of data at present day in the real-world. So, the data obtained must be repaired by plugging absent values and eliminating the unrelated data. For this min-max normalization is employed for transferred the data into [0, 1] range. After that it was operated with z-score normalization, where the data values are distributed in a small scope. Then the feature extraction using PCA and ACO is functioned. Finally, naive bayes classification is applied to compare the performance of with and without pre-processing and the classes representation based on the different principal components (PC) of feature selection were calculated with and without pre-processing. Monthly rainfall data sets that are downloaded from Indian meteorological department (IMD). Monthly rainfall for years 1901 to 2019 are taken for analysis. The missing data and the outliers were detected every month. For investigation, the value distributions and features using PCA and ACO of rainfall feature before and after normalization is observed. The min-max normalization and z-score normalization concluded that they do not change the autocorrelation. The ACO based method found efficient when compared to PCA method. Classification error with and without data pre-processing is measured and found that the pre-processing rainfall data enhances the model performance.

Keywords: ACO, Rainfall Detection, Rainfall Prediction, Min-Max, Normalization, Classification, PCA, Pre-Processing

1. Introduction

For all the flora and fauna on planet earth, rainfall is a very significant aspect. It is important not only for human beings, but for animals, plants, and other living things as well. In agriculture and farming, it plays a critical role. It is one of the most valuable properties on the planet. The varying climatic conditions and rising carbon gases have contributed to the condition that the planet earth is unable to provide the requisite amount of rainfall and that the water available on earth is unable to fulfil human needs in their daily lives. It is therefore very interesting to study the evolving rainfall patterns and try to identify the rain not just for human needs, but also to deter any natural catastrophe that could arise due to unexpected heavy rainfall. So, it has become the focus of computer scientist and engineers to stay updated by being aware of the changing climatic conditions. The databases are highly susceptible to noise, inconsistent and missing of data at present day in the real-world. Databases are huge in size (often as gigabyte or higher than it) and originates from sources as multiple and heterogeneous. The mining results will be low when low quality of data used. Many numbers of data pre-processing techniques are used improve the accuracy and efficiency of database. To remove noise, correction of unpredictability in the data can done by data cleaning. Through using data aggregation, such as a data repository, data can be combined from different channels into a cohesive data store. Data reduction is used to reduce the size of the data by, for example, aggregating, removing redundant functionality, or clustering. When data is normalized to fit into a narrower range such as 0.0 to 1.0.0, data transformations such as normalization are applied. The accuracy and usefulness of a database can be enhanced by this methodology.

The remaining section of the article is structured as: Section 2 Literature Survey and Section 3 discusses the data Pre-processing. The feature selection demonstrated in Section 4. Section 5 on Classification and the results are discussed in Section 6. Lastly, the conclusion of the research is deliberated in Section 7.

Preprocessing of Colorectal Cancer Protein Expressions Using Correlation Co-Efficient Factor and Disease Score

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Abstract—Preprocessing is one of the important techniques in identifying the molecular sequences. Identifying the Colorectal Cancer protein sequences is one of the challenging task. So, an approach is needed to discover and identify the related proteins as well as targeted treatment from the large data set, so a preprocessing technique called as seed proteins co expressions Protein-Protein Interaction (PPI) system is implemented. In this algorithm first construction of protein network, then consideration of the disease score and fix the threshold value based on that filter the network. Finally consider the properties of protein sequences and correlate the properties based on co-efficient co relation algorithm, based on the result the network is splitted into sub-networks. This method filters the top proteins which normally effects the identification in colorectal cancer. There are proteins which effects in 33 regions of Colorectal Cancer such as EGF, PLAU, HRAS and TP53 by using the data set of 2000 proteins. This method purifies and identifies the most effected protein expressions for the clinical outcome to understand the functional mechanism of essential proteins. Some computational methods and topological features with biological data has been taken to explore the purification of protein sequences. These functional mechanisms can be applied for invention of Colorectal cancer drugs, so this approach attracts more since it reduces the cost factor.

Keywords—Colorectal Cancer, Protein-Protein Interaction, Seed Protein, Sub Network, Coefficient Correlation

I. INTRODUCTION

Colorectal Cancer(CRC) is the third most commonly occurring cancer in men and the second most commonly occurring cancer in women and account for 9.4% of all cancer deaths. There were over 1.9 million new cases in 2018 [2]. In developing nations, the ascent of colorectal malignant growth can be because of the rising maturing populace, horrible present day eating designs, and an expansion in danger factors, for example, smoking, low active work, and weight, so distinguishing proof at the beginning phase is one of the significant components. The occurrence rates are geographically different, with more than half of the cases of CRC occurring in developing countries. Be that as it may, mortality is higher in the less evolved nations who have restricted assets and insufficient wellbeing foundation. Death rates have been diminishing in numerous Western nations

because of a blend of different components like early recognition because of screening and improved treatment of CRC [1].

India has a low commonness of CRC—assessed five-year predominance is 87 for every 100,000 populaces. Contrasts in dietary examples and ways of life are believed to be liable for the low occurrence of CRC in the creating scene. Additionally, pervasiveness of weight which is a danger factor for CRC contrasts in the created and the creating scene. Another conceivable explanation behind low occurrence can be a more youthful populace—CRC is more normal in the old. It ought to be noticed that the populace vaults in India cover just 7.45% of the populace, while overall malignant growth libraries cover 21% of the populace; thus, some measure of under revealing might be conceivable in India. Nonetheless, concentrates on Indian foreigners from nations with a high predominance of CRC like the USA and Singapore show that CRC frequency is lower in Indians than in the local populace however higher than that saw from the Indian registries [4]. This shows in spite of the fact that there are probably going to be some hereditary components associated with the lower occurrence of CRC, ecological factors additionally have a task to carry out. As of late, with the advancement of high-throughput biotechnologies, a lot of organic information has been created. For example, yeast two-half and half frameworks, protein complex and quality articulation profiles, and so forth. These information are valuable assets for concluding and understanding quality capacities [5]. Up until now, the Protein-Protein Interaction (PPI) information has been broadly utilized for quality capacity forecast with the supposition that connecting proteins share the equivalent or have comparable capacities and henceforth might be engaged with a similar pathway. This "liable by affiliation" rule was first proposed by Nabieva et al. what's more, can likewise be utilized to recognize malignant growth related qualities [6].

The advancement of CRC is normally seen with the guide of the initiation of the KRAS and BRAF qualities and the restraint of the p53 tumor silencer quality articulation; changes in those qualities are identified with adjustments in the number and state of chromosomes. The fundamental driver of CRC incorporates dietary and natural components, just as hereditary transformations. The concurrent methylation of the CpG site and transformation of the BRAF quality are

Preprocessing of Colorectal Cancer Protein Expressions Using Correlation Co-Efficient Factor and Disease Score

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FREQUENCY STABILIZATION OF MULTI AREA AUTONOMOUS HYBRID POWER SYSTEM USING SINGLE AND MULTI OBJECTIVE SALP SWARM ALGORITHM

By

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ABSTRACT

This paper explores the design of load frequency controller for a multi area (two area) autonomous hybrid power system in which Distributed Generation (DG) resources are integrated. A novel controller such as 2DOF-PID controller is established as a secondary controller. The controller gains are to be tuned with most popular meta-heuristic swarm intelligent technique named as Salp swarm algorithm. The simulation results alleviates the efficacy and superiority of Salp Swarm Algorithm (SSA) being compared with other soft computing techniques such as Grasshopper optimization algorithm (GOA), Ant lion optimizer (ALO) and Particle swarm optimization (PSO) carried out under five different categories of load uncertainties.

Keywords: Distributed Generation (DG), Salp Swarm Algorithm (SSA), Grasshopper Optimization Algorithm (GOA), Ant Lion Optimizer (ALO), Particle Swarm Optimization (PSO), and 2DOF-PID Controller.

INTRODUCTION

The present scenario running in the electricity market is about interconnected power grid. Renewable power sources are more economical to meet the load requirement of consumers and industries that pollute the environment. Therefore many markets are looking forward for the integration of non-renewable power sources to the interconnection of power grid [Pandey et al., 2014] with wind and solar energies which are being more preferable energy sources. In addition to these sources there are many more sources such as biomass, MHD, tidal energy, wave energy etc., which can be used for integration but the major drawback is that it can produce only a minimum amount of electrical energy compared with other sources.

The aim of the automatic generation control (AGC) is to balance load demand and generation, and maintaining frequency of an acceptable range. In the interconnection of power grid there occurs load fluctuations due to many transients which may lead to the frequency deviations [Das et al., 2014]. In order to regain the power system to the normal operating condition, a controller action is necessary.

In this paper, a two area autonomous hybrid power system is considered which consists of thermal-thermal interconnected power system in which area-1 is integrated with distributed generation (DG) resources. The DG system consists of wind turbine generator, solar PV system, fuel cell with aqua electrolyzer, diesel engine generator and energy storage system of battery energy system [Lal & Barisal, 2017]. Frequency deviations and area control error (ACE) are the two objectives considered for controller design to form the multi objective function of this study.

The main contribution of the work are summarised.



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ANN Based Day-Ahead Load Demand Forecasting for Energy Transactions at Urban Community Level with Interoperable Green Microgrid Cluster

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Abstract- Microgrids are formed with the rapid penetration of renewable energy sources (RES) into the distribution grid (DG) network, which increases the complexity of DG system and at the same time the conventional grid is getting overloaded due to the urbanization. So, to reduce the stress on the utility grid and for safe and reliable operation of microgrid (MG), it is necessary to develop proper Energy Management System (EMS) with adequate real time control. With this motivation in this paper Artificial Neural Network (ANN) is used along with EMS in the proposed microgrid cluster for making energy transactions based on the availability of localized green energy sources. Energy management system uses day-ahead load demand forecasted by ANN for scheduling the energy sources and managing the energy transactions between the proposed system and utility grid during surplus/shortage power conditions. The cluster is formed by interconnecting two interoperable areas and each area associated with two microgrids. The proposed system with ANN in this paper is modeled and implemented in MATLAB software with Simulink and NN tool box. The simulated test results showed the accuracy of ANN for forecasting day-ahead load demand of the proposed system when compared with Linear Regression (LR).

Keywords: Renewable Energy Sources (RES), Distribution Grid (DG), Microgrid (MG), Artificial Neural Network (ANN), Energy Management System (EMS), Linear Regression (LR), Utility grid.

1. Introduction

In this present urbanization era, it is globally accepted reality that the 70% of world population moves towards urbanization by 2050 [1]. At the same time the emission of green house gases increases, from the past few years with the excessive usage of conventional fuels. Hence, researchers are looking for alternative sources of energy in order to meet the consumer energy requirements for sustainable growth in developing/ undeveloped countries. Now a days the definition of distribution grid is completely changed with the use of power electronic based microgrids. MG's are initially

used as small power generating sources which are installed in the rural areas to supply the uninterruptable electricity, where there is no access to electrical power. Microgrids are interconnected with localized green energy sources such as 'solar', 'wind' and 'fuel-cells', because these are cleaner in operation, more efficient and are located nearer to the site [2]. However the people in rural areas are also living with more sophisticated lives, so rural areas are also emerging as urban communities. This situation leads to create heavy burden on the conventional grid, so to decrease the additional stress on the utility grid researchers are focusing on clustering of adjacent microgrids with interoperability [3].

An efficient interference mitigation approach for NavIC receivers using improved variational mode decomposition and wavelet packet decomposition

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Abstract

Reliable positioning, timing, and navigation services have become vitally important in safety and security applications. Hence, the need for Global Navigation Satellite Systems (GNSS) is growing continually. However, Continuous Wave Interference (CWI) was found to be one of the major potential threats of GNSS systems which degrades the receiver's performance. So, in this paper, a new approach using Improved Variational Mode Decomposition and Wavelet Packet Decomposition (IVMD-WPD) has been proposed to mitigate CWI in NAVigation with Indian Constellation (NavIC) receivers. Although VMD is considered as an excellent signal analysis tool in decomposing non-stationary and complex signals, the accuracy of the decomposition results depends upon the parameter setting. To address this, firstly, Normalized Kurtosis Energy Ratio (*nKER*) evaluation index is constructed. Then, the principle of *nKER* maximum is implemented to find the optimal parameters of VMD. Using the optimized parameters, the received signal is decomposed by IVMD into sub-signals. Secondly, the mutual information index is introduced to extract the information dominant modes. The extracted modes are then processed by wavelet packet filter and finally, the desired signal is reconstructed. The proposed IVMD-WPD method not only reduces the jamming efficiently but also overcomes the limitations of VMD. Moreover, by integrating IVMD with wavelet packet filter, the remaining effects of jamming and noise present in desired modes can be filtered thereby enhancing the performance. Simulation results reveal that the proposed method performs better in comparison with the conventional techniques in case of a single tone, multi-tone, and chirp jamming environments.

1 | INTRODUCTION

Indian Regional Navigation Satellite System (IRNSS) works with an operational name called NAVigation with Indian Constellation (NavIC). It is an independent all-weather regional navigation system that is based on satellites; and it was developed by the Indian Space Research Organization (ISRO). The NavIC receiver operates usually on the L5 band (1176.45 MHz) and S-band (2492.028 MHz). Much information related to IRNSS can be obtained from IRNSS Signal



Simultaneous tropical disease identification with PZT-5H piezoelectric material including molecular mass biosensor microcantilever collection

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ABSTRACT

Tropical diseases are contagious diseases and are also larger in number and are more subtle in the avoidance and diminishment of their dissemination in tropical and subtropical areas. Bacteria belonging to the division of the word arthropodae (the bugs that predominantly bite by way of being tick by mosquitos and other arthropod, including flies), which involve some of the medicinal bugs that can transmit diseases to humans, for example mosquitos, bees, flies, etc. This illnesses, as tropical diseases with related consequences to electronic cigarette use, are of special concern. Via the use of a piezoelectric MEMS(Micro Electro Mechanical Systems) based sensor, researchers propose to establish a classification scheme for diseases that are frequently elevated in tropical and subtropical areas. For our experiment, we consider four kinds of viruses, Zika, Chikungunya, Dengue, and Malaria transmittable through mosquitos. To realise a structure that is $100\ \mu\text{m} \times 50\ \mu\text{m} \times 250\ \text{nm}$ thick, it is appropriate for one to use a piezoelectric array made of a poly-silicon-based cantilever. The electromagnetic induction actuation device is used to detect fluctuations in the measurement pointer during the mechanical adjustments in the cantilever. The emitted photons at the resonant frequencies are important, since the particles that are emitted end up on the end of the cantilever. The average performance voltage of the NEMS(Nano Electro Mechanical Systems)-based bio-sensor simulation results, which involves a Zika virus, Chikungunya, dengue and Malaria viruses, was 1.98×10^{-8} , 2.04×10^{-8} , 2.23×10^{-8} and 3.43×10^{-8} respectively. The related results obtained from both variations of this biosensor in detecting both tropical and subtropical diseases indicate the efficacy of this biosensor in simultaneously detecting tropical and subtropical diseases.

1. Introduction

Globally, vector transmitted pathogens are now the duty of reliable public health. And if the pathogens have acquired tolerance to it, they still have irregularly raised their area of endemicity and may potentially become a crisis. Even though Zika, dengue and malaria are not deadly, it is also possible to transmit these viruses and other pathogens much as how mosquitos spread. Also, if you are travelling beyond the developing world, there are other areas that are as risky as these. None is aware of these viruses' first clinical emergence. Without any real effects, researchers will use these viruses to observe indicators such as pneumonia, muscle irritation, knee pain, and conjunctivitis [1]. In the testing of health problems, some cardinal symptoms and regions that are present will result in the combined testing of each of these viruses.

A paper from search identified the use of computerized biosensors in order to classify major tropical diseases linked to [the generic name of an arbovirus species] virus. It is very helpful for users as a vibration filter in

an oil flask, as the adsorption of antigen-antibody on the cantilever's surface. The MEMS/NEMS technologies give a surface of huge magnitude which is equivalent to the excellent surface of viruses. This MEMS technology is the miniaturized version of electronic as well Mechanical systems in order to meet design constraints in sensitive system developments. NEMS technology is the evaluated version of MEMS with respect to dimensions, should cause more surface to volume ratio provides better sensitivity than MEMS. Such aster shaped structure is shown in the below Fig. 1. The PZT-5H(Lead Zirconate Titanate-5H) is a piezoelectric transducer medium that lies between layers of SiO₂ and polysilicon at the fixed end. In Doppler experiments which are performed on signals such as those of the ultrasound, the high-frequency variation in reaction shift is translated to an electrical frequency spectrum using the principle of piezoelectric effect. The significance of probability resides in how those receptors decide how they respond to the chemicals nearby and remain on top.

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Article

Development and Analysis of Mechanical Properties of Caryota and Sisal Natural Fibers Reinforced Epoxy Hybrid Composites

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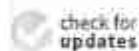
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Abstract: In recent years, natural fiber reinforced polymer composites have gained much attention over synthetic fiber composites because of their many advantages such as low-cost, light in weight, non-toxic, non-abrasive, and bio-degradable properties. Many researchers have found interest in using epoxy resin for composite fabrication over other thermosetting and thermoplastic polymers due to its dimensional stability and mechanical properties. In this research work, the mechanical and moisture properties of Caryota and sisal fiber-reinforced epoxy resin hybrid composites were investigated. The main objective of these studies is to develop hybrid composites and exploit their importance over single fiber composites. The Caryota and sisal fiber reinforced epoxy resin composites were fabricated by using the hand lay-up technique. A total of five different samples (40C/0S, 25C/15S, 20C/20S, 15C/25S, 0C/40S) were developed based on the rule of hybridization. The samples were allowed for testing to evaluate their mechanical, moisture properties and the morphology was studied by using the scanning electron microscope analysis. It was observed that hybrid composites have shown improved mechanical properties over the single fiber (individual fiber) composites. The moisture studies stated that all the composites were responded to the water absorption but single fiber composites absorbed more moisture than hybrid composites.

Keywords: Caryota and sisal fibers; epoxy resin; hybrid composites; mechanical properties; moisture absorption; SEM analysis



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1. Introduction

A matrix material plays an important role in composite fabrication. A matrix is used as a load distributor among the reinforcement material when the external pressure is applied. Based on the matrix material polymer composites are classified as thermoset polymers and thermoplastic polymer composites [1,2]. Unlike thermoplastics, thermosets are not recyclable because it does not come back to its original state when the resin is converted from liquid state to solid state after the curing process. Just heating process is required for thermoplastics to get a new shape. Many researchers found interest in using the thermoset polymer resins over thermoplastic resin due to its wide range of applications. Among all the thermoset resins, epoxy resins have gained much popularity due to their adhesive properties, low shrinkage and curing time, good permeability resistance to moisture [3–7]. Due to their high adhesive properties, epoxy resins are vastly suited for bonding with various materials, such as fibers, steel, plastics, and wood [8,9]. To create a strong network-like structure between reinforcement and matrix material, a curing agent (hardener) is usually added with the epoxy resin. Though their great cross-linking density leads to the crack propagation and fracture toughness of the composites. Many researchers have shown interest to improve its structural stability by using chemical and physical modifications, the addition of nanoparticles, and inert pigments such as glass, iron oxide, and basalt particles [10–14]. Based on matrix material composites are classified into three

Transfer learning-based Plant Disease Detection

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Abstract:

Deep Neural Networks in the field of Machine Learning (ML) are broadly used for deep learning. Among many of DNN structures, the Convolutional Neural Networks (CNN) are currently the main tool used for the image analysis and classification problems. Deep neural networks have been highly successful in image classification problems. In this paper, we have shown the use of deep neural networks for plant disease detection, through image classification. This study provides a transfer learning-based solution for detecting multiple diseases in several plant varieties using simple leaf images of healthy and diseased plants taken from PlantVillage dataset. We have addressed a multi-class classification problem in which the models were trained, validated and tested using 11,333 images from 10 different classes containing 2 crop species and 8 diseases. Six different CNN architectures VGG16, InceptionV3, Xception, Resnet50, MobileNet, and DenseNet121 are compared. We found that DenseNet121 achieves best accuracy of 95.48 on test data.

1. Introduction

Today, modern technology allows us to grow crops in quantities necessary for a gentle food supply for billions of individuals. But diseases remain a significant threat to the current supply, and a outsized fraction of crops are lost every year to diseases, true is especially dire for the 500 million smallholder farmers

around the globe, whose livelihoods rely on their crops doing well.

It is important to urge an accurate diagnosis of plant diseases for global health and wellbeing. Disease detection in plants plays a significant role in agriculture, they have to be detected and diagnosed as early as possible, otherwise plants will be effected to serious



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DYNAMIC FREQUENCY ADJUSTER WITH RESPECT TO USER ALLOCATION IN FIBER WIRELESS SYSTEMS

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ABSTRACT

Adaptability and high bandwidth limit with optical access network address a promising organization engineering in the most exceptional correspondence framework, and these capacities made Fiber-Wireless organization a promising organization for 5G correspondence. At that point, a virtual organization inserting calculation to plan precisely the virtual organizations of Data traffic to the static asset of the virtual organizations of standard traffic without degrading the execution of daily traffic is proposing. Consequently, the proposed calculation can improve asset usage all the more successfully. The recreation results show that the proposed calculation can accomplish a higher acknowledgement proportion and lower relocation proportion of Data traffic.

INTRODUCTION

Particularly, network virtualization as an arising strategy furnishes FiWi with the possibility of organized data transmission allotment of remote access organization and optical access organization. The advancement of FiWi access organization ought to be not just arranged to the innovative achievement in ordinary rush hour gridlock but also strong of the arising Data traffic.

A definitive objective of networks is to furnish clients with data, regardless of what time it is, the place where clients are and what structure data. To accomplish this objective, fibre organizations and remote organizations are two key strategies. Fibre networks can tremendously measure accessible data transfer capacity and high enemy of interference, yet their organization's expense is high. Then

again, remote organizations perform well regarding cost, adaptability and ubiquitous inclusion. However, they are defenceless to sur-adjusting climate's changes[1]. To some degree, fibre organizations and small organizations can be considered as correlative. With the development of clients' number and their transfer speed requests, fibre organizations and remote networks are consolidated together, offering to ascend to fibre-remote (FiWi) networks. FiWi networks have heterogeneous architecture.

Independent optical organizations (PONs) are seen as the principal assemblage of fibre to the home (FTTH), where they interface with a ton of remote advances, for example, IEEE 802.11[2], IEEE 802.16[3] and so on In FiWi organizations' fibre subnetwork, optical line terminal (OLT) is laid in the focal office (CO) and associated through fibre to a few optical organization units (ONUs). In their remote section, a gathering of remote switches forms a remote lattice net-work (WMN) with the ONUs. Regardless of whether fixed or versatile, clients interface with OLTs through these switches whose positions are fixed in a WMN[4].

Incorporate them, radio-over-fibre (RoF) innovation is utilized in the actual layer, which gives straightforwardness to up layer protocols[5]. Besides, FiWi networks are the absence of systematical administration of the board. Increasing administration number and scale, particularly over the top (OTT) administrations given by third-party specialist organizations, lead FiWi organizations' administration of the board to a disorganized circumstance, which indirectly impacts the systems administration

SIMULATION APPROACH TO DESIGN HIGH SENSITIVE NEMS BASED SENSOR FOR MOLECULAR BIO- SENSING APPLICATIONS

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ABSTRACT:

This research article utilizes the finite element method of analysis to achieve the finest throughput of piezoresistive nano cantilever sensor by minimizing the dimensions of both physical piezoresistor and cantilever. The 750nmx300nmx15nm-sized cantilever is incorporated with 5nm substantial Si as piezoresistor is used for revision. The proposed cantilever output performance has been calculated based on surface stress sensitivity and displacement. A maximum resultant displacement value of about 12nm for the load of 100pN has been obtained. The Performance comparison between Polysilicon and SiO₂ cantilever has been found out by applied identical load and measured displacement. Similarly the sensitivity of the cantilever sensor by parametric sweep on thickness is applied for both cantilever and piezoresistor. The parametric sweep results shows that the sensitivity of the cantilever is highest when the thickness of both cantilever and piezoresistor is at the smallest. Poly silicon and SiO₂ based cantilevers with the built-in longitudinal cut at the bottom create stress concentration regions which will greatly improved sensitivity as high as 13.89% and 31.81% in comparison with other Non-SCR cantilevers for the proposed design.

Keywords: MEMS, NEMS, Biosensor, FEM, cantilever

I. INTRODUCTION

MEMS/NEMS based technology has been an extremely reliable and outstanding platform for the development of biological and chemical sensors. These

SIMULATION APPROACH TO DESIGN HIGH SENSITIVE NEMS BASED SENSOR FOR MOLECULAR BIO- SENSING APPLICATIONS

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Keywords: MEMS, NEMS, Biosensor, FEM, cantilever

I. INTRODUCTION

MEMS/NEMS based technology has been an extremely reliable and outstanding platform for the development of biological and chemical sensors. These

Research Article

Impact of external surface temperature & Heat radiation of SiO₂ based nanofluids over a vertical circular cylinder enclosed in porous medium

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ABSTRACT

The current article analyzes the study on "MHD - mixed convective boundary layer flow" SiO₂-water, SiO₂ - Ethylene glycol & SiO₂ -Engine oil nano fluids "above a vertical circular-cylinder" under the influence of radiant heat and magnetic-field Passing through a porous medium. Similarity variable(s) are used to transform the main PDE (partial differential equations) into the ODE (ordinary differential equations). The governing equations are then solved by the method of R- K -Fehlberg with shooting technique numerically. MATLAB is used for the presentation of results. The impact of pertinent- parameters on factors like velocity and temperatures of assisting flow, convective flow and opposing flow are unyielding and detailed info are presented through various plots. The "coefficient of skin friction (C_f)" and "local Nusselt number (Nu)" for different parameter(s) are computed for the three flows and tabulated.

Keywords: Porous medium, radiant heat, heat source, assisting flow, convective flow and opposing flow.

INTRODUCTION

In recent years, the base-fluids like water(H₂O), ethylene-glycol & oils have less thermal-conductivity & these fluid(s) find many application(s) in heat-transfer process in multiple industries. If used as a cooling tool(s), they increase manufacturing & operating cost(s). To improve thermal property of base fluid(s), many research scientists exercised suspending micro/nano particle(s) in different liquids. The result of research is no single fluid-model is found effective in increasing thermal- conductivity. For this cause/reason, different kinds of fluid model(s) are advised as alternate to enrich/improve thermal conductivity of different fluid(s) in the recent years.

The efficiency of heat transfer fluids to be improved for the purpose of cooling in various devices of the machinery. The different traditional type of fluids like water(H₂O), ethylene-glycol(EG) & "engine oil" plays promising and prominent role in industry to transfer heat in the processes like power generation, cooling & heating, chemical processes and microelectronics. The addition of solid particles deferred into the base-fluid is important technique(s) for improving the

development of heat-transfer because all the solid metal(s) have more thermal-conductivity than the traditional fluid. The different nano fluids having their size in nano meter range. The transport & thermal property(s) of different base fluids varies appreciably with the nano sized particles. The nano fluids have significant role in the transportation industry, cooling process of various electronic components, industrial cooling process, atomic reactors and hybrid engines, fuel cells, medical field, military field and in the applications of aerospace.

The heat-transfer in nano fluid(s) exhibits increased/high thermal conductivities as that of heat-transfer in conventional fluid(s). The high thermal-conductivity of nano fluids provide the option to increase heat-transfer rates, a one and only unique and important feature of the nano fluid. Increased knowledge advancement in device efficiency have necessitated heat-transfer system(s) of small/medium in size, less mass, & important high-performance.

Thermal conductivities of various nano fluids exhibits the volume-fractions of conceded unit(s) is the important parameter(s) in increasing thermal-conductivity was calculated by Hwang et

Elliptic Curve Cryptography with Reduced Cipher Bandwidth-A New Approach to Conventional ECC

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Abstract:

Public key Cryptosystem (PKC) is ever expanding in the history of cryptography. Traditional Public Key Infrastructure (PKI) certificates assure the authenticity in the form of digital signature. Elliptic curve cryptography is an incredible and complex public key cryptosystem having wide range of practical applications in wireless environments like smartcards, tokens, and mobile phones. The attractive feature of ECC is it offers equivalent level of security as RSA/DSA with much smaller keys. This is the reason that ECC has several applications in wireless constrained environments especially in Secure Sockets Layer (SSL) handshakes to establish SSL connection. For implementing the text encryption in ECC one plaintext point on the elliptic curve is encrypted as two cipher text points. So, the main drawbacks of ECC is that it increases the size of the cipher significantly more than RSA encryption. This paper aims at presenting innovative elliptic curve cryptosystem that reduces the cipher size equivalent to that of the plaintext which reduces the communication risk, storage space and power consumption.

Keywords *Elliptic Curve Cryptography, Encryption, Decryption*

DIGITAL SIGNATURE ALGORITHM TO MAINTAIN PERFECT FORWARD SECRECY (PFS) USING HYPERELLIPTIC CURVE CRYPTOSYSTEM

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Abstract:

Key management plays a major role in public key cryptosystem, especially using session keys changing the session key from time to time enhances the robustness of the cipher at every stage of its transmission from one end to the other. The mission of protecting the session keys against the adversary can be achieved by perfect forward secrecy (PFS). The present paper explains the digital signature algorithm with perfect forward secrecy (PFS) basing on Hyper Elliptic Curve Cryptosystem. Hyper Elliptic Curve Cryptosystem (HECC) provides equal security level as other conventional public key cryptosystems with shorter key length. The proposed digital signature algorithm strengthens the cipher in all directions of confidentiality authentication and integrity.

Keywords:

Encryption, Decryption, Hyper Elliptic Curve Cryptography HECC, Divisors.

1. INTRODUCTION

Public key cryptography is a new technology in cryptography archive record, discovered by Whitfield Diffie and Martin Hellman in 1976. Most popular public key cryptosystems are RSA, Diffie-Hellman key exchange protocols based on discrete logarithm of hard numbers. Elliptic curve cryptography is a revolutionary in public key cryptography proposed by Neil Koblitz and Miller in 1985 [1,2,3]. Since then, abundant research been done by several researchers. Two major issues

Mathematical modelling and analysis of temperature effects in MEMS based bi-metallic cantilever for molecular biosensing applications

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Abstract

As Lab-on-Chip platforms with micro-and nano-dimensions evolve biosensors using miniaturized and high-sensitivity cantilevers are becoming more attractive. Although these sensors function in non-isothermal situations, computational mathematics generally ignores the temperature. Conversely, biosensor cannot be designed with a single-layered cantilever. Yet, in Nano-Electro-Mechanical-Systems, the influence of temperature is more likely to be dominant since the surface-to-volume ratio is higher. In the context of this conclusion, the mathematical modelling comprises temperature and the associated material attributes. This work presents a simple and direct analytical technique for analysing the control of bimetallic cantilevers with NEMS-based sensing and actuation mechanisms. Methodological techniques were used to develop and solve some well-known models of mathematical equations. Parametric analysis data is a major factor in the functioning of all of the other works studied. The findings of FEA comparisons and experiments reveal that the mathematical model's predictions are more than 20% correct.

Keywords: Actuation; bimetallic layers; bioMEMS; biosensors; temperature effects.

1. Introduction

As Lab-on-Chip platforms with micro-and nano-dimensions evolve, biosensors using miniaturized and high-sensitivity cantilevers are becoming more attractive. Although these sensors function in non-isothermal situations, computational mathematics generally ignores the temperature. Conversely, no biosensor can be designed with a single-layered cantilever. Yet, in Nano-Electro-Mechanical-Systems, the micro-electro-mechanical systems (MEMS) have recently enabled the medical sector to develop a new generation of chemical and biological sensors. When it comes to biological sensing, NEMS and the sensors and actuators that go with it are becoming important and it is possible to build sensing systems using micro-and nanoscale parts. The outcome of such systems are more reliable, faster, and accurate (Gupta *et al.*, 2016), (Vasan, Doraiswami and Pecht,

A HYBRID ACO-CS BASED OPTIMIZED KNN CLASSIFIER ALGORITHM FOR RAINFALL DETECTION & PREDICTION

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ABSTRACT

The detection and prediction of rainfall is an important task in recent years. The usage of machine learning approach in agriculture has enhanced the efficiency of farming. The rainfall detection and prediction will be helpful to farmers to take appropriate actions on sowing, irrigation etc. In this paper, the rainfall detection and classification are done, the investigation of various machine learning approaches like Support Vector Machine, K-Nearest Neighbor (KNN), Decision Tree Neural Networks were done using rainfall data. In this paper we propose a new approach for the optimization of the nearest neighbor numbers in KNN algorithm using a hybrid Ant colony optimization and Cuckoo search algorithm for efficient rainfall detection. The experiments were performed in MATLAB platforms using monthly rainfall data sets that are downloaded from Indian meteorological Department (IMD). Monthly rainfall for years 1901 to 2019 are taken for analysis. The performance of various classification algorithm for rainfall data using the parameters like precision, sensitivity, specificity, and accuracy has been done.

Keywords: ACO, Cuckoo search, SVM, neural networks, KNN.

1. INTRODUCTION

Rainfall is the very essential for all the atmospheric activities and it not only aids for the society and environment but also for every living being living on the earth. It is the most important and necessary natural phenomenon and so it affects everything directly or indirectly. At the same time, it is necessary for humans to examine on the changes in precipitation with respect to the climatic changes [6]. The rainfall has an important cause on the universal gauge of atmospheric circulation, and it also have effect on the local weather conditions. It also aids to balance the increasing weather temperatures and for the existence of the humans [9]. The increase in temperature is directly related to global warming and it is the fact that water is the scare and the most wanted resources that results in the increasing weather conditions that leads to the evaporation of water from the reserves. The compensation of these reserves is given by rainfall. It is also essential for agricultural production. The occurrence of rainfall varies with the variation in the latitude and longitude. Different regions, planes, mountains, and plateaus also affects rainfall.

Rainfall prediction is a great challenge for climatologists. Rainfall is one of the most essential elements of our climate system. Many disasters such as global warming, floods, drought, heat waves, soil erosion and many other climatic issues are caused because of rainfall. Also, agriculture is related to rainfall [18] and it is the important element of economic activities in most of the countries in the world. Hence for increasing the production of crop and to protect crop, human life, and ecosystem the demand for prediction of rainfall is growing in rate day-by-day for reliable prediction from policy makers. This explains the need for accurate prediction of rainfall. Many methods are followed for prediction of rainfall, but the accuracy is the necessary factor that must be tested in all the methods. The world is affected by many disasters caused by rainfall and those includes Drought, Flood and intense summer heat etc., and this also have effect on water resources around the world. Fig 1 shows the downfall of yearly rainfall in millimetre.

Mining Maximal Subspace Clusters for High Dimensional Data

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Abstract: Clustering is a process of automatically finding similar data points in the space of dimensions or attributes for a given data set and finding the clusters in the high dimensional datasets is an important and challenging data mining problem. Data set can be better understood by clustering in its subspaces, a process called subspace clustering. Subspace clustering is an extension to traditional clustering that seeks to find clusters in different subspaces of a dataset. Often in high dimensional data, some dimensions may be irrelevant and this may mask the true clusters which are hidden in subspaces.

This paper presents a Dynamic Epsilon based Subscale Algorithm (DESS) dealing with a unique problem of mining maximal subspace clusters in high dimensional data. A maximal subspace cluster is defined by maximal number of attributes. The mining algorithm involves four steps. In the first step, data points are assigned with unique positive integers called labels. In the second step, dense units are created based on the density notion which considers an input parameter called minimum points (τ), within the proposed dynamically calculated epsilon radius. The epsilon value is considered dynamically based on the data distribution. In the third step, sum of the labels of each data object forming the dense unit is calculated to be its signature and is hashed into the hash table. If a dense unit of a particular subspace collides with that of the other subspace, then both the dense units exists in the subspace formed by the colliding subspaces with the high probability. In other words, if the dense unit exists in both subspaces and there is high probability that it exists in higher subspaces formed by the union of colliding subspaces.

This process is repeated in single dimensional space and the dense units are hashed in the hash table. Maximal dense units are formed based on the colliding dimensions against each signature in the hash table. Then density reachable sets are identified from the existing dense units and hence, maximal subspace clusters are generated. The experiments are done on benchmark numeric datasets which are taken from UCI machine learning repository. The proposed algorithm Dynamic Epsilon based Subscale Algorithm (DESS) considers dynamic epsilon and has produced better quality maximal subspace clusters when compared to existing (SUBSCALE) algorithm. The time taken is less compared to SUBSCALE algorithm. Purity of DESS

algorithm has increased when compared to SUBSCALE algorithm. Number of subspace clusters are less compared to the SUBSCALE algorithm. The percentage of increase in purity is by 0.3%, and the percentage of execution time is decreased by 0.5 %, and the percentage of decrease in number of subspace clusters is 0.02% on an average given data distributions.

Keywords: Clustering, Dynamic Epsilon based Subscale Algorithm, Dynamic Epsilon, Subspace Clusters.

1. INTRODUCTION

Finding out of interesting (Important, indirect, possible useful and previously unknown) designs or knowledge from enormous aggregate data is called as Data mining [4]. Data mining can be called with different names, namely Business intelligence, information harvesting, data archeology, data dredging etc.

1.1 Cluster Analysis:

The procedure of grouping set of physical objects into classes of similar objects is called clustering [4]. A cluster is a group of data objects that are similar to one another within the same cluster and dissimilar to the objects in other clusters. Finding similarities between data objects according to the characteristics found in the data and grouping similar data objects into clusters is called as cluster analysis.

1.2 Quality of clustering:

Similarity is expressed in terms of distance function. It is a separate "quality" function that measures the "goodness" of a cluster. The definitions of distance functions usually varies different for Boolean, interval-scaled ordinal ratio, categorical, and vector variables [4].

1.3 Requirements of clustering in data mining:

Incorporation of user-specified constraints, ability to deal with different types of attributes, ability to handle dynamic data, scalability, able to deal with noise and outliers[15], minimal requirements for domain knowledge to determine input parameters, usability insensitive to order of input records, high dimensionality and interpretability .

1.4 Problem Definition:

There are two main disadvantages in bottom-up subspace clustering algorithms: one is finding of redundant

Taming an Autonomous Surface Vehicle for Path Following and Collision Avoidance Using Deep Reinforcement Learning

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Abstract— In this article, we explore the feasibility of applying proximal policy optimization, a state-of-the-art deep reinforcement learning algorithm for continuous control tasks, on the dual-objective problem of controlling an under actuated autonomous surface vehicle to follow an a priori known path while avoiding collisions with non-moving obstacles along the way. The AI agent, which is equipped with multiple rangefinder sensors for obstacle detection, is trained and evaluated in a challenging, stochastically generated simulation environment based on the OpenAI gym Python toolkit. Notably, the agent is provided with real-time insight into its own reward function, allowing it to dynamically adapt its guidance strategy. Depending on its strategy, which ranges from radical path-adherence to radical obstacle avoidance, the trained agent achieves an episodic success rate close to 100%.

Keywords: Collision, Reinforcement, Python, Transportation.

I. INTRODUCTION

Autonomy offers surface vehicles the opportunity to improve the efficiency of transportation while still cutting-down on greenhouse emissions. However, for safe and reliable autonomous surface vehicles (ASV), effective path planning is a pre-requisite which should cater to the two important tasks of path following and collision avoidance (COLAV). In the literature, a distinction is typically made between reactive and deliberate COLAV methods. In short, reactive approaches, most notably artificial potential field method, dynamic window methods, velocity obstacle methods and optimal control-based methods, base their guidance decisions on sensor readings from the local environment, whereas deliberate methods, among them popular graph-search algorithms such as A* and Voronoi graphs as well as randomized approaches such as rapidly-exploring random tree and probabilistic roadmap, exploit a priori known characteristics of the global environment in order to construct an optimal path in advance, which is to be followed using a low-level steering controller. By utilizing more data than just the current perception of the local neighborhood surrounding the agent, deliberate methods are generally more likely to converge to the intended goal, and

less likely to suggest guidance strategies leading to dead ends, which is frequently observed with reactive methods due to local minima. However, in the case where the environment is not perfectly known, as a result of either incomplete or uncertain mapping data or due to the environment having dynamic features, purely deliberate methods often fall short. The block diagram for Autonomous boat driving system is shown in figure 1.

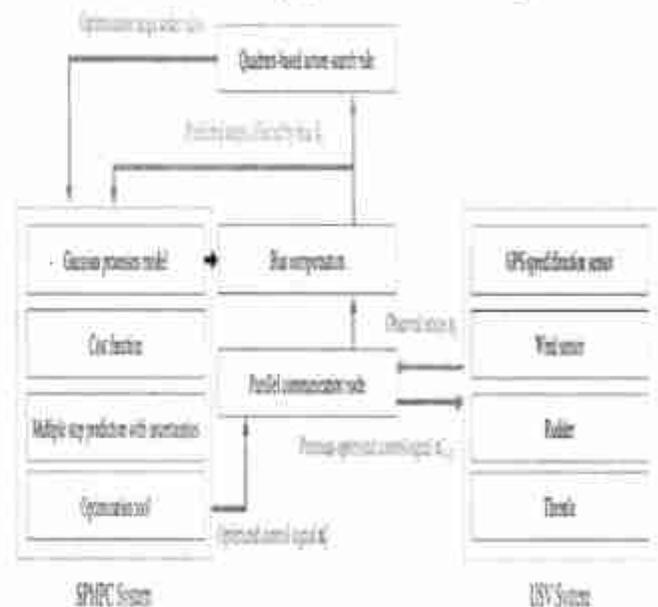


Figure.1: Example diagram for Autonomous boat driving system.

II. RELATED WORK

2.1 The vector field histogram-fast obstacle avoidance for mobile robots:

A new real-time obstacle avoidance method for mobile robots has been developed and implemented. This method, named the vector field histogram (VFH), permits the detection of unknown obstacles and avoids collisions while simultaneously steering the mobile robot toward the target. The VFH method uses a two-dimensional Cartesian histogram grid as a world model. This world model is updated continuously with range data sampled by on-board



Effect of Steel Fibres on Flexural Toughness of Concrete and RC Beams

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Abstract

The study concerns the investigation of flexural behaviour of steel fibre reinforced concrete (SFRC) and conventional reinforcement concrete (RC) beams incorporating steel fibre. Hooked-end steel fibres were used at the contents of 20 kg/m³, 40 kg/m³, 60 kg/m³, 80 kg/m³ and 100 kg/m³ in production of SFRC specimens and RC beams. Flexural tests were achieved on both SFRC and RC beams. Mechanical properties such as compressive strength, modulus of elasticity, flexural strength, toughness and toughness index were determined on SFRC specimens. Load–deflection curves were obtained from the beam flexural tests. First crack loads and flexural toughness of RC beams were also determined on RC beams. Steel fibres reduced the workability of fresh concretes. The mechanical performances of concretes and RC beams increased with the use of steel fibres. Compressive and flexural strengths of SFRCs have increased up to the 24.5% and 101.6% with increase in steel fibre, respectively. However, a decrease up to the 9.6% was observed in modulus of elasticity of SFRCs. Fibres have controlled the propagation and the widening of cracks. Therefore, considerable improvements were obtained on first crack loads, toughness and ductility of RC beams by addition of steel fibres. Maximum increases in first crack load and toughness of RC beams were 34.5% and 40.5%, respectively.

Keywords Steel fibre · Toughness · Compressive strength · Modulus of elasticity · Toughness index

1 Introduction

The use of steel fibre increases in many construction material applications, because of its improvements on some properties of concretes such as post-cracking behaviour, ductility of concrete, the energy absorption capacity and toughness [1–5]. The main role of steel fibres, randomly distributed in the matrix, is to delay the crack initiation and prevent the crack growth and propagation. After existing of cracks in the

matrix, tensile stress is transferred to the fibres and opening or growing of cracks, under increasing load, is prevented by steel fibres. This behaviour is known as “crack bridging mechanism” [6–9]. There are two cases, how fibres would behave in matrix, during the crack propagation; (1) fibres are broken or (2) fibres are pulled out of the matrix. This behaviour of steel fibres depends on its bond strength with matrix [10–12].

The improvements of steel fibres on properties of SFRCs depend on matrix strength, volume fraction and orientation of fibres in the matrix and fibre properties such as type, aspect ratio (length/diameter) and tensile strength [9, 13–15]. Therefore, all parameters that effect the performance of steel fibre used in concrete must be taken into account in design of SFRC mix [9]. SFRCs are mostly used in applications such as pavements, precast tunnels, shotcrete and prefabricated structures [16, 17]. There are also suggestions for the use of steel fibres as a partial stirrup in RC beams and punching reinforcement in plates [18–20]. On the other hand, some researchers stated that steel fibres can be completely substituted by conventional steel reinforcements in RC slab construction [21–24].

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A Comprehensive Survey on GNSS Interferences and the Application of Neural Networks for Anti-jamming

Kambham Jacob Silva Lorraine & Madhu Ramarakula

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Review on Novel Coronavirus (nCoV-19): Defensive Measures and Natural Medicine

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Abstract

Today, the wide epidemic and most significant health issue is the COVID-19 (coronavirus disease-19), which affected 218 countries to date (Nov 30th, 2020) around the world. This review paper explores the probable risks and suitable defensive measures with various bio-pharmacy and technological strategies. And also present the statistical analysis of the fatality rate about age and sex and the growth rate in India. This may exhibit a significant path for alleviating the patient number, and the proliferation rate of the contagious diseases well before vaccines and effective medications are identified.

Keywords: COVID-19, SARS, MERS, Natural Medicine

Introduction

COVID-19 is China's new viral disease caused by the SARS-CoV-2 virus, which began in Wuhan City [1]. In February 2020, the WHO (World Health Organization) named this novel coronavirus (nCoV) disease as "COVID-19" [3]. Here "Co" stands for "Corona," "vi" stands for "Virus," and "d" stands for "Disease," and "19" is its year of recognition. The corona epidemic was started on December 31st, 2019 [4]. According to WHO, this newly originated coronavirus (nCoV) is the worldwide burden that not identified earlier in humans and COVID-19 eventually spread globally in East Asia, the Middle East, and Europe. The International Committee on Taxonomy of Viruses (ICTV) acknowledged this scrupulous coronavirus thought of as "severe acute respiratory coronavirus of type two" or SARS-CoV-2 [5]. These viruses usually exist in animals, but in an atypical situation, they transmit to humans. The spikes protruding from the membrane of the virus, as shown in figure-1(b) looks similar to the sun's corona, hence the name titled as 'coronavirus.' Coronaviruses (CoV) related to the class of corona with a high mutation rate from the family of Coronaviridae and Nidovirales [5,6]. The physical appearance and various parts of the novel coronavirus (nCoV-19) are shown in figure 1(a) to 1(c).

CoVs classified as four groups, and they are α , β , γ , and δ -coronaviruses. α and β viruses purely transmit a disease to mammals, whereas γ and δ -viruses, for the most part, infect birds with the minority infecting mammals. But human

CoVs include α -(229E and NL63) and β -coronaviruses (OC43 and HKU1). The Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), nCoV-19 also related to β -coronaviruses [7]. These viruses include bat-SARS-like (SL)-CoVZC45, bat-SL-CoVZXC21, SARS-CoV, 6MERS-CoV, and 2019-nCoV. The existing analysis discovered that 2019-nCoV might originate from wild animals, but the exact origin remains unclear.

COVID-19- Fatality with age

This analysis is the prime study to analytically determine the impact of COVID-19 on the band of age groups. The cyclic surveys have noticed that aged people may tend to die after infection. It reminds the ordinary people to be more cautious in taking care of older people from the virus. This study gives clear evidence of a relationship between disease severity and age [8-11]. The clinical characteristics and outcomes of corona affected patients were strongly interrelated to the different age groups, as shown in Figure-2.

The first Covid-19 case was reported in India after five months of its origin. According to Indian government analysis, death reports until July 2nd, 2020 indicates that just slightly less than half of them have happened in young people — those below 60 years of age. In 43% of the deaths, there have been unknown comorbidities. This survey and analysis have been done by the Integrated Disease Surveillance Programme, which functions under the Ministry of Health and Family Welfare (MoHFW). It

Review on Novel Coronavirus (nCoV-19): Defensive Measures and Natural Medicine

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Analysis of Excavator Bucket Using Ansys

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Abstract— Generally excavator buckets are made with solid steel. The analysis of excavator bucket lugs is carried over two steel alloy materials such 1.SM50A, 2.SCNCr2B. The main objective of this project is to select the metal which is suitable for the maximum life of the excavator bucket. The earth moving machine industries are rapidly growing as rapid growth in construction work confident through the day by day increased performance of construction machines. This paper gives focuses on the evaluation method of digging forces required to dig the terrene for light and heavy duty construction work, as well as society infrastructure developing work. This process deals the force calculation for required part in the excavator machine to calculate the life of particular part-excavator bucket and its failure. In progress the design of bucket with suitable material to give good fatigue condition as well as good life of particular part of excavator bucket lug.

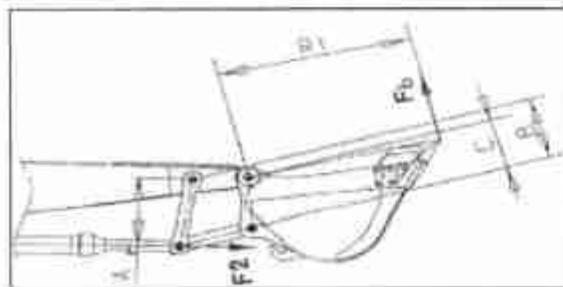
Keywords: Digging, Trenching, Fatigue, Design Optimization, Ansys14.5

I. INTRODUCTION

In highway construction, in trenches digging, for mining, and for heavy soil removal purpose. The digging machines are also called backhoe loaders and backhoe excavators. For dig the earth the hydraulic excavators are used, like these applications & to load the any material into the goods trucks. The digging machines are used mainly to lift below the surface of the ground on which the machine rests. According to Forestry applications, these excavator machines are self-propelled wheeled machines. These machines are working on the road and off the road. These machines are set to see loader arms at one end & that is for supporting a full width bucket attachment, the other end is supporting with boom and arm combination with capable of rotates it-self half circle for the purpose of trenching and other digging operations. The excavator machine is also used as a utility machine at heavy construction sites like construction of heavy bridges & constructions of railway track and some kind of infrastructure projects, these hydraulic machines are operated by skilled persons, while the machine is operated the safety precautions should be fallow otherwise the impact of the hydraulic machine accidents are very dangerous effect to human being.

II. CALCULATION OF DIGGING FORCES OF BUCKET AND ARM

A. Forces



B. Bucket Digging Force:

Bucket digging force is defined as maximum digging force due to bucket cylinder in tangential direction at bucket tooth.

1) Pressure of Bucket Cylinder:

It is the pressure of bucket cylinder according to the operation pressure of hydraulic oil, it is depend on the next formulation:

$$F_2 = (\pi/4) * D_b^2 * P_e$$

Bucket digging force:

$$F_b = (F_2 * A * C) / (R_1 * B)$$

Values Found by Actual Practical Observation:

$$A = 620\text{mm}$$

$$B = 820\text{mm}$$

$$C = 490\text{mm}$$

$$R_1 = 1325\text{mm}$$

$$D_b = 125\text{mm}$$

$$P_e = 0.071\text{Mpa}$$

2) Calculations:

$$F_2 = (\pi/4) * D_b^2 * P_e = (.785) * 15625 * 0.071 = 870.85\text{KN}$$

$$F_b = (F_2 * A * C) / (R_1 * B) = (870.85 * 620 * 490) / (1325 * 820) = 243.501\text{KN}$$

3) Arm Digging Force:

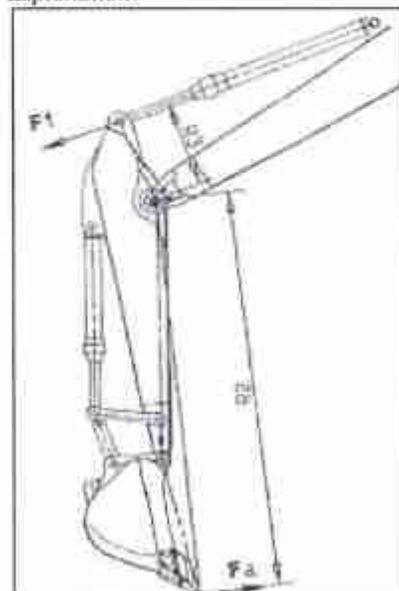
Arm digging force is defined as maximum digging force due to arm cylinder in tangential direction at bucket tooth in position where bucket tooth force due to bucket cylinder is maximized.

4) Pressure of arm cylinder:

It is the pressure of arm cylinder according to the working pressure of hydraulic oil, and it is depend on the next formulation:

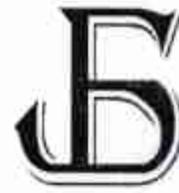
C. Arm digging force:

1) Force Explanation:



$$F_1 = (\pi/4) * D_2^2 * P_e$$

$$F_2 = F_1 * R3 / R2$$



Simple and effective descriptive analysis of missing data anomalies in smart home energy consumption readings

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Abstract: Smart grids evolution is ramping up in the global energy scenario by offering deregulated markets, demand-side management, prosumer culture, demand response, contingency forecasting, outage management, etc., functionalities. These functionalities help to manage the grid effectively by taking informed decisions timely. Further, the progressive developments in information and communication technologies improve smartness in the power grids. Especially, smart homes are playing a key role, which possesses the communication between various devices/appliances and collect their functional data in terms of energy consumption readings, timestamp, etc. However, the availability of high-quality data is always desired to achieve superior benefits with respect to all the above-mentioned functionalities. But, the failures of communication networks, metering devices, server station issues, etc., create anomalies in the data collection. Hence, there is a dire need of identifying the ways of analyzing the smart home data to find the irregularities that occurred because of aforesaid failures. Especially, it has been a common problem to see missing data at some particular instants in the overall database captured. In this view, this paper proposes a simple and effective descriptive analysis to find missing data anomalies in smart home energy consumption data. A real-time dataset is used to execute the proposed method. For which, a clear enumeration of missing data is visualized using comprehensive simulation results. This helps to realize the actual problems that are hidden in the energy consumption data.

Keywords: Data anomalies, Missing data, Smart home data analytics, Tracebase dataset, Visualization

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IMAGE SEGMENTATION USING SOM NEURAL NETWORK WITH DISCRETE COSINE TRANSFORM

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Abstract

Image Segmentation has wide importance in various applications of image analysis like medical diagnosis, pattern recognition, object detection etc. SOM is used to segment images into regions that have similar properties. The Self Organizing Maps (SOM) by Kohonen is an efficient unsupervised Artificial Neural Network method. This paper focuses on improving the performance of SOM by feeding the input that is preprocessed. In this paper the image segmentation is enhanced by using an image compression technique called the Discrete Cosine Transform (DCT) which is implemented by Fast Fourier Transform (FFT) algorithm.

I. Introduction

The process of dividing an image into regions with similar attributes like color, intensity or texture is called image segmentation. An image is a matrix of pixels arranged in rows and columns. Segmentation is the process of partitioning the image into regions or sets of pixels to acquire information for analysis. There are many methods used for image segmentation like Histogram based methods, Edge detection based methods, model based methods, region growing methods, artificial neural network methods, statistical approaches etc. The clustering methods involve algorithms to group elements of similar properties into clusters.

Artificial neural networks are biologically inspired networks. In neural

2010 Mathematics Subject Classification: 68T07.

Keywords: DCT Image Segmentation Compression, SOM.

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Line Segment-Based Clustering Approach With Self-Organizing Maps

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ABSTRACT

Clustering techniques are used widely in computer vision and pattern recognition. The clustering techniques are found to be efficient with the feature vector of the input image. So, the present paper uses an approach for evaluating the feature vector by using Hough transformation. With the Hough transformation, the present paper mapped the points to line segment. The line features are considered as the feature vector and are given to the neural network for performing clustering. The present paper uses self-organizing map (SOM) neural network for performing the clustering process. The proposed method is evaluated with various leaf images, and the evaluated performance measures show the efficiency of the proposed method.

KEYWORDS

Cartesian System, Feature Vector, Line Segment, Neural Network

INTRODUCTION

Clustering is found to be one of the thrust research areas in computer vision and pattern recognition. There are various techniques and approaches to perform clustering in the literature (Pavel Berkhin, 2002; M. Steinbach, G. Karypis, V. Kumar, 2000). The reason for gaining high attention by the researchers is its wide variety of applications viz., segmentation, object recognition and content based information retrieval etc. In unsupervised approach, the relevant information search is found to be a difficult task (Cai, Deng and Zhang, Chiyuan and He, Xiaofei, 2010). For this, a Multi Cluster Feature Selection (MCFS) approach is used for solving the combinatorial optimization problem. It also solves the L1 regularized least squares and sparse Eigen problems. An incremental procedure is adopted for the K-means clustering method (Aristidis Likas, Nikos Vlassis, Jakob J. Verbeek, 2003). It appends cluster by cluster dynamically. For this, it uses a globally deterministic search algorithm. With this, the computational load is also greatly reduced. The clustering techniques are found to be efficient to segment the vessels (Gehad Hassan, et al, 2015) in the input retina image. The K-means clustering algorithm and the mathematical morphology are used for smoothing and segmenting the image.

The inter neurons are clustered by using neuro morphological approach (Ivan Grbatinić, Nebojša Milošević, Bojana Krstonošić, 2017). It estimates the predictor and then performs the analysis of

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A Comprehensive Study of Women Character in the Selected Novels of Jane Austen

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Abstract: In Jane Austen's works, the role and expectations of women in the society are both reflected and questioned. This research outlines how Austen used her novels to represent the society in which she lived and how the society placed a sense of duty on women, specifically in terms of family, education, and marriage. Along with the representation of these duties, Researcher also focus upon on how Austen uses her protagonists, primarily in the novels *Pride and Prejudice*, *Persuasion*, and *Mansfield Park*, to question those standards and provide for her readers examples of women whom they could relate to and learn from as well. My major point of focus is how Austen challenges her readers to learn from the example set by her countercultural female protagonists. Finally, taking into account the ways which Austen reflects and challenges the roles of women, researcher conclude with a focus on how Austen emphasizes the importance of novels within her society, while also considering the impact that novel reading has in both the society in which Austen lived in that period of time.

Keywords: comprehensive study, women character, family, education, marriage Jane Austen.

I. Introduction

Authors' ability to have their readers put themselves into the shoes of their protagonists is what creates the influence and the power of novels, allowing some novels to live on through centuries of history.

This is the case with Jane Austen's novels. Since 1811 when Austen's first book was published, her books have not left contemporary society. Within the classroom, Austen's novels are frequently required readings for humanities or literature courses. In film, there have been 77 different adaptations to her six novels, whether they were motion pictures, television series, film adaptations or works based on her novels, producing more sequels, spinoffs and fan fiction than any other classic author. Some of these include a dog show called "Unleashing Mr. Darcy" based on *Pride and Prejudice*, a Spanish "novela" of *Persuasion* and several comedy series such as "Emma Approved" based on *Emma* (Warren 2). In publishing, each of her novels has never been out of print since 1832. *Pride and Prejudice* itself, Austen's most sold and well-known novel has sold over 20 million copies worldwide (Adam Frost 4). Her novels have been translated into approximately 40 different languages. All of that to say the test of time has proven that Austen's works have been influential both in the English society she lived in and to her readers still today.

Born in 1775, Austen was the youngest of seven children and one of only two daughters. Her father was Reverend George Austen, a clergyman of the Anglican parish, and he consistently urged Austen to read the novels in their family study. Though they were a family of simple means, her father bought for her paper and ink to allow her to start her writing at a young age. In the 1790s, Austen finished the first three drafts of her first novels, *Sense and Sensibility*, *Pride and Prejudice*, and *Northanger Abbey*; however, because of personal problems and failures in publishing, it was not until 1811 that her first novel was ever published. In 1797, when trying to publish *Pride and Prejudice*, which was titled *First Impressions* at the time, the publisher

returned it to her, unread, with a stamp saying, "declined by Return of Post" (Kaci X 132). Along with other rejections and failures, Austen's father died in 1805; forcing Austen to move with her mother and sister, Cassandra, to their family home where her brother, Edward, lived.

Following these events, Austen finally successfully published *Sense and Sensibility* anonymously, then published *Pride and Prejudice* two years later. *Mansfield Park* and *Emma* were then published within the next two years (Kaci X 133 - 34).

At 41 years of age, Austen developed a disease that many think was Addison's disease. Despite her declining health, she continued writing until her condition made her unable to write any longer. She died in 1817 in Winchester, Hampshire, England.

Throughout her lifetime, Austen never married. Henry, her brother, published her final two works, *Northanger Abbey* and *Persuasion*, following her death, and, in these, released a special biographical note in which he revealed to the public her name. It was not until the 1920s when literary scholars began to distinguish and accredit Austen's works as masterpieces, causing her popularity to increase in the eyes of the public (Southam 5 - 6).

Though Austen's writings do not fit necessarily into a certain genre of writing, many literary historians consider her writing that of "romance" in correlation with "comedy of manners" (Southam 3). At that time when she was writing, romance literature referenced novels whose focus was "prioritizing human emotions and imagination - as well as emphasizing the beauty of nature" (Kincaid 2), which differs from the novels that are considered romance today. Austen's plots all consist of a courtship between her primary protagonists, so the theme of each of her books do have a major element of love and marriage, underscoring the genre in which her novels have been placed. The genre of comedy of manners refers to a satiric exemplification of the norms of society where the main purpose of the writing is to make fun

MICROGRID BSS SCHEDULING USING TEACHING LEARNING BASED OPTIMIZATION ALGORITHM

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ABSTRACT

Energy storage serves as a crucial hub for the entire grid, supplementing resources such as wind, solar, and hydropower, as well as nuclear and fossil fuels, demand side resources, and system efficiency assets. It can function as a generation, transmission, or distribution asset— all in one unit. Storage is, in the end, an enabling technology. It has the potential to save consumers money while also improving reliability and resilience, integrating power sources, and reducing environmental impacts.

Battery storage system design is now important for microgrids to prepare a day-ahead schedule for steady operation. This article discusses the scheduling of BSS, which helps to reduce the average cost imposed on microgrid consumers in the context of dynamic pricing. For minimizing, a cost function is created and subjected to optimization based on the restrictions. The search space magnification is $50 \cdot (D_c - D_d + 1)$, where D_c and D_d are the maximum charge and discharge depths in an hour in percentage for a specific BSS, respectively. The programming is done by combining daily load, generated energy, and grid price forecasts with a microgrid size as specified in the article and implementing Teaching Learning Based Optimization (TLBO) for achieving an average cost reduction when compared to Net Power Based Algorithm and Particle Swarm Optimization for a planned BSS.

KEYWORDS: *Important for Microgrids, Implementing Teaching Learning Based Optimization (TLBO)*

Article History

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INTRODUCTION

An algorithmic approach for the Optimization of Day-Ahead Energy Storage System Scheduling in Microgrid problem by using Genetic Algorithm and Particle Swarm Optimization. Both GA and PSO fared well compared to the Net Power Based Algorithm[1].

A grid is a system for transferring electricity from sources to consumers. With the aid of contemporary smart technologies, traditional power grids, which can only transport energy in one direction, from producer to consumer, are rapidly developing into a two-way power flow system [2]. A smart grid is a bi-directional energy transmission and data communication network that is smart and dispersed [3]. The smart grid is expected to develop as a result of the plug-and-play integration of smart microgrids [4].

A microgrid is like a mini version of a power grid [5]. According to the US Department of Energy, a microgrid is a collection of interconnected loads and distributed energy resources that operate as a single regulated body in respect to

A Novel feature selection paradigm in identifying prominent variables from a high-dimensionality dataset

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Sir C. R. Reddy College of Engineering, Andhra Pradesh, India

Abstract - Feature selection methods have been widely used in high dimensionality datasets. Of all supervised feature selection methods, LASSO was implemented on a dataset of 76 PTP1b inhibitors with dimensions being $n=76$ and $p=358$. Feature selection is a very important step in data analysis and more importantly, to gain insight into inherent features of data. Initially OLS and ridge regression analysis was performed followed by LASSO regression. The lambda minimum and standard error were found to be 0.06 and 0.339 respectively. The mean square error (MSE) was used to compare the analysis among OLS, ridge and lasso methods. The MSE of lasso was found to be 0.16 which is much lower than OLS or ridge regression methods. The coefficients obtained from LASSO method are computed and it was observed that 8 explanatory variables are selected as important such as EV, Dx, Dy, TL, Lx, Ly, MR and KC3. Further, the coefficients at different steps of regression were analyzed by least angle regression, forward stagewise, and forward stepwise algorithms.

Keywords: LASSO, shrinkage, regression, coefficients, lambda

I. INTRODUCTION

The feature selection is the process that chose reduced number of explanatory variable to describe a response variable. The variable selection is even more important for the high-dimensional datasets; here the number of features is very high [1]. On the other hand, it is difficult, due to dimensionality issues, to build and interpret a model that takes into consideration all the variables. For these reasons the feature selection is an important task [2]. Feature selection models are easier to interpret as the method employed removes redundant variables. The over fitting is reduced by eliminating irrelevant variables that are not associated with the response variable, which enables algorithm to run faster and handles high-dimensional data [3]. In the literature several types of methods are reported to perform feature selection paradigm. Feature selection algorithms can be categorized into supervised [4], unsupervised [5] and semi-supervised feature selection [6]. Supervised feature selection methods can further be broadly categorized into filter models, wrapper models and embedded models. First the *Filter Methods* select the features by ranking them on how useful they are for the model, to compute the

usefulness score statistical test and correlation results are used. Secondly *Wrapper Methods* generates different subsets of features, each sub- set is then used to build a model and train the learning algorithm. The best subset is selected by testing the algorithm. To select the features for the subsets different criteria are used (e.g. Forward and Backward selection). Finally, the *Embedded Methods* are a combination between the two previous methods. LASSO (Least Absolute Shrinkage and Selection Operator) is an example of Embedded method which performs regularization and feature selection [7]. Embedded methods have the advantage that they include the interaction with the classification model, while at the same time being far less computationally intensive than wrapper methods [8]. The method applies a shrinking (regularization) process where it penalizes the coefficients of the regression variables shrinking some of them to zero. During features selection process the variables that still have a non-zero coefficient after the shrinking process are selected to be part of the model. An advantage of LASSO is shrinking and removing the coefficients can reduce variance without a substantial increase of the bias. The tuning parameter λ controls the strength of the penalty. When λ is sufficiently large then coefficients are forced to be exactly equal to zero. Moreover, the bias increases and variance decreases when λ increases [9]. Therefore, LASSO helps to increase the model interpretability by eliminating irrelevant variables that are not associated with the response variable, which would otherwise reduce overfitting. Feature selection is a very important step in data analysis and more importantly, to gain insight into inherent features of data. The initial step of data analysis is to select the relevant features or chose a model which automatically identifies the relevant features. After collecting the data and extracting the features, the relevant features are selected.

In this paper, we report application of feature selection algorithm by LASSO on a dataset of 76 PTP1b inhibitors with dimensions being $n=76$ and $p=358$ respectively.

II. MATERIALS AND METHODS

Dataset

A dataset of anti-diabetic inhibitors that are intended to interact and bind with specific protein target such as Protein tyrosine phosphatase 1B (PTP1B) were extracted from

A Novel feature selection paradigm in identifying prominent variables from a high-dimensionality dataset

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usefulness score statistical test and correlation results are used. Secondly *Wrapper Methods* generates different subsets of features, each sub- set is then used to build a model and train the learning algorithm. The best subset is selected by testing the algorithm. To select the features for the subsets different criteria are used (e.g. Forward and Backward selection). Finally, the *Embedded Methods* are a combination between the two previous methods. LASSO (Least Absolute Shrinkage and Selection Operator) is an example of Embedded method which performs regularization and feature selection [7]. Embedded methods have the advantage that they include the interaction with the classification model, while at the same time being far less computationally intensive than wrapper methods [8]. The method applies a shrinking (regularization) process where it penalizes the coefficients of the regression variables shrinking some of them to zero. During features selection process the variables that still have a non-zero coefficient after the shrinking process are selected to be part of the model. An advantage of LASSO is shrinking and removing the coefficients can reduce variance without a substantial increase of the bias. The tuning parameter λ controls the strength of the penalty. When λ is sufficiently large then coefficients are forced to be exactly equal to zero. Moreover, the bias increases and variance decreases when λ increases [9]. Therefore, LASSO helps to increase the model interpretability by eliminating irrelevant variables that are not associated with the response variable, which would otherwise reduce overfitting. Feature selection is a very important step in data analysis and more importantly, to gain insight into inherent features of data. The initial step of data analysis is to select the relevant features or chose a model which automatically identifies the relevant features. After collecting the data and extracting the features, the relevant features are selected.

In this paper, we report application of feature selection algorithm by LASSO on a dataset of 76 PTP1b inhibitors with dimensions being $n=76$ and $p=358$ respectively.

II. MATERIALS AND METHODS

Dataset

A dataset of anti-diabetic inhibitors that are intended to interact and bind with specific protein target such as Protein tyrosine phosphatase 1B (PTP1B) were extracted from

Feature Extraction based Breast Cancer Detection using WPSO with CNN

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Abstract—The cancer reports of the past few years in India says that 30% cases have breast cancer and moreover it may increase in near future. It is added that in every two minutes, one woman is diagnosed and one expires in every nine minutes. Early diagnosis of cancer saves the lives of the individuals affected. To detect breast cancer in early stages, micro calcifications is considered as one key symptom. Several scientific investigations were performed to fight against this disease for which machine learning techniques can be extensively used. Particle swarm optimization (PSO) is recognized as one among several efficient and promising approach for diagnosing breast cancer by assisting medical experts for timely and apt treatment. This paper uses weighted particle swarm optimization (WPSO) approach for extracting textural features from the segmented mammogram image for classifying micro calcifications as normal, benign or malignant thereby improving the accuracy. In the breast region, tumour part is extracted using optimization methods. Here, Convolutional Neural Networks (CNNs) is proposed for detecting breast cancer which reduces the manual overheads. CNN framework is constructed for extracting features efficiently. This designed model detects the cancer regions in mammogram (MG) images and rapidly classifies those regions as normal or abnormal. This model uses MG images which were obtained from various local hospitals.

Keywords—Breast cancer; microcalcifications; weighted particle swarm optimization (WPSO); Convolutional Neural Networks (CNNs) mammogram

I. INTRODUCTION

Breast cancer is the most commonly found in women which causes deaths who are aged from 20 to 59. According to the Ministry of Health and Medical Education, it has become the most common disease in recent years in Iran [1]. Today, 88% of women diagnosed with breast cancer have a life expectancy of 10 years. In the United States, it has been reported that about 12% of women were identified during their lifetime, and were referred to as the second cause of women's death [2]. Diagnosing the disease at the earlier stages is important because in the early stages, cancer masses are restricted to the breast and the chance of surgical treatment in a less invasive manner is increased. The mortality rate is also decreased in the early stage [3]. Also, the use of classifiers such as artificial neural networks in various fields of engineering sciences is increasing to analyze the time series and various issues of classification. Due to the invention of techniques in the recent era for early diagnosis of breast cancer, the survival rate of the patients is improved. Now-a-

days, X-ray mammography and MRI (Magnetic Resonant Imaging) techniques are widely utilized with few implications and limitations. X-ray is very harm due to the ionizing radiation and thus its contact with patients has to be only for very short duration. Conversely, MRI technique is expensive while mammography is of less cost, but hard to provide consistency and accuracy in analysing breast cancer [4]. Moreover, errors occur while analysis. To increase the rate of accuracy and reduce the occurrence of errors, supervised machine learning approaches like KNN, SVM, LSSVM are developed. These models efficiently classify the features as normal or abnormal classes. These methods are complex and even tedious with low CR. Therefore, to provide a solution for all the drawbacks of breast cancer, an optimal classification model is required for which machine learning approaches based on image processing are developed to classify cancer and non-cancer images which involved mammogram images. As the features are essential to discriminate breast cancer as benign or malignant, feature extraction process is of most important. Once the features are extracted, properties of the image like depth, coarseness, smoothness, and regularity are obtained with the help of segmentation process [5]. Scientifically, with breast cancer, division of tumor cells is uncontrolled and abnormal tumor cells need more nutrients for growing continuously and to reproduce. The cancer cells penetrate into the surrounding for gain in nutrients. There is a heterogeneous variation in the circulation of blood with various tumors and hence lesion morphology characteristics and ambiguity with edges in diagnosing images are significant indicators for evaluation. The paramagnetic contrast agent spreads in blood which enters into the blood vessel and passes in the intercellular space as well as cells easily via penetrable capillary wall; hence the sputum concentration is high in the tumor rich region. This abnormality can be found using TIC when DCE-MRI is utilized for several imaging of the same tissue in various stages. Thus, edge, shape, etc. which are static characteristics and initial increase and change in signal which are dynamic characteristics of the lesion plays a major role in identifying the tumor as benign or malignant. MRI images are usually clear and complete with multi-angle, multi-faceted imaging. With the breast, surface coil has been used for clinical purpose, and MRI technology is improved to be much clear. However, the true positive rate and the true negative rate obtained while diagnosing breast cancer are also improved simultaneously [6].

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Optimal Infusion and Grading of Combined DGs and Capacitor Banks for Line Loss Minimization and Enhancement of Voltages in Radial Circuit System

Abstract. Enhancement of voltage profile of the radial distribution network's (RDN) is seen as a debatable subject because it is one of the factors that influence the system's performance. The power distribution system suffers significant losses as a result of the lower voltage and higher currents. As a result, experts are paying more attention to reduce power losses in the RDN. It is feasible to enhance voltage level of RDN by realizing combined performance of Distribution Generation (DGs) and capacitor placements. This loss minimization technique tends to lower power flow through lines, which invariably improves system reliability and allows same lines to be used for growing load demand. The practice of optimum positioning and sizing the DGs and capacitors may improve system stability while also minimizes system losses. This article presents a simple and distinct way for determining best point and magnitude of integrated DGs and capacitor units in RDS. The fundamental goal of this project is to restore voltage profile and reduce losses by using Moth Flame Optimization (MFO) algorithm, a well-known and recently created meta-heuristic technique. The algorithm is based on moths' natural behaviour when exposed to light, and it includes two key elements: moths and flames. The proposed methodology has been tested on both IEEE 12 and IEEE 33 node test systems to demonstrate its practicality. The simulated results are compared to ways described in the literature to illustrate the difference between prescribed method and others in terms of enhancing the voltage profile and reducing losses.

Streszczenie. Poprawa profilu napięciowego promieniowej sieci dystrybucyjnej (RDN) jest postrzegana jako temat dyskusyjny, ponieważ jest jednym z czynników wpływających na pracę systemu. System dystrybucji energii ponosi znaczne straty w wyniku niższego napięcia i wyższych prądów. W rezultacie eksperci zwracają większą uwagę na zmniejszenie strat mocy w RDN. Możliwe jest zwiększenie poziomu napięcia RDN poprzez realizację połączonych osiągnięć Generacji Dystrybucyjnej (DG) i rozmieszczenie kondensatorów. Ta technika minimalizacji strat ma tendencję do obniżania przepływu mocy przez linie, co niestety poprawia niezawodność systemu i pozwala na wykorzystanie tych samych linii przy rosnącym zapotrzebowaniu na obciążenie. Praktyka optymalnego pozycjonowania i wymiarowania DG i kondensatorów może poprawić stabilność systemu, jednocześnie minimalizując straty systemu. W tym artykule przedstawiono prosty i wyraźny sposób określania najlepszego punktu i wielkości zintegrowanych DG i jednostek kondensatorów w RDS. Podstawowym celem tego projektu jest przywrócenie profilu napięcia i zmniejszenie strat za pomocą algorytmu Moth Flame Optimization (MFO), znanej i niedawno stworzonej techniki metaheurystycznej. Algorytm opiera się na naturalnym zachowaniu ciem pod wpływem światła i zawiera dwa kluczowe elementy: ćmy i płomień. Zaproponowana metodologia została przetestowana w systemach testowych węzłów IEEE 12 i IEEE 33 w celu wykazania jej praktyczności. Symulowane wyniki porównuje się ze sposobami opisanymi w literaturze, aby zilustrować różnice między zalecaną metodą a innymi pod względem wzmocnienia profilu napięcia i zmniejszenia strat. (Optymalna infuzja i stopniowanie połączonych DG i baterii kondensatorów w celu minimalizacji strat linii i poprawy napięć w systemie obwodów radialnych)

Keywords: Capacitor and DG placement, Distribution system, MFO algorithm, Power loss minimization, Voltage stability.

Słowa kluczowe: sieci dystrybucyjne, bank kondensatorów, generator

Introduction

Distributed Generations (DG) are bridged with radial distribution system with the idea of curtailing the losses and to improve the characteristics of voltages. DGs can be preferred as a source of generation of electrical power from the amenities that are available in smaller capacity than the conventional power generating systems, which permits to tap the power at any stage in the power system network. Moreover, these plants are planned and designed such that it can be instantly connected to the distribution system. Some of the importance of DGs penetration in to the network systems is (i) minimized real power loss, (ii) improved efficiency, (iii) enhanced voltage profile, (iv) induct renewable resources and to avoid environmental issues [1]. The subject of voltage stability is to manage the voltage of all buses in a power system within the tolerable limits. But in practice, the power system networks are operated always nearer to its critical limits which lead to the stability problems. Therefore, researchers and academicians have turned their attention towards the exploitation of benefit of Distributed generations and capacitor banks in to the distribution network. Literature survey reveals that the injection of reactive power by capacitors considerably minimizes the system losses. Effective placement and sizing of capacitors must be examined thoroughly, for avoiding voltage stability problems [2, 3].

By estimating the real and reactive power losses, exact locations for the installation of DGs and capacitor are identified. Thereafter quadratic curve fitting method has

been adopted to calculate the optimal capacity of the distribution system [4]. The specific points of location for connecting the DGs and reactive power support has been analyzed by sensitivity analysis. The LSF of each and every bus are arranged in decreasing order and first three critical busses were chosen as specific locations. BFOA algorithm is adopted for curtailing the target function by computing the optimal capacity of Distributed generations and capacitors at specific positions [5].

Network restructuring is the other approach for the limitation of loss in radial distribution network. It is done with the network topology of the system using breakers and the other components with a view to realize exceptional topology for minimizing the loss of power. In this paper, network reconfiguration has been executed by the process of combination of HSA with PSO embedded artificial bee colony algorithm [6].

Similarly, optimal scheme of DGs and capacitor banks in the distribution systems has been performed by applying the optimization algorithm like Firefly Algorithm (FFA) and backward search algorithm and results were analyzed with another optimization algorithm [7]. Fuzzy and GA based terminology for the placement were identified by the method of sensitivity analysis and multi-objective functions such as loss minimization and branch current limits are converted into fuzzy domain membership function. Then a target function is combined to form a single target function and is computed by Genetic Algorithm [8].

ALLOCATION OF FACTS DEVICES FOR A TRANSMISSION SYSTEM FOR REDUCING POWER LOSSES USING TLBO ALGORITHM

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ABSTRACT:

Flexible Ac Transmission System (FACTS) applications are growing in popularity due to their benefits, which include improving power transfer capacity, reactive power compensation, and decreasing power losses and voltage deviations. Only by locating FACTS devices in an optimal location and scaling them appropriately can they be used effectively. However, because it is a nonlinear problem, finding the optimal size and location of FACTS devices in the transmission system is difficult. This project proposes the Teaching Learning Based Optimization (TLBO) technique for optimal allocation of FACTS devices, named Thyristor-Controlled Series Compensators (TCSCs). The objectives in this case are the minimization of active power losses and the installation cost of FACTS devices. The proposed method has been tested on the IEEE-14 bus system. The proposed technique is compared to Particle Swarm Optimization (PSO). MATLAB implements the considered algorithm by coding.

Keywords-PSO,TLBO,Flexible AC Transmission System,TCSC,IEEE-14 Bus System

INTRODUCTION:

The electric power system is concerned with the process of generating, transmitting, and using electrical energy. The power system business is always confronted with the difficult task of building new power systems that can meet the rising demand for electric energy in a cost-effective, reliable, and environmentally friendly manner. The rate of energy use has outpaced infrastructure development, putting pressure on the ageing equipment. It's critical to find fast and reliable optimization methods that can simultaneously address security and economic challenges in order to improve system operation and control.

In today's context, increased power consumption results in voltage instability and transmission network losses. To address this problem, power electronics-based devices known as FACTS are being successfully employed for loss minimalization, power flow regulation, and voltage stability [1]. Static synchronous compensators (STATCOM), Static Var compensator (SVC), thyristor controlled static compensator, thyristor controlled voltage regulator, interline power flow controller, unified power flow controller, and other FACTS devices are frequently utilised.

REVIEW OF MEMS-BASED SENSING TECHNOLOGY AND HUMAN-CENTERED APPLICATIONS IN HEALTH PRESPECTIVE

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ABSTRACT: As a consequence of the incredible growth in technical improvements over the last several years, there has been significant progress in biomedical engineering applications. Today's sensing technologies in medical may be part of a solution to the socioeconomic and demographic challenges that worldwide healthcare systems are experiencing. The global biomedical sensors market, especially the noninvasive kind, is expected to reach 15.01US\$ by 2022. There is a lot of interest in using microsystems in healthcare applications as a worldwide research focus, with researchers coming up with new techniques to noninvasively diagnose and monitor patients. Micro & Nano manufactured technologies like MEMS/NEMS that enable more compact, cost-effective, precise and efficient diagnostic instruments to discover earlier life-threatening ailments. This review article will concentrate on biomedical sensors utilised in the detection of tropical illnesses, as well as MEMS/NEMS based smart sensors recently developed for healthcare applications and smart application development. In addition to novel intelligent sensor solutions, each non-invasive biomedical sensor technology will be used in conjunction with specialised applications.

Keywords: Biosensors, MEMS, Sensors, actuators, Tropical diseases, Invasive, Noninvasive, smart implants, chemical sensing, micro/nano device, microfluidics, nanomaterial

1. INTRODUCTION

Tropics and subtropics ailments are now prevalent in urban climates[1]. These subtropical illnesses are common in different temperatures settings, resulting in viral infections: Tropical conditions such as malaria, dengue, tetanus, hepatitis, yellow fever, cholera, etc. may also contain such illnesses. Diagnoses of these tropical illnesses include serological testing of pathogenic indicators, through the use of proteins, antigens and antibodies X-rays, physical testing and fungi and bacteria cultivars. These procedures need the collection of body fluid samples such as blood, sputum, or urine. However, the diagnosis of tropical illnesses has numerous obstacles, featuring a lengthy turnaround time for specimen evaluation, a controlled atmosphere, trained experts, and huge blood (or) bodily fluid samples which is also the most expensive. Not only can a sick organ or joint dysfunction in a human body be studied in these tropical illnesses and cuts across the skin to open the body so that they can only establish the nature of the issue and choose the course of action. However, what can or cannot occur during surgery. For this sort of medical treatment, the phrase exploratory surgeries is used, and several complications are inherent in such approaches, and these techniques and evaluations are always invasive.

Recent research and studies have provided a variety of biomedical engineering techniques using non-invasive biomedical sensors in recent year [1] to give diagnostic methods that are simpler, more precise, cheaper, and less time consuming for detecting these tropical ailments. This innovative non-invasive sensing technology can replace the invasive techniques and give fresh insights into their physiological condition. This paper focuses on biomedical sensors that were developed so far using existing methodologies in medical engineering and prospective research topics for the detection of diseases by biosensors using Microelectromechanical systems

Compact wearable low-SAR dual band antenna for on body network applications

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Summary

A compact antenna is designed for on-body applications in the industrial, scientific, and medical (ISM) frequency bands in the range from 2.45 to 5.8 GHz. A circular structure with triangular slots is used to address dual-band applications. The antenna is designed on a flexible polyimide substrate with a dielectric constant of 3.5 and loss tangent of 0.008. Bending analysis of the antenna is performed to analyze its flexibility. The proposed antenna covers the frequency ranges of 2.3–3.5 and 5.1–6.8 GHz with fractional bandwidths of 41% and 28%. The antenna provides stable dipole and omnidirectional patterns. The measured antenna exhibits peak gain values of 2.3 dBi at 2.5 GHz and 4.7 dBi at 5.8 GHz with radiation efficiency of 78% at 2.5 GHz and 84% at 5.8 GHz. To validate the antenna performance, the simulated results for the antenna are compared with measurements carried out with the antenna on the human body.

KEYWORDS

circular ring, on-body applications, SAR

1 | INTRODUCTION

In recent years, most work on microwave antennas for biomedical applications has focused on monitoring hyperthermia and physical parameters.¹ Antennas placed inside/outside of the human body can be used to measure the temperature of cancer cells. For this purpose, low-profile monopole or dipole antennas with a coaxial feed are applied for internal use. Such implanted antennas can act as sensors and communicate with external devices to transfer physiological parameters for analysis.^{2,3} These antennas must be small and should exhibit biocompatibility towards tissues. However, the design of such antennas for operation in tissues is a challenging task. The main requirements to be considered are achieving low power, high tissue conductivity, impedance matching, and appropriate antenna size, while biocompatibility also plays a vital role.^{4,5} Simulations of the dielectric constants and geometry of tissues must thus be considered. Antennas designed for such implantable applications should cover frequencies in the ISM band.

There are various frequency bands for medical implants, including the most frequently used Medical Implant Communication Service (MICS) bands ranging from 402 to 405 MHz.⁶ Frequency bands such as 433.1, 434.8, 868–868.6, and 902.8–928 MHz and 2.45–2.48 GHz are additionally suggested for medical ISM applications.⁷ A stacked antenna on a Rogers 3210 substrate has been designed for biotelemetry with medical devices. The antenna was tested on deionized water and cellulose solution to study its reflection coefficient characteristics. An antenna with dual-band characteristics was designed for glucose monitoring applications. The antenna operates at 402–405 MHz and 2.4–2.48 GHz and was tested on skin-mimicking gel for in-body testing. Small electrical antennas are suitable for medical applications.⁸ Therefore, various miniaturization techniques have been presented in literature, using highly directed substrates,

Review Of Mems-Based Sensing Technology And Human-Centered Applications In Health Prespective

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ABSTRACT:

As a consequence of the incredible growth in technical improvements over the last several years, there has been significant progress in biomedical engineering applications. Today's sensing technologies in medical may be part of a solution to the socioeconomic and demographic challenges that worldwide healthcare systems are experiencing. The global biomedical sensors market, especially the noninvasive kind, is expected to reach 15.01US\$ by 2022. There is a lot of interest in using microsystems in healthcare applications as a worldwide research focus, with researchers coming up with new techniques to noninvasively diagnose and monitor patients. Micro & Nano manufactured technologies like MEMS/NEMS that enable more compact, cost-effective, precise and efficient diagnostic instruments to discover earlier life-threatening ailments. This review article will concentrate on biomedical sensors utilised in the detection of tropical illnesses, as well as MEMS/NEMS based smart sensors recently developed for healthcare applications and smart application development. In addition to novel intelligent sensor solutions, each non-invasive biomedical sensor technology will be used in conjunction with specialised applications.

Keywords: Biosensors, MEMS, Sensors, actuators, Tropical diseases, Invasive, Noninvasive, smart implants, chemical sensing, micro/nano device, microfluidics, nanomaterial

1. INTRODUCTION

Tropics and subtropics ailments are now prevalent in urban climates[1]. These subtropical illnesses are common in different temperatures settings, resulting in viral infections. Tropical conditions such as malaria, dengue, tetanus, hepatitis, yellow fever, cholera, etc. may also contain such illnesses. Diagnoses of these tropical illnesses include serological testing of pathogenic indicators, through the use of proteins, antigens and antibodies X-rays, physical testing and fungi and bacteria cultivars. These procedures need the collection of body fluid samples such as blood, sputum, or urine. However, the diagnosis of tropical illnesses has numerous obstacles, featuring a lengthy turnaround time for specimen evaluation, a controlled atmosphere, trained experts, and huge blood (or) bodily fluid samples which is also the most expensive. Not only can a sick organ or joint dysfunction in a human body be studied in these tropical illnesses and cuts across the skin to open the body so that they can only establish the nature of the issue and choose the course of action. However, what can or cannot occur during surgery. For this sort of medical treatment, the phrase exploratory surgeries is used, and several complications are inherent in such approaches, and these techniques and evaluations are always invasive.

Recent research and studies have provided a variety of biomedical engineering techniques using non-invasive biomedical sensors in recent year [1] to give diagnostic methods that are simpler, more precise, cheaper, and less time consuming for detecting these tropical ailments. This innovative non-invasive sensing technology can replace the invasive techniques and give fresh insights into their physiological condition. This paper focuses on biomedical sensors that were

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RELIABLE OOD FOR TENABLE INVESTIGATION OF RHOMBOHEDRAL - POINT GROUPS

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ABSTRACT

Design-pattern(s) are special and unique and widely used, most accepted approach in software design and development, came into investigation from a specific group called "object oriented neighborhood". Patterns are effective solution for several major unusual problems. Multiple patterns are effectively merged jointly to form a reliable language which offers a technique for sensible function and software design and development related issues. Sensible hard work is done and made all efforts to join completely the topic(s) by resources of transformed-crystallography specially "in the age of crystal-symmetry and physical-properties". "Abstract-factory method" pattern(s) are very useful to decide on physical-property, established by the crystal belongs to the Rhombohedral -ferroic point group(s).

Indexed Terms: Rhombohedral Point Groups, Stereographic Projections, Physical properties, Abstract Factory technique.

I. INTRODUCTION

The frequency of physical property(s) in crystals such-as Ferro-magnetism, density, dielectric polarization, pyro-electricity, and elasticity etc. may be calculated using symmetry-operation, linking to that crystal. The arrangement of symmetric transformations forms a special group known as the symmetric group (or) point-group. The symmetric transformations reserve the gap between pairs of point(s) for the body & bring it in to super position with in itself. Physical property(s) of crystals can be initiated by specifying all the symmetry operation characterized by the molecular constitution or any other geometrical remains. As a result of taking into consideration the rotations, the reflection and inversion of symmetry elements there are 32 crystallographic p-groups. If the symmetry elements translation is taken into contemplation there will be total 230 space groups. A ferroic crystal contain(s) two or extra stable domain of the similar structures other than diverse spatial orientation. Aizu [2] explained all potential species of full and partial Ferro elasticity and Ferro electrics for all the 212 non-magnetic ferroic specie(s). Pree et al [1] worked on Design patterns of object-oriented software development Reading.Nagesh.p.et al [3] gave stereographic projections of tetragonal point groups by reusable object-oriented design. Lanka, S. et al. [4] discussed about Predictive data mining techniques of high dimensional big-data. Ramesh Babu, et.al [5] derived tensor-pairs and domain-pairs of cesium-dihydrogen phosphate using group theoretical techniques. Madhavi, R. et al.[6] solved complex engineering problems by Nature inspired techniques. Puvvada, N., [7] designed Semantic web-based banana expert system. Venkata Ramana, N., [8] Analyzed Big data and iot gadgets for tech savvy cities. Venkata Ramana, N. et al [9] Analyzed architecture to overcome real-time traffic-control as an intelligent transportation system using Big-data. Venkata Ramana, N. et al [10] Designed IoT based scientific to conquer- constant movement control as a canny transportation frame-work utilizing huge information available in cloud- networks. Rajesh, . B. et al[11] "A new scheme to safeguard data for cloud integrated internet things." Venkata Ramana, N., [12] developed Hybrid K-mir algorithm to predict type of lung cancer among stoicism. Siva Nageswara Rao.et al. [13-17] developed an Efficient PIMRR Algorithm for Improving scheduling Criteria's in Real Time Systems.



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3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the last five years

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISBN/ISSN number	Link of the recognition in UGC enlistment of the Journal		
						Link to the website of the Journal	Link to article/paper/abstract of the article	Is it listed in UGC Care list/Scopus/Web of Science / other mention
2020								
An efficient method for segmentation of noisy and non-circular iris images using improved PSO based morphological reconstructed FCM	Dr R Satish	ECE	IET - Biometrics	2020	ISSN: 2047-4938	https://ietresearch.onlinelibrary.wiley.com/	DOI:10.1049/iet-bmt.2019.0026	SCI

Experimental Investigations On a VCR CI Engine Fuelled With Corn Oil Blended With Diesel And Cerium Oxide Nano Additive	B V Subramanyam	Mechanical Engineering	International journal of research and analytical review	2020	ISSN 2349- 5138	www.https://www .ijedr.org	https://www.ijedr.org/ papers/IJEDR2002069 .pdf	UGC
Experimental Investigations On a VCR CI Engine Fuelled With Kusum Oil Blended With Diesel And Cerium Oxide Nano Additive	Dr.J.Sudhir Kumar	Mechanical Engineering	International journal of research and analytical review 1	2020	ISSN 2349- 5138	www.https://www .ijedr.org	https://www.ijedr.org/ papers/IJEDR2002069 .pdf	UGC
Experimental Investigations On a VCR CI Engine Fuelled With Corn Oil Blended With Diesel and Cerium Oxide Nano Additive	Sri D.Satyanarayan a	Mechanical Engineering	International Journal of Scientific Development and Research	2020	ISSN: 2455- 2631	www.https://www .ijedr.org	https://www.ijedr.org/ papers/IJEDR2002069 .pdf	UGC
An Efficient Bluetooth Scatternet Communication Algorithms for Dynamic Environments	Dr.Deepak Nedunuri	CSE	Journal of Critical Reviews	2020	ISSN- 2394- 5125	https://www.jcrevi ew.com/	https://www.jcreview. com/admin/uploads/F iles/62ff1a46dabd50.5 4406999.pdf	SCOPUS

Various Algorithms & Techniques Driving Data Science for Big Data	JSVG Krishna	CSE	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	2020	ISSN: 2278-3075	www.ijitee.org	https://www.ijitee.org/wp-content/uploads/papers/v9i5/E2626039520.pdf	SCOPUS
Private Data Distition and New Publicize	B Ramesh Babu	Information Technology	Journal of Engineering Science	2020	ISSN: 0377-9254	http://www.jespublication.com/	https://www.jespublication.mlsoft.in/upload/2020-20200352.pdf	SCOPUS
Smart ailment identification system for paddy crop Usingmachinelearning	Dr.S.Krishna Rao	Information Technology	IJIEMR	2020	ISSN 2456 – 5083	https://papers.ssrn.com/	https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3561355	SCOPUS
India's warfare with COVID - The invisible enemy	V.S.R.Pavan Kumar.Neeli	EEE	European Journal of Molecular and Clinical Medicine	2020	ISSN: 2515-8260	https://pesquisa.bvsalud.org/	https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/en/covidwho-962553	SCOPUS

Study and Analysis of Different Data Mining Algorithms Classification for Fault Detection	D. Srinivasa Rao	Information Technology	International Journal of Advanced Science and Technology	2020	ISSN: 2207-6366	http://serisc.org/	http://serisc.org/journals/index.php/IJAST/article/view/14159	SCOPUS
Study and Analysis of Different Data Mining Algorithms Classification for Fault Detection	J.Malathi	Information Technology	International Journal of Advanced Science and Technology	2020	ISSN: 2005-4238	http://serisc.org/	http://serisc.org/journals/index.php/IJAST/article/view/14159	SCOPUS
Applications of plastic waste material (straws) in improving strength properties of black cotton soil	A.S.Manikanta	Civil Engineering	International Research Journal of Engineering and Technology (IRJET)	2020	ISSN: 2395-0056	https://www.irjet.net/	https://www.irjet.net/archives/V7/i5/IRJET-V7I5924.pdf	SCOPUS
Design of high speed and area efficient 45nm hybrid encoding and decoding systems using multistage LFSR	K.Radha	ECE	Science, technology and development Journal	2020	ISSN: 0950-0707	https://journalstd.com/	https://drive.google.com/file/d/1tNtd6azNqWv56ood9cJptv1EEVHUEGc/view	UGC

Novel Classification Technique to Reduce Sensors Deployment from Large and Vary Printing Environment	K.N.Madhavi Latha	CSE	International Journal of Research in Electronics and Computer engineering	2020	ISSN: 2393-9028	http://www.i2or-ijrece.com/vol.-8-issue-3.html	http://nebula.wsimg.com/081139dd1737d0819a67085739dac2fc?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&alloworigin=1	UGC
Efficient and Optimize Standard Similarity Search Scheme using Skyline Computation	K Varada Rajkumar	CSE	International Journal Of Research In Electronics And Computer Engineering	2020	ISSN: 2393-9028	http://www.i2or-ijrece.com/	http://nebula.wsimg.com/91268c38a51ce3a6096798a6e2c2a5e9?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&alloworigin=1	UGC
An Improved Approach For Probabilistic Dual Source Location Privacy Protection Scheme In WSN	Gunupusala Satyanarayana	CSE	International Journal of Research in Electronics and Computer engineering	2020	ISSN: 2393-9028	http://www.i2or-ijrece.com/	http://nebula.wsimg.com/ab15a143cafdf03b611c74754843d2d2?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&alloworigin=1	UGC
A Privacy Preserving Data Search Scheme in Cloud Computing	CH Ramadevi	CSE	International Journal Of Research In Electronics And Computer Engineering	2020	ISSN: 2393-9028	http://www.i2or-ijrece.com/	N/A	UGC

Experimental Investigation of Mechanical and Durability Performance for Palm Oil Fuel Ash Aggregates Concrete	Kuppala Srinivasa Rao	Civil Engineering	International Journal of Architecture, Engineering and Construction	2020	ISSN: 1911-110X	https://www.researchgate.net/	https://www.researchgate.net/publication/347516728_Experimental_Investigation_of_Mechanical_and_Durability_Performance_for_Palm_Oil_Fuel_Ash_Aggregates_Concrete	UGC
Analysis and Performance of mvdc distribution system with ess for wind and solar energies	M.Veera Kumari	EEE	International Journal of Electrical and Electronics Engineering (JEEE)	2020	ISSN: 2278-9944	https://oaji.net/	https://oaji.net/articles/2021/1879-1641640221.pdf	UGC
Stand-Alone PV System Controlled By Using Advanced Fuzzy MPPT Controller	J Ayyapa	EEE	International Journal of Electrical, Electronics and Data Communication	2020	ISSN: 2320-2084	http://iraj.in/journal/IJEEDC/volume.php?volume_id=664	https://iraj.in/journal/IJEEDC/paper_detail.php?paper_id=17260&name=Stand-alone_PV_System_Controlled_by_using_Advanced_Fuzzy_MPPT_Controller	UGC
Virtualization: Efficient Utilization of resources	E.B.K.Manash	Information Technology	ICACIT 19	2020	ISSN: 0886-9367	https://ijaema.com/	DOI: 10.115685900307	UGC

Analysis and Performance of mvdc distribution system with ess for wind and solar energies	Koyi Kotaiah Chowdary	EEE	International Journal of Electrical and Electronics Engineering (IJEED)	2020	ISSN: 2278-9944	https://oaji.net/	https://oaji.net/articles/2021/1879-1641640221.pdf	UGC
Tracking and Automation of Images by Colour Based Processing	M.Sunil Kumar	EEE	Journal of Engineering Sciences	2020	ISSN: 0377-9254	https://jespublication.com/	https://jespublication.com/upload/2020-110805.pdf	UGC
Ultra low power and secure VLSI architecture for Dedicated short range communication applications	K.Radha	ECE	ICTACT Journal on Microelectronics	2020	ISSN: 2395-1680	https://ictactjournal.in/	https://ictactjournal.in/paper/IJME_Vol_6_Iss_3_Paper_3_970_975.pdf	UGC
Meta Data Management and its governance using Big Data Tools	V Gopala Krishna	CSE	High technology letters	2020	ISSN: 1006-6744	http://www.gistx-e.com/	N/A	SCOPUS

TEG Cascaded Solar PV System with Enhanced Efficiency by Using the PSO MPPT Boost Converter	Motepalli Sunil Kumar	EEE	International Journal of Research in Engineering, Science and Management	2020	ISSN: 2581-5792	https://www.ijresm.com	https://journal.ijresm.com/index.php/ijresm/article/view/384	UGC
Ensemble Classification Technique For Heart Disease Prediction With Meta-Heuristic-Enabled Training System	P Rajendra Kumar	Information Technology	Bio-Algorithms and Med-Systems	2020	17(2): 119-136	https://www.degruyter.com/	https://doi.org/10.1515/bams-2020-0033	UGC
SS<30mV/dec; Hybrid Tunnel FET 3D Analytical Model for IoT applications	Ajaykumar Dharmireddy	ECE	Materials Today: Proceedings	2020	ISSN: 2214-7853	https://www.sciencedirect.com/	https://www.sciencedirect.com/science/article/pii/S2214785320370826	SCOPUS
Facial Expression Recognition System	Marlapalli Krishna	CSE	International Journal for Innovative Engineering and Management Research	2020	ISSN 2456 – 5083	https://www.ijiemr.org/	https://www.ijiemr.org/public/uploads/paper/938991609208987.pdf	UGC

A Survey on Different Methods used for Analysis of Protein-Protein Interaction Network	B Madhav Rao	CSE	International Journal of Innovative Engineering and Management Research	2020	ISSN 2456 – 5083	https://www.ijiemr.org/	N/A	UGC
A Survey on Different Methods used for Analysis of Protein-Protein Interaction Network	M Sampath Kumar	CSE	International Journal of Innovative Engineering and Management Research	2020	ISSN 2456 – 5083	https://www.ijiemr.org/	N/A	UGC
Power quality improvement through dual voltage source inverter of grid connected Renewable Energy Sources	Dr.A Srinivasa Reddy	EEE	International Journal of Research in Engineering and Science	2020	ISSN : 2320-9364	https://www.ijres.org/v8-i12.html	https://www.ijres.org/papers/Volume-8/Issue-12/3/B0812030916.pdf	UGC
Automatic Generation Control of Hybrid Two Area Power System using Whale Optimization Algorithm	V.S.R.Pavan Kumar,Neeli	EEE	i-Manager's Journal on Electrical Engineering	2020	Vol. 14, No. 2	https://imanagerpublications.com/	https://imanagerpublications.com/article/17774/	UGC

Power quality improvement through dual voltage source inverter of grid connected Renewable Energy Sources	B.Samba Siva Rao	EEE	International Journal of Research in Engineering and Science	2020	ISSN: 2320-9364	https://www.ijres.org/v8-i12.html	https://www.ijres.org/papers/Volume-8/Issue-12/3/B0812030916.pdf	UGC
Control of Grid Frequency under Unscheduled Load Variations: A Two Layer Energy Management Controller in Urban Green Building's	S. N. V. Bramareswara Rao	EEE	International Journal of Renewable Energy Research	2020	ISSN: 1309-0127	https://doi.org/10.20508/ijrer.v11i1.11731.g8121	https://www.researchgate.net/publication/347822098_Control_of_Grid_Frequency_under_Unscheduled_Load_Variations_A_Two_Layer_Energy_Management_Controller_in_Urban_Green_Building	Scopus, Web of Science (ESCI)
Power quality improvement through dual voltage source inverter of grid connected Renewable Energy Sources	S. N. V. Bramareswara Rao	EEE	International Journal of Research in Engineering and Science	2020	ISSN : 2320-9364	https://www.ijres.org/	https://www.ijres.org/papers/Volume-8/Issue-12/3/B0812030916.pdf	UGC
Power quality improvement through dual voltage source inverter of grid connected Renewable Energy Sources	A.srinivasa reddy	EEE	International Journal of Research in Engineering and Science	2020	ISSN : 2320-9364	https://www.ijres.org/	https://www.ijres.org/papers/Volume-8/Issue-12/3/B0812030916.pdf	UGC

A new segmentation method for non-ideal iris images using morphological reconstruction FCM based on improved DSA	K.Lakshmi narayana	ECE	SN Applied Sciences A Springer Nature journal	2020	ISSN: 2523-3971	https://link.springer.com/journal/4245	https://doi.org/10.1007/s42452-020-04110-1	SCI
A Hybrid multi-level disease filtering framework using biomedical documents and ICD drug discovery	Konda sreenu	CSE	European Journal of Molecular & Clinical Medicine	2020	ISSN 2515-8260	https://ejmcm.com/	N/A	SCOPUS
Music Listener Mood Prediction from the Lyrics Using Machine Learning	P Ramaiah Chowdary	Information Technology	International Journal of Advanced Science and Technology	2020	ISSN: 2005-4238	http://serse.org/journals/index.php/IJAST/index	http://serse.org/journals/index.php/IJAST/article/view/18426	UGC
Analysis of Airline Connectivity System using Graph Theory	P Ramaiah Chowdary	Information Technology	International Journal of Control and Automation	2020	ISSN: 2005-4297	http://serse.org/journals/index.php/IJCA/index	http://serse.org/journals/index.php/IJCA/article/view/16052	UGC

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Efficient method for segmentation of noisy and non-circular iris images using improved particle swarm optimisation-based MRFCM

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Abstract: Segmentation of the iris is a crucial stage in an automated iris-based recognition system. The performance of any biometric system primarily relies on how effectively the iris is extracted from the unwanted parts of an iris image. The process of iris segmentation is mainly affected by the noise artefacts such as eyelid/eyelashes occlusions, specular reflections, intensity inhomogeneities, and non-circularity of the iris boundary. A novel and an efficient method has been proposed in this work to segment noisy and non-circular iris boundaries. The mathematical modelling of morphological reconstruct fuzzy C-means clustering (MRFCM) has been presented. The MRFCM based on improved particle swarm optimisation has been implemented before the segmentation in the recognition framework. The resultant images are then segmented by employing geodesic active contours incorporated by a new stopping function. The effect of the proposed segmentation method on iris recognition is observed through matching score distribution. The popular and publicly available datasets such as UBIRISv1, CASIA-v3-Interval, MMU1, and Mobile Iris Challenge Evaluation databases are considered for the evaluation of the proposed method. Recognition accuracy is validated and compared with the well-existing methods.

1 Introduction

The iris is a robust biometric attribute for recognition of individuals due to its richness and stability of the iris pattern. The noisy imaging, non-circular iris boundaries, eyelashes, and eyelids occlusion, specular reflections, off-axis gaze etc., make the recognition inefficient [1]. Thus, the recognition accuracy primarily depends on how effectively the iris is extracted from the unwanted parts of an iris image.

Even though many approaches have been proposed by various authors in the literature, there is still scope for enhancement in the robustness and efficiency of the algorithms. Table 1 shows several existing iris segmentation methods in the recognition pipeline. Most of the authors proposed methods based on the hypothesis that the limbic and pupillary boundaries are circular.

Daugman [2] and Wildes [10] proposed the integro-differential operator (IDO) and Hough transform (HT) segmentation algorithms, respectively, that are widely used for ideal iris image databases. Another method proposed by Daugman [1], employ

active contours and generalised coordinates to detect the iris boundaries. Active contours are employed to detect non-circular boundaries. It offers efficient recognition on non-ideal image databases. Roy *et al.* [3] presented a model for segmentation of non-ideal iris databases. Employed edge-based level set curve evolution for segmentation of inner boundaries and Mumford Shah segmentation model for outer boundaries.

Another fascinating technique proposed by Shah and Ross [4], which employs geodesic active contours (GACs) to find both the pupil and limbic boundaries. The GACs have an advantage that they can localise objects in spite of their shapes and can segment multiple objects simultaneously. Two-dimensional (2D) Gabor filters and hamming distance are then employed for encoding of iris and matching, respectively.

Clustering is just another means to partition objects in an image into several distinct components for further processing. Among the segmentation technologies available in the literature, clustering (grouping) is one of the extensively used technique for segmentation because of its effectiveness and rapidity [14].

Table 1 State-of-the-art iris segmentation methods

Authors	Pre-segmentation	Iris segmentation
Daugman [1]	—	active contour and generalised coordinates
Daugman [2]	—	IDO
Roy <i>et al.</i> [3]	—	level set methods
Shah and Ross [4]	—	GACs
Sahmoud and Abuhaiba [5]	K-means clustering	CHT
Li <i>et al.</i> [6]	—	RANSAC
Hidal <i>et al.</i> [7]	—	HT and active contours
Li and Ma [8]	—	edge detection-based HT
Bouaziz <i>et al.</i> [9]	multilevel thresholding based on artificial bee colony metaheuristic	IDO and CHT
Wildes [10] and Masek and Kovacs [11]	—	edge detection-based HT
Satish <i>et al.</i> [12]	PSO-based FCM	GACs and HT
Satish and Rajesh Kumar [13]	IPSO-based Otsu	GACs with a modified stopping function
proposed approach	MRFCM based on IPSO	GACs and HT

EXPERIMENTAL INVESTIGATIONS ON A VCR CI ENGINE FUELED WITH CORN OIL BLENDED WITH DIESEL AND CERIUM OXIDE NANO ADDITIVE

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Abstract: The fast depletion of fossil fuel resources and increase in fuel prices in recent years has led to focus towards alternate fuels used in diesel engines. The vegetable oil has become in favour and cost effective and used under a wider range of conditions among various fuel alternatives. The random extraction and consumption of fossil fuels have lead to reduction in petroleum reserves. A single cylinder computerized variable compression ratio engine was operated successfully using Corn Bio-diesel and its blends of Corn oil methyl ester with cerium oxide as nano additive. Pure diesel with different esterified Corn seed oil and its blends are tested for combustion, performance and emission characteristics and curves are drawn and compared with that of diesel. Exhaust emissions such as CO, CO₂ and HC were determined and compared with that of diesel. Burning of fossil fuels has caused serious detrimental environment consequences. The application of biodiesel has shown a positive impact in partitioning these problems. It is concluded that the VCR Diesel engine works efficiently by giving lowest emission values of CO, CO₂ and HC for Corn biodiesel blend B10 with cerium oxide as nano-additive at both the compression ratios 17.5:1 and 19:1.

Index Terms: VCR engine, Emissions, Combustion, Corn bio-diesel and Neat diesel, Nano-Additive.

I. INTRODUCTION

Fossil fuels have limited life and the ever increasing cost of these fuels has led to the search of alternate renewable fuels for ensuring energy security and environmental protection. Various sectors like transportation, agriculture and industries are consuming diesel fuel as a serious supply of power. As the stipulation of diesel fuel increases, the price of the fuel is also escalating. Biodiesel may be a cleaner burning replacement fuel for diesel drawn from natural sources such as virgin and used vegetable oil, algae and animal fats. India is not only a large importer of oil with the prospect of increased imports in the future, but also has significant potential for production of bio-fuels in the country. India actually has large areas of wasteland, which could be utilized for the production of bio-fuels. India and many countries in the world are on the verge of devising and implementing programs for production, conversion and use of bio-fuels. It is identified that more than 340 oil containing crops, among which only palm, jatropha, pongamia, cottonseed, soybean, rapeseed, sunflower, etc., are considered as potential substitute fuel for compression ignition engines. Rapeseed, soybean, sunflower, pongamia and jatropha are the most commonly used feedstock for biodiesel extraction.

Nano technology has already contributed to number of innovative products in various engineering disciplines because of their unique physical, chemical and mechanical properties. The present work studies the results of application of a Corn bio- diesel on a practical heavy-duty VCR diesel engine, with the aim of knowing their impact on exhaust emissions and performance. The goal of this experimental study is to analyze the new fuel contributions to potential performance and efficiency loss. An attempt is made to assess the combustion and performance phenomenon of Corn bio-diesel fuel. An investigation covering the performance, emissions is dealt with to evaluate the engine under various fuel blend implementations.

II. LITERATURE REVIEW

S. Bari et al., [1] 2002 makes a point that viscosity of Crude Palm Oil(CPO) is too high to allow smooth flow in fuel lines and thus needs to be heated to reduce viscosity. However, this heating of CPO offered no advantages in term of performance. In the performance test, it was found that the performance of CPO, as a fuel, was comparable with that of Diesel. Carbon monoxide emissions for CPO. Compared to Diesel, were higher. Y. He et al., [2] 2005 has done his investigation on cottonseed oil. This oil is a good alternate fuel source of Diesel engine because of its high gross heat content. Optimal combinations of four working parameters under two operating conditions were determined when the mixture of 30% cottonseed oil and 70% Diesel oil were used. The main factor effecting the SFC or thermal efficiency was found to be the fuel discharge angle and its appropriate values for two operating conditions was about 22CA that is 3CA to 5CA in advance of that which was appropriate for the engine fueled by pure Diesel oil. Murat karabektuset al.,[3] 2008 In this study " cottonseed oil methyl ester(COME) is use as fuel in Diesel engine to evaluate the performance and emission parameters. For this purpose single cylinder four-stroke, direct injection Diesel engine is taken. Before supplied to the engine, COME was preheated to four different temperatures. The results revealed that preheating COME up to 90C leads to favorable effects on the BTE and CO emissions but causes higher NO_x emissions. More over the brake power increases slightly with the preheating temperature up to 90C. L.kallivroussis et al.,[4]2000 points out that one requirement for an oilseed crop to be considered for Bio-Diesel production is that it provides a positive energy return compared with the energy used to produce the fuel. Sunflower seed is a good source of Biomass, and a crop considered for Bio-Diesel production. The energy inputs and outputs

EXPERIMENTAL INVESTIGATIONS ON A VCR CI ENGINE FUELED WITH CORN OIL BLENDED WITH DIESEL AND CERIUM OXIDE NANO ADDITIVE

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AN EFFICIENT BLUETOOTH SCATTERNET COMMUNICATION ALGORITHMS FOR DYNAMIC ENVIRONMENTS

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ABSTRACT

New and promising technologies, such as Bluetooth-based networking, are emerging and taking small-area networking to a higher and better level. With the support of the Bluetooth specification, piconet formation is encouraged. However, the use of the Scatternet remains available. The biggest problem with piconet formation is that they cannot be interconnected. This research presents a new, more efficient algorithm for Bluetooth mesh network formation. In a dynamic environment, where nodes show up and leave at random, our protocol will provide high performance. The incremental building of the TSF partitions occurs as soon as the topology and healing partitions are introduced. In the context of networking, we built a Bluetooth simulator that incorporates nearly all of the details of the stack of Bluetooth protocols.

Keywords: Bluetooth, Dynamic, Environment, Protocol.

I. OVERVIEW

Mobile devices have become an essential part of daily life for people who have benefitted from recent advances in wireless technology and mobile applications. Mobile libraries and navigation have been found in many smartphone apps. "More advanced wireless ad-hoc and sensor networks support mobility in the mobile application arena, because wireless PANs and sensor networks are possible on mobile devices that have no base stations or wired networks. Wireless sensor and ad hoc networks, such as healthcare, fitness, and gaming, are growing in use. Since short-range data transmission technologies such as Bluetooth enable easy data exchange between devices that are stationary or mobile, Bluetooth is a wireless protocol that utilizes short-range communication technologies. Due to the outstanding wireless properties, such as low cost, low power consumption, and good anti-jamming performance, Bluetooth has become an attractive communication protocol for wireless ad hoc and sensor networks. Each piconet consists of no more than eight devices because each device has three-bit addresses. Each piconet links a single member with another piconet that is also another member of the same piconet." This device connects two piconets together, and it transmits information between the members of both piconets. "All piconets in the network form a scatternet, allowing connected devices to interact with each other.

Finding the best network configuration, with minimal network reliability and connectivity issues, is a difficult task for a scatternet formation algorithm. When it comes to sensor networks using Bluetooth, the number of bridges and the connectivity of each bridge will affect how long the sensor network functions and how long it survives. Using more bridges has the net benefit of an increase in overall network efficiency, and decreasing the total data transfer path." The bridge node, however, is liable for forwarding packets between two or more piconets, which happens in a time-shared manner [1]. In other words, since the network requires more resources to maintain, the bridge nodes have a shorter lifespan.

II. FRAMEWORK OF SCATTERNET

Scatternet is a network of interconnected piconets. An interlinked network such as this will improve the tractability of networking, while at the same time, it will speed up the creation of new applications. As an illustration of this, imagine that you see an old man in your local public library. A figure can be visualized in different ways, depending on the lens, perspective, and interpretation. The piconets form a scatternet when connected together. A peer-to-peer link is established in Scatternet. It is established when a member of one piconet behaves as a slave in another piconet. Piconets acting as a bridge can be handled by a single device. A participant can be either a master or a slave. A device can serve as a slave in more than one piconet. It serves as a central device, but it only functions in one piconet [2]. The computer is present in two piconets, and so it functions as a broadcast transmitter. This intermediate device distributes data packets across the piconets based on time division multiplexing (TDM). A system's ability to contribute to scatternet communication depends on

Various Algorithms & Techniques Driving Data Science for Big Data



JSVG Krishna, M. Venkateswara Rao, Kattupalli Sudhakar

Abstract: In basic terms, Big Data¹ – when joined with Data Science² – permit chiefs to gauge and survey fundamentally more data about the nuances of their organizations, and to utilize the data in settling on progressively keen choices. In early 2010, during the period when the development of Big Data was truly increasing noteworthy notification all through the Data Management industry, said that it “is advancing into the key reason for rivalry.” It has now developed, information volumes proceed to develop, and now the inquiry is never again if it’s another pattern and what influences it will have, yet how to use Big Data in significant manners for the venture. Information Science has been around for any longer than Big Data, yet it wasn’t until the development of information volumes arrived at contemporary levels that Data Science has become an essential part of big business level Data Management.

Keywords:- About four key words or phrases in alphabetical order, separated by commas.

I. INTRODUCTION

In the business scene of today, information the board can be a significant determinant of whether you succeed or fall flat. Most organizations have started to understand the significance of fusing systems that can change them through the use of huge information. Right now, understand that huge information isn’t just a solitary innovation or system. Or maybe, enormous information is a pattern that extends over various fields in business and innovation. Large Data is the term used to allude to activities and innovations that include information that is excessively various, quick advancing, and huge for normal advancements, infrastructure, and aptitudes to address comprehensively. That is; the volume, speed and assortment of the information is very extraordinary. Regardless of the intricacy of this information, progresses in innovation are permitting organizations to draw an incentive from large information.

For instance, in your organizations can be situated to follow customer web clicks so as to distinguish shoppers’ conduct slants and change the business’ crusades, commercials, and valuing to fit the purchasers’ persona. An extra model would be the place vitality specialist organizations evaluate family unit utilization levels so as to anticipate looming blackouts and advance progressively effective vitality utilization.

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Also, wellbeing arrangement bodies might have the option to screen the spread just as the rise of sicknesses by breaking down online life information. There are various uses of huge information, the most essential of which will be talked about somewhat later in the article.

II. TRANSFORMATION OF BIG DATA

The Big Data transformation⁴ has ostensibly given a more remarkable data establishment than any past computerized progression. We would now be able to quantify and oversee monstrous measures of data with striking accuracy. This transformative advance permits administrators to target and give all the more finely tuned arrangements and to utilize information in territories truly saved for the “gut and instinct” dynamic procedure.

Adaptability and deftness are two perspectives valuable in managing Big Data. Effectively abusing the estimation of Big Data requires experimentation and investigation. In the case of making new items or searching for approaches to increase an upper hand, getting ideal outcomes from Big Data requires interest and an enterprising standpoint. In her Enterprise Data World 2015 Conference⁵ introduction, titled “Methods and Algorithms in Data Science for Big Data,” Laila.M recommended a scrutinizing mentality is desirable over one effectively happy with confirmations: The methods of reasoning and programming of Big Data have gotten progressively famous; they are currently affecting and modifying long-standing convictions about the estimation of adaptability, long haul thinking, and dynamic.

Pioneers from all ventures are utilizing the bits of knowledge picked up from Big Data Analytics as the board apparatuses. The issues with consolidating Big Data advances into a set up association can be very enormous and much of the time despite everything requires critical initiative. There is proceeding with protection from change by key people and they should be managed, ideally by method for retraining and directing. Regardless of these opposition issues, it is an unrest officials need to pay attention to in the event that they wish to stay serious.

The previous not many years have seen a noteworthy ascent in instruments to manage Big Data and its various related information types; however numerous undertakings are still just barely starting to see how to best arrangement with their new resources. Luckily, the expense of figuring and arranging corporate information has been declining consistently. Cell phones, interpersonal organizations, GPS, sensors, web based shopping, and a large group of different sources are delivering a surge of information, and the final product of these new information sources is hopefully “helpful data.”

Extensively, there are five different ways this information can be utilized⁶.

PRIVATE DATA DESTITUTION AND NEW PUBLICIZE IN CLOUD STORAGE SUPPLIERS

B. RAMESH BABU, DR. GURU KESAVA DAS, GOPISSETTY

Abstract: The genuine purposes of this strategy a safe multi-proprietor data sharing arrangement. It derives that any customer in the social affair can securely give data to others by the untrusted cloud. Internet of Things (IoT), Data sharing is a significant idea in cloud computing for sharing data to open clients. A secure knowledge cluster sharing and conditional dissemination data owner will share non-public information with a group of users via the cloud in an exceedingly secure manner and communicator will publicize the info to a brand new cluster of users if the attributes satisfy the access policies within the cipher text. It efficiently deals with large files over a set of geo-dispersed storage services. Besides that we developed a novel Byzantine-resilient data-centric leasing protocol to avoid write-write conflicts between clients accessing shared repositories. Data owner is not able to control over their data, because cloud service provider is a third party provider. We present a safe and security ensuring access control to customers guarantee any part in a social event to anonymously utilize the cloud resource. Many schemes for storing information on multiple clouds Distributing data over completely different Cloud Storage Suppliers (CSPs) mechanically provides users with a definite degree of data run management for no single purpose of attack will leak all the knowledge. Data sharing with forward security secure data sharing for dynamic groups, Attribute based data sharing, encrypted data sharing and Shared Authority Based Privacy-Preserving Authentication Protocol for access control of outsourced data.

Index Terms: Cloud, data sharing, access control, security, privacy, Byzantine fault tolerance, Remote Synchronization, Distribution and Optimization, Internet, Secured data sharing.

1. INTRODUCTION

The popularity of cloud computing is obtained from the benefits of rich storage resources and instant access [1]. The security risks have raised concerns in people, due to the data is stored in plaintext form by the CSP. Once the data is posted to the CSP, it is out of the data owner's control [2]. Internet of Things (IoT) term speaks to a general idea for the capacity of system gadgets to detect and gather data from around the globe and after that offer that data over the Internet where it tends to be handled and used for different fascinating purposes [3]. Except for being able to allow users to share data with others in public cloud, there is another requirement of data dissemination [4]. Cloud Service Provider (CSP) for the purpose of accessing the data at any time anywhere and sharing the data with others With the more and more fast uptake of devices like laptops, cell phones and tablets, users need associate degree present and massive network storage to handle their ever-growing digital liver [5]. The use of widely-accessible cloud services would facilitate the sharing of data among BayBanks, hospitals, and laboratories, serving as a managed repository for public and access-controlled datasets [6]. Every cloud provider offers one or more services, which implement access control mechanisms to ensure that only authorized accounts can access them [7].

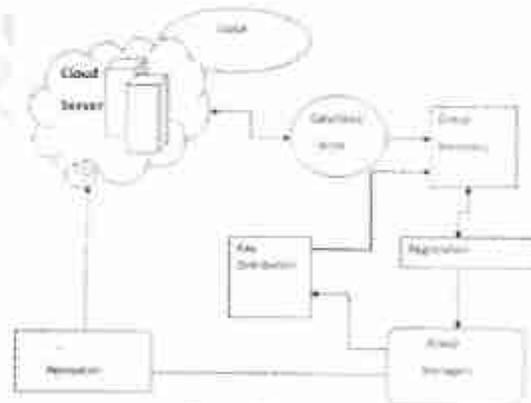


Fig. 1. Cloud Security Model

2. RELATED WORK

A series of unaddressed security and privacy issues emerge as important research topics in cloud computing. To deal with these threats, appropriate encryption techniques should be utilized to guarantee data confidentiality [8]. They affixed the present timeframe to the cipher text, and non repudiated clients occasionally got private keys for each time span from the key expert. Lamentably, such an answer since it requires the key specialist to perform direct work in the quantity of non-renounced clients [9]. In order to achieve data collaboration and dissemination, this scheme adopted the PRE technique to allow an authorized proxy to convert an IBBE cipher text into an identity-based encryption (IBE) cipher text [10]. Our framework permits

SMART AILMENT IDENTIFICATION SYSTEM FOR PADDY CROP USING MACHINE LEARNING

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Abstract: Agriculture is a significant source of income and much of an Indian economy depends on agricultural production. Early detection of plant leaf illnesses is essential to boost crop output and profit. Agricultural specialists diagnose most illnesses through the examination of external symptoms. Farmers, however, have restricted access to professionals. This article proposes a fresh method for diagnosing and classifying rice illnesses. Four diseases were detected and categorized as bacterial blight of rice, rice blast, tungro of rice and false smut. By developing an algorithm different features such as shape, color of the Diseased leaf part were extracted. Diseases have been classified using SVM (Support vector machine) and classifier k-Nearest Neighbor (k-NN) after extracting all features. Our suggested solution also provides farmers with Diagnosis of plant disease through a scalable cooperative platform based on the Cloud. This is available via a mobile application allowing customers to send photos from various areas of the leaves that automatically diagnose real-time plant diseases.

Keywords- Support vector machine, k-Nearest Neighbor Crop Diseases, Classifiers.

1. INTRODUCTION

Rice crop is one of India's major plants. Most of the land region is under rice crop cultivation and is one of the primary economic development sources. Farmers face annual yield losses and economic losses owing to pests and illnesses in rice plants. The primary causes of rice diseases are bacteria, fungi, and viruses. There are various rice diseases, four were researched in this article, namely bacterial rice blight (RBB), blast disease, tungro and false smut diseases. These illnesses have some comparable signs that cannot be understood by a common farmer eye.

Farmers cannot detect signs of certain illnesses. Farmers must take help by specialists to find health of plant which is very costly and time taken to diagnose is very high. This generates the need for image processing methods to automatically detect illnesses. Generally speaking, Processing of any image follow the order of steps in identifying the illnesses:

(a) Plant Image collection (b) Processing of Image to reduce size (c) Image Segmentation (d) Extraction of Feature values (e) Classifying process. Different

INDIA's Warfare with COVID - The Invisible Enemy

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Abstract: Approximately one year back (December, 2019) CORONA virus born and vibrates the world rigorously, affects many people lives, taught many lessons, habitats new manners, new lifestyles, etc. The whole world suddenly turns into the dark side. This research paper discusses the scenario of covid outbreak in the world specifically in India with emphasis on the measures taken by the Indian government in fighting with the covid, the economic impact of covid in India, the helping hands during covid crisis, and the positive side of the covid.

Keywords: Covid, Corona, Pandemic, INDIA, Warfare, Virus

1. INTRODUCTION

CORONA outbreak 2019 [1] is named as **COVID-19** and is caused by the novel virus 'Severe Acute Respiratory Syndrome CoronaVirus-2 (SARS-CoV-2)'[2]. It belongs to the family of corona viruses (CoV) [3] which are non-segmented, enveloped, positive-sense RNA viruses [4], and is the seventh known coronavirus which infects humans.

Initially, Covid-19 originated from a seafood market in the city of Wuhan, Hubei Province, China in the late December-2019 and from then it is infected to humans [5]. Its basic symptoms include casual cold, mild cough, fever, loss of smell and shortage of breath. However, severe infection leads to many serious problems like multi organ failure, breathing difficulty, chest pain and even casus death [6]. Since the virus periodically changes its DNA, simultaneously, its symptoms are also changed. Around 218 countries and territories have been attacked by the virus at the time of writing this paper (23rd Nov, 2020). More than 56 million people were attacked worldwide, out of it, more than 1.3 million people were expired as shown in Figures 1 and 2 respectively [7,8]. The outbreak was considered as a pandemic by World Health Organization (WHO) after 11th March press meet [9]. WHO provides some guidelines on Infection Prevention and Control (IPC) strategiesto guide covid suspects during difficulties [10].

Study and Analysis of Different Data Mining Algorithms Classification for Fault Detection

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Abstract

This paper contrasts three classifiers (SYM, WKNN) with the performance of the decision trees using data from optimized and not optimized sensor solutions. This article compares the performance of three classifiers. The algorithms are equipped with known data and then evaluated for various scenarios with varying degrees of severity. In order to achieve a high degree of reliability, improvement of the product life cycle is necessary. In general, repair operations have as their purpose the elimination and minimization of failures of industrial machinery. By different fault detection techniques the industrial companies are trying to improve their efficiency. One solution is to process and evaluate data generated beforehand in order to avoid future failures. The purpose of this paper is to detect waste parts using various data mining algorithms and to compare their accuracy.

1. Introduction

Industries have also focused on quality, performance and cost efficiency in the past. Thanks to technical advances in the last ten years, industries' capability to identify and distinguish defects from the beginning of evolution has added one very significant dimension to their top priorities. Such developments required both equipment requirements and medium transport to be calculated intelligently in a cost-effective way. Sensor data from certain locations may disclose instrumental system health information. If this information is correctly interpreted, the operator may use it to achieve behavior that guarantee the smooth operation of systems, minimize risks of unintended downtime and produce planned performance, optimizing an overall asset / device / process or plant availability. It is often difficult to obtain real data sets for the creation and testing of algorithms of defect detection and defect isolation. The time, cost and replication constraints involved in capturing any major degradation render performing representative tests on a fuel system much more troublesome. A solution can be used in three different ways. First of all, accelerated testing which can be accomplished by improving or using less expensive materials the components' duties. Second, the components may be machined to reflect a degraded mode – also called seed failure testing-by understanding the modes of degradation to be explored. The second is just a single snapshot, but it can be repeated slowly in order to increase the effect. Third, the emulation of other modes of deterioration, such as a filter that is moved to a valve, so that an obstructed filter failure

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Abstract

This paper contrasts three classifiers (SVM, WKNN) with the performance of the decision treaties using data from optimized and not optimized sensor solutions. This article compares the performance of three classifiers. The algorithms are equipped with known data and then evaluated for various scenarios with varying degrees of severity. In order to achieve a high degree of reliability, improvement of the product life cycle is necessary. In general, repair operations have as their purpose the elimination and minimization of failures of industrial machinery. By different fault detection techniques the industrial companies are trying to improve their efficiency. One solution is to process and evaluate data generated beforehand in order to avoid future failures. The purpose of this paper is to detect waste parts using various data mining algorithms and to compare their accuracy.

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APPLICATIONS OF PLASTIC WASTE MATERIAL (STRAWS) IN IMPROVING STRENGTH PROPERTIES OF BLACK COTTON SOIL

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Abstract: Large scale construction of roads, bridges, dams, irrigation schemes, and residential buildings demand optimum and efficient use of construction resources. Black Cotton Soil near construction site is highly expansive and it exhibits swelling and shrinkage when it subjected to changes in the moisture content this cyclic swelling and shrinkage of soil subjected to distress under moisture variations and these cause severe failures. Hence it needs addition of some strengthening elements to increase the strength and to reduce the compressibility of black cotton soil. Soil stabilization is a process that improves physical soil characters such as increased shear resistance, load capacity etc can be done by compacting or adding appropriate additives such as cement, lime, etc. The cost of introducing these additives has increased in recent years. On the other hand, the quantity of plastic waste used are increasing everywhere in an unprecedented rate Hence we are using plastic (Straws) as Stabilizer to improve the engineering properties of black cotton soil. The tests such as standard proctor compaction test, California bearing ratio (CBR) test and unconfined compressive strength (UCS) have been conducted on soil and plastic straws mixture to check the improvement in the properties of black cotton soil. From the test results, it was observed that with the increase in percentage and length of plastic straws in black cotton soil, maximum dry density decreases whereas optimum moisture content decreases in both cases. Further, the strength values increases with increase in percentage of waste milk plastic packets and then decreases with further addition of it. CBR value is maximum for 1.0 cm size and 0.4% of plastic straws. UCS value (qu) is maximum at 0.4% for same size of plastic straws mixed.

Keywords: Black Cotton Soil, Plastic Straws, CBR, UCS, MDD, OMC

1. INTRODUCTION

Soil is a most essential component of the earth's ecosystem. In INDIA, soils are classified into six groups namely alluvial soil, black soil, red soil, laterite soil, mountain soil and desert soil. India has large tracks of expansive soil known as Black Cotton soil (BC soil), covering an area of 0.8 million square kilometer, which is about 20% of total land area. For engineering consideration's, black cotton soil is one of the challenging material for construction purpose, which will not easily get stabilized due to its high potential of shrinking and swelling as an effect of change in moisture content. It will minimize the stability and shear strength of black cotton soil when compared to other types of soil. On the other hand, the quantity of plastic waste used are increasing everywhere in an unprecedented rate. The disposed or stored plastic waste pollutes the soil mass and causes health problems. As a result efforts have been made all over the world in last two decades to consume them in construction for dual purpose of cost effective construction and eliminating of the problem of storage and other environment problem associated with these materials. Soil stabilization is a process that improves physical soil characters such as increased shear resistance, load carrying capacity etc. can be done by compacting or adding appropriate additives such as cement, lime, and waste materials such as ashes flying foci, etc. The cost of introducing these additives has increased in recent years, the plastic waste material is serious problem to disposal to the outside so this plastic waste material (plastic straws and packets) are used as additive in the black cotton soil. The use of plastic as a stabilizer reduces the problem of plastic disposal as well as increases the density and increases the proportion of California Bearing (CBR) soils in an economical way. Arindam Saha, Bikash Chandra Chattopadhyay, Joyanta Maity et.al. (2017) presents the stabilization of clayey soil using randomly distributed waste plastic bags (Metro Dairy Milk Packets) at varying size (1cmx1cm, 1cmx2cm, 1cmx4cm) & percentages (0.2%, 0.5%, 1%, 1.5%) by weight of clayey soil. Compaction tests, CBR tests and UCS tests were conducted to investigate the behavior of clayey soil mixed with waste milk plastic packets. From the test results, it was observed that with the increase in percentage and length of waste milk plastic packets in clayey soil, maximum dry density decreases whereas optimum moisture content increases in both cases. Harish and Ashwini, H.M. (2016) studied the effect of plastic bottles strips as a stabilizer for two soil samples, red soil and black cotton soil. They observed an increase in the strength of soil and bearing ratio of 2.9 for red soil and 3.3 for the black cotton soil by mixing 0.7 % of waste plastic strips to red soil and 0.5 % for the black cotton soil. Jasmin Varghese Kallyyath et.al. (2016) studied the effect of plastic fibers. The test results also showed that with 1% replacement, MDD and UCC were less than the 0.5 % replacement but greater than the untreated soil. Further increase in the plastic replacement showed decrease in the MDD and the UCS. Subhash, K. et.al. (2016) conducted experimental study on soil stabilization using glass and plastic granules mixed with varying percentage. Akshat Malhotra et.al. (2014) demonstrated the potential of HDPE plastic waste on the UCS of soil. When 4.5 % plastic waste was added, 287.32 KN/m² soil strength of the soil was obtained.

DESIGN OF HIGH SPEED AND AREA EFFICIENT 45NM HYBRID ENCODING AND DECODING SYSTEMS USING MULTISTAGE LFSR

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ABSTRACT: In this Paper the design of high speed and area efficient 45nm hybrid encoding and decoding systems using multistage LFSR. Basically, the main intent of multi stage LFSR is to improve the area and performance. Both hybrid encoding and decoding system will encoded and decode the data in specified manner. SIPO and PISO play an important role in entire system. Generally decoding logic that scales logarithmically with the number of stages rather than exponentially with the number of bits as required by other methods. Hence this system gives effective results in terms of MOSFET's, number of Nodes and Delays.

KEYWORDS: Linear feedback shift registers (LFSRs), BCH encoders, cyclic redundancy check (CRC), Transformations, matrix multiplications, alternative transformation, PISO (Parallel in serial out), SIPO (Serial in parallel out).

I. INTRODUCTION

Multiplication is conceivable the most important signal processing and machine learning application. They can be also able to find the area, delay and overall performance of the serial parallel implementation. The work of the multiplication circuits has been extensive. However the modified booth's algorithm at higher radices in combination with Wallace tree has generally been accepted as the high performance implementation for the general problems. In the digital circuits, multiplication can be performed in many ways. They are as follows 1) parallel-parallel 2) serial-serial, 3) serial-parallel, 4) parallel-serial. Using the booth's modified algorithm we can be able to study about the serial parallel two speed multiplier (TSM) that conditionally adds the non zeros part of multiplications and skip over the zeros

sections. BCH codes and cyclic redundancy check (CRC) are comprehensively used to guarantee the unwavering quality and trustworthiness of information transmission. The essential capacity in BCH encoding and CRC is used to process remnants of polynomial divisions, which is actualized by Linear Feedback Shift Register (LFSR's) [1].

The high-throughput necessities of current advanced interchanges request LFSR's with significant level of parallelism. To accomplish p-equal preparing, the conditions of the registers in the LFSR after p clock cycles are inferred by look-ahead calculations, which bring about a lattice increase in the criticism circle that restricts the feasible clock recurrence. A state-space change approach was acquainted in with alter the input lattice at the expense of a pre-preparing and change network augmentations [2].

A specific buddy lattice like change was utilized in this work to make the basic way of the input network augmentation one XOR Gate, despite the fact that the other two framework increases have longer information ways. In, thorough pursuit is done over a similar sort of changes to distinguish the one prompting the littlest generally Gate check. Triangular change frameworks are received in. From thorough hunt, such changes lead to LFSR plans with lower by and large Gate check without giving up the basic way. A different profession deciphers the LFSR work as

Novel Classification Technique to Reduce Sensors Deployment from Large and Vary Printing Environment

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Abstract- Various important applications for these devices are good to go areas that solicitation cost-mindful game plans. Traditional AI set up control systems habitually depend concerning different estimations from various sensors to achieve execution targets. An elective procedure is presented that utilization a period course of action yield conveyed by a single sensor. By using domain expert knowledge, the time game plan yield is discretized into constrained traverses that contrast with the physical events occurring in the system. Authentic measures are assumed control over these stretches to fill in as the features to the AI structure. Additional features that decouple key physical estimations are perceived, improving the introduction of the structure. This story approach requires an inexorably unpretentious enlightening assortment, and doesn't deal execution. Results are given the logical examination of a media-type game plan system inside a printing structure, which was sent to the field as a business thing.

Keywords: Expert-based systems, System level design, machine learning.

I. INTRODUCTION

Sensors are rapidly reducing in cost while execution and exactness increase. In this manner, various electromechanical contraptions have melded sensor-enabled control plans. Starting late, AI computations have begun to utilize this example to enable new value. Identified information may be used to make input features for estimations that enable proactive diagnostics, structure care, and other progressively complex endeavors, for instance, course of action. Concerns rise when the amount of sensors and the capacity of individual centers are constrained due to cost or other related factors like estimation time and memory impression. Past undertakings to address this concern have focused on a lessening of computational necessities during both the planning and gathering times of embedded oversaw AI estimation headway [1]. Techniques attempting to confine the amount of features required for plan furthermore exist; these may be used to decrease the amount of sensors significant for a given task. Sensors convert physical signs into electrical signs. This

makes it possible to evaluate physical sums in nature. If such estimations are made on and on and set aside, the lead of the physical sum can be thought of. Further, if the data can be transmitted to the taking care of unit with immaterial deferral, a consistent examination can be performed to increment noteworthy bits of information.

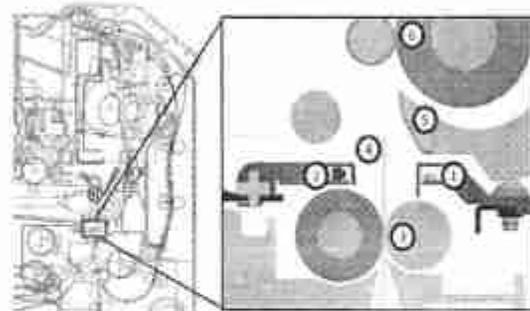


Fig.1: Supervised machine learning approach

Exactly when an engine or generous mechanical rigging is working, sure inside physical sums, for instance, oil temperature, oil pressure, etc., change by and large. At the same time certain environmental components, for instance, outside temperature and clamminess in like manner change. Dismembering sensor data that gets these components can reveal a couple of things, for instance, the adequacy of the apparatus and anticipated disillusionments.

II. RELATED WORK

A. An Online Algorithm for Segmenting Time Series [1]

In recent years, there has been an explosion of interest in mining time series databases. As with most computer science problems, representation of the data is the key to efficient and effective solutions. One of the most commonly used representations is piecewise linear approximation. This representation has been used by various researchers to support clustering, classification, indexing and association rule mining of time series data. A variety of algorithms have been proposed to obtain this representation, with several algorithms having been independently rediscovered several times. In this paper, we undertake the first extensive review and empirical comparison of all proposed techniques. We show that all these algorithms have fatal flaws from a data mining perspective.

Efficient and Optimize Standard Similarity Search Scheme using Skyline Computation

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Abstract—Probabilistic requests have been extensively explored to outfit answers with sureness; in order to help the certifiable applications doing combating with questionable data, for instance, sensor frameworks and data joining. Regardless, the powerlessness of data may multiply, and thusly, the results returned by probabilistic requests contain a lot of fuss, which spoils question quality basically. In this paper, we propose a powerful upgrade structure, named as QueryClean, for both probabilistic skyline count and probabilistic resemblance search. The goal of QueryClean is to propel request quality by methods for picking a social affair of uncertain articles to clean under limited resource open, where a joint-entropy based quality limit is used. We develop a gainful structure called ASI to list the possible result sets of probabilistic inquiries, which avoids normality of probabilistic request appraisals over a huge number of the likely universes for quality computation. Moreover, we present unmistakable and unpleasant figurings for the headway issue, using two as of late showed heuristics. Broad preliminary outcomes on both authentic and designed educational assortments show the profitability and versatility of our proposed structure QueryClean.

Keywords: Probabilistic Skyline Query, Probabilistic Similarity Query.

I. INTRODUCTION

Faulty data exists in some certified applications in light of a collection of reasons, e.g., the upsur in sensor wellsprings of data or botches in far off transmission, missing or incorrect characteristics in data compromise, etc. Subsequently, the request planning on questionable data has gotten a lot of thought from database arrange, for instance, probabilistic skyline computation, probabilistic nearest neighbor search, probabilistic top-k question, and so forth. A probabilistic inquiry returns, from a questionable database, the things with non-zero probabilities to be the request result. In this way, the weakness of the data articles spreads to the request results, regardless of the way that customers generally speaking would like to get right and careful results. In like way, it is difficult for the customers to perceive incredible data things and choose right decisions from the suitable reaction/result sets with much upheaval, especially for the instructive file with high powerlessness.

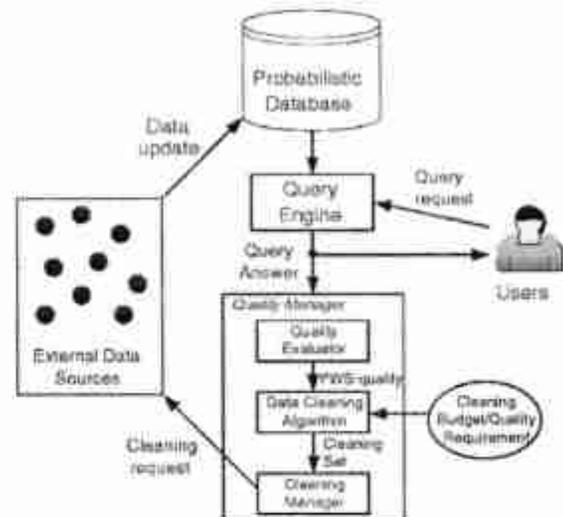


Fig.1: Managing quality of probabilistic databases

Along these lines, the probabilistic request has low quality, realizing helpless decisions. Also, fundamental decisions subject to low quality data have serious consequences. As uncovered by Gartner, helpless data quality is a fundamental clarification behind 40% of all business exercises fail to achieve their concentrated on points of interest, and data quality impacts as a rule work productivity by as much as a 20%. It is extraordinary that data cleaning is a reasonable technique to improve data quality. Regardless, generally speaking, data cleaning is a work genuine, repetitive, and expensive strategy, and cleaning all of the data is commonly neither expense upheld nor sensible. Subsequently, it is infeasible to clean all data fights on account of obliged resources available.

II. RELATED WORK

A. U-Skyline: A New Skyline Query for Uncertain Databases:

The skyline query, aiming at identifying a set of skyline tuples that are not dominated by any other tuple, is particularly useful for multicriteria data analysis and decision making. For uncertain databases, a probabilistic skyline query, called P-Skyline, has been developed to return skyline tuples by specifying a probability threshold. However, the answer obtained via a P-Skyline query usually includes skyline tuples undesirably dominating each other when a small threshold is specified; or it may contain much fewer skyline tuples if a

An Improved Approach for Probabilistic Dual Source Location Privacy Protection Scheme in WSN

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Abstract- Wireless Sensor Networks (WSNs) have been widely deployed to monitor valuable objects. In these applications, the sensor node senses the existence of objects and transmitting data packets to the sink node (SN) in a multi hop fashion. The SN is a powerful node with high performance and is used to collect all the information sensed by the sensor nodes. Due to the open nature of the wireless medium, it is easy for an adversary to trace back along the routing path of the packets and get the location of the source node. Once adversaries have got the source node location, they can capture the monitored targets. In this project, we focus on the source location privacy problem in WSNs, a hot research topic in security, and propose a novel approach of two new cluster-based source location privacy protection schemes in WSNs called cluster-based dual phantom node source location privacy protection scheme (DPS) and probabilistic source location privacy protection scheme (PSLP) for WSNs. A more powerful adversary, which can use Hidden Markov Model (HMM) to estimate the state of the source, is considered in this study. To cope with this type of adversary dual phantom nodes and fake sources, which are responsible to mimic the behaviour of the source, are utilized to diversify the routing path. Then, the weight of each node is calculated as criteria to select the next-hop candidate. In addition, two transmission modes are designed to transmit real packets. We evaluate our schemes through theoretical analysis and experiments. Experimental results show that compared with other schemes, our proposed schemes are more efficient and achieves higher Security, as well as keeping lower total energy consumption. Our proposed schemes can protect the location privacy of the source node even in resource constrained wireless network environments.

Index Terms—Wireless sensor networks, source location privacy, phantom node, fake source.

I. Introduction

In recent years, WSNs have played an important role in a number of security applications, like remotely monitoring objects etc. In such applications, the location of the monitored object is tightly coupled with the sensor that detects it, called the data source. Therefore, preserving the location of data source is important for protecting the object from being traced. Such preservation cannot be simply accomplished by encrypting the data packets as the location of the data source can be disclosed by analyzing the traffic flow in WSN. There have been extensive techniques proposed to preserve source

location privacy against different attack models: Local-eavesdropping model - Local-eavesdropping assumes the attacker's ability to monitor the wireless communication is limited to a very small region, up to very few hops. Global-eavesdropping model - The attacker is assumed to be capable of monitoring the traffic over the entire network. Both being unrealistic, because the former stringently restricts the attacker's ability, while the latter exaggerates it, considering resources and cost required for launching such an attack. Semi-Global eavesdropping model - A more practical attack model, in this semi-global eavesdropping model, the attacker is able to eavesdrop on wireless communications in a substantial area that is much smaller than the entire monitoring network. This attack model allows the attacker to gather substantially more information than a local eavesdropper. Under the semi-global eavesdropping model, we explore a novel protocol for preserving source-location privacy by using data mules. Traditionally, data mules are used in WSNs for reducing energy consumption due to the data transmission between sensors and facilitating Communication in disconnected networks. A data mule picks up data from the data source and then delivers them directly to the base station. We adapt the functionality of data mules so that they not only maintain their traditional functionality, but also facilitate the preservation of the location privacy of data sources. Wireless Sensor Networks (WSNs) are WSN networks comprised of a large number of small and costless devices (sensor nodes) which provide traditional computers with the ability to feel and reason about their surroundings, thus providing intelligence to the environment and enabling the Ambient Intelligence (AmI) paradigm.

The reduced cost and size of sensor nodes is one of the main advantages of WSNs but it is also one of its main limitations, since it greatly constrains the capabilities of sensor nodes. These devices must cope with a processor or memory equivalent to that of computers thirty years ago. Moreover, they are mainly battery powered and in most cases these are irreplaceable. Due to the lack of resources, sensor nodes are extremely vulnerable to different types of attacks, from the hardware to the application layer. In general, privacy in AmI environments has traditionally been related to what is known as social privacy, that is, the need to prevent individuals from being tracked without their explicit consent. However, there are also network privacy considerations that must be taken into consideration. An attacker might analyze the network operation in order to retrieve information about the network

A Privacy Preserving Data Search Scheme in Cloud Computing

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Abstract—Cloud computing is a promising IT procedure that can sort out a lot of IT assets in a productive and adaptable way. Progressively various organizations intend to move their neighborhood information the board frameworks to the cloud and store and deal with their item data on cloud servers. A going with challenge is the means by which to ensure the security of the economically private information while keeping up the capacity to look through the information. In this paper, a security protecting information search conspire is suggested that can bolster both the identifier-based and include based item look. In particular, two novel list trees are developed and encoded that can be looked without knowing the plaintext information. Examination and reproduction results show the security and proficiency of our plan.

Keywords: Cloud computing; information security.

I. INTRODUCTION

Driven by the upheaval of data innovation as of late and with the stoppage in the monetary development, there is a critical need to change China's whole modern chain. To advance an overall mechanical redesigning, China has proposed the methodology of "Web +", and the coordination of China's web based business with its conventional economy has been essentially improved. Internet business has quickened its extension from utilization to different ventures and penetrated all parts of social and financial exercises, in this way driving the advancement of big business level web based business, both in scope and top to bottom, and encouraging the change and redesigning of endeavors. The Monitoring Report on the Data of China's Ecommerce Market [1] shows that in 2016, the volume of internet business exchanges in China arrived at around 3.5 trillion dollars, a year-on-year development pace of roughly 25.5%. The quickly rising number of digital exchanges has produced online business huge information.

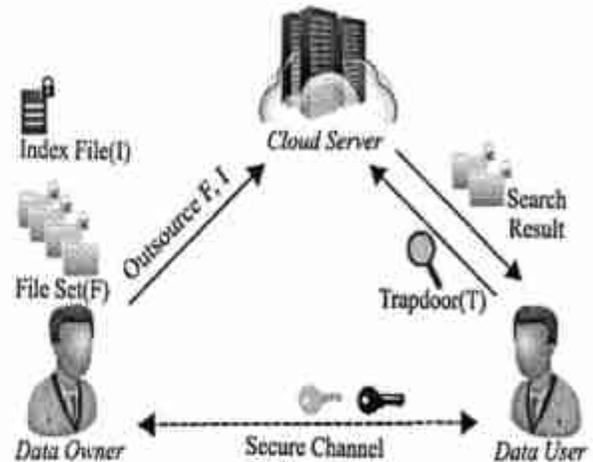


Fig.1: Multi keyword fuzzy search

As progressively various information records are being put away locally in undertakings, the weight on nearby information stockpiling frameworks incredibly increments. Neighborhood equipment disappointments lead to incredible harm or loss of information, which enormously influences the day by day tasks of the undertakings. Luckily, distributed storage procedures appeared under such conditions. Distributed computing can gather and sort out an enormous number of various kinds of capacity gadgets by methods for different capacities, for example, group applications, organize innovation and disseminated document frameworks. There have just been various normal cloud administration items at home and abroad, for example, Amazon.

II. RELATED WORK

Secure Conjunctive Keyword Search Over Encrypted Data [1]

We characterize a security model for conjunctive watchword search over scrambled information and present the primary plans for directing such quests safely. We propose initial a plan for which the correspondence cost is straight in the quantity of records, however that cost can be brought about "disconnected" before the conjunctive question is inquired. The security of this plan depends on the Decisional Diffie-Hellman (DDH) suspicion. We propose a second plan whose correspondence cost is on the request for the quantity of catchphrase fields and whose security depends on another hardness supposition.



Experimental Investigation of Mechanical and Durability Performance for Palm Oil Fuel Ash Aggregates Concrete

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Abstract: With the drastic increase in concrete consumption, the scarcity of natural resources has only become a matter of time. Therefore, it is a strong suggestion to use recycled products in place of virgin materials to produce aggregates. The use of such products promotes a sustainable environment by sending lesser waste for disposal to landfills, which otherwise poses a severe threat to overall sustainability. To address this issue, this paper presents the manufacturing methodology of cement bounded palm oil fuel ash (POFA) aggregates as well as the experimental investigation of their mechanical and durability properties. Ordinary portland cement and POFA are selected in three different varying proportions, i.e., 95:05, 90:10, 85:15 (POFA:Cement). The formed aggregates are replaced with conventional aggregates in varying ratios, like 25%, 50%, and 100%. Results indicate that the POFA aggregates can potentially be used for 100% replacement of conventional concrete in the production of concrete, such that it will lead towards the conservation of natural resources and contributes towards achieving sustainability.

Keywords: Palm oil fuel ash, aggregates, palletization, concrete, durability

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1 INTRODUCTION

The distress regarding the exhaustion of natural resources and its chaotic effect on the environment has led to the usage of artificial resources (aggregates) as a substitute for naturally occurring materials. The effective usage of waste materials is the only way to find an alternative for natural resources. The waste materials obtained from industries like steel plants, power plants, and from the agricultural sector are used as supplementary cementations materials (SCM) in the manufacturing of concrete. The use of SCM has a direct impact on the mechanical and durability properties of concrete due to the formation of additive hydration compounds with their high contents of SiO_2 and CaO . The SCMs can be broadly categorized as industrial waste and agricultural waste (Aprianti *et al.* 2015; Sata *et al.* 2007; Aprianti 2017). Fly ash, GGBS, silica fume, etc., are some of the most used industrial by-products (Chatterji *et al.* 1982; Chindaprasirt *et al.* 2007; Mehta and Gjerv 1982). While POFA (Islam *et al.* 2016; Lee *et al.* 2009), rice husk ash (De Sensale 2010; Jain *et al.* 2011), corn cob ash (Adesanya and Raheem 2009; Adesanya and Raheem 2010), and bamboo leaf ash (Villar-Cocina *et al.* 2011) are the agricultural by-products.

In India, agriculture is the key income source for the country. It produces waste in lump sum quantities. Each

crop has its variety of waste like paddy, wheat, maize, etc. which produces straw. The present paper deals with palm oil plantation. The fruit, after extraction of oil, is used as fuel for combustion. The so formed ash is known as palm oil fuel ash (POFA). One of the most widely used edible oils in the world is palm oil, for which Malaysia stands as a leading producer (Hansen *et al.* 2015). A large quantity of POFA is generated every year as an agro-waste from the research and refinery plant (Mathusany and Azainah 2014). POFA is available in plenty at all the oil extraction and fuel plants. Silica and alumina, which are non-crystalline, are the major constituents of POFA, which is potential enough to be used as SCM (Chandara *et al.* 2010; Chandara *et al.* 2011). Partial waste was used for the pozzolanic property test, and the remaining is left as waste for disposal. In order to triumph over the disposal trouble (Awal and Nguong 2010), the POFA can be used effectively in the construction industry as its chemical composition contains a large amount of silica (Harsha *et al.* 2017).

The usage of POFA in the construction industry is a new trend as well as exigent equally. Significant studies are made to enhance the usage of POFA, mainly in Southeast-Asian countries, Malaysia, and Indonesia (Islam *et al.* 2016). POFA can be used in the construction industry in many ways, like partial replacement material for cement. However, the main task will be in

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ANALYSIS AND PERFORMANCE OF MVDC DISTRIBUTION SYSTEM WITH ESS FOR WIND AND SOLAR ENERGIES

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ABSTRACT

In distributed power systems, the integration of renewable energy sources and DC loads are increasing day by day. Medium Voltage Direct Current (MVDC) is a modern concept to meet the DC demand with high reliability and feasibility. A simulation model of hybrid configuration merging both MVDC and ESS (Energy Storage System) for solar and wind energies have been modelled, simulated, and compared. To get a bidirectional power flow, the ESS is connected to a Bi-directional DC-DC converter. In this paper, the comparative performance of the MVDC distribution network integrated with ESS is evaluated for solar and wind energy sources. The study's main contribution is obtaining a coordinated operation of MVDC and ESS, which performs via a supervisory control scheme that defines the set-points for the control loops in each converter.

KEYWORDS: MVDC, Grid, Distribution, ESS, VSC, Bi-directional DC-DC converters

Article History

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INTRODUCTION

In the earlier stages of the power systems, the use of AC and DC grids was a hot topic. However, AC grids became more prominent since the voltage and power levels are sufficient, and voltage conversion was challenging. But, today, there is considerable progress in the power electronic technologies, DC becoming a more significant component in the power system. In DC grids, transmission technology is a current research topic. The VSC-HVDC transmission technology is preferable than LCC-HVDC technology because the VSC-HVDC's commutation is independent of an AC grid. Thus there is no commutation failure issue, and it can supply power for a passive system. The harmonic content of voltage and current is shallow due to pulse width modulation in VSC-HVDC. Based on the advantages above, the VSC-HVDC has a great prospect in connecting renewable energy, developing rapidly [1] [2].

STAND-ALONE PV SYSTEM CONTROLLED BY USING ADVANCED FUZZY MPPT CONTROLLER

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Abstract - The photovoltaic (PV) energy is one of the renewable energies that attract attention of researchers in the recent decades. Since the conversion efficiency of PV arrays varies according to temperature and radiation. In this paper an intelligent method of maximum power point tracking (MPPT) using fuzzy logic control for PV system. The PV system is composed of PV array, buck converter, and MPPT controller. Fuzzy logic controller (FLC) is easy to implement, and does not need knowledge of the exact model of the system. Simulations results compared with conventional perturb and observation (P&O) technique show the effectiveness of the fuzzy logic controller under steady-state and varying weather conditions.

Keywords - Photovoltaic System (PV); MPPT; Fuzzy Logic Controller (FLC); P&O; DC-DC Converter; Matlab/Simulink.

I. INTRODUCTION

Global energy crisis and threat of environment disorder has become a common concern worldwide [1]. The demand of electrical energy is growing constantly. The conventional sources of energy like thermal are having serious issue of having limited reservoirs which may end in the next few decades. The carbon emissions from the power plants using conventional sources are adding serious threat to the environment. Also other source of energy i.e. nuclear is possessing serious threat to the safety of human being. Nowadays, the renewable energies are growingly used. The photovoltaic (PV), fuel cell, wind farm and biomass are the most common sources. Among these sources, the PV systems are dominant because of their availability and reliability. Regardless of the intermittency of sunlight, solar energy is widely available and completely free of cost. Solar Photovoltaic (PV) is used to convert solar energy into electrical energy. The complete solar energy conversion system consists of Solar PV, Power electronics converters and control unit to regulate the power extracted from solar PV. Even though the PV system is posed to its high capital fabrication cost and low conversion efficiency, this energy is a naturally viable energy supply with potentially long-term benefits. Even though the PV system is posed to its high capital fabrication cost and low conversion efficiency, this energy is a naturally viable energy supply with potentially long-term benefits.

The solar energy is directly converted into electrical energy by solar PV module. Each type of PV module has its own specific characteristic corresponding to the surrounding condition such as irradiation, and temperature and this makes the tracking of maximum power point (MPP) a complicated problem. To

overcome this problem, many maximum power point tracking (MPPT) control algorithms have been presented [2-7] Fuzzy logic (FL) has been used for tracking the MPP of PV modules because it has the advantages of being robust, relatively simple to design and does not require the knowledge of an exact model. In this paper, mathematical models of the PV module, DC-DC converter, are used in the study of FL based MPPT algorithm. The Paper is organized as mathematical modeling of PV generator, DC-DC buck converter and FL based MPPT controller.

II. PHOTO VOLTAIC SYSTEM MODE

The system studied in this paper is a stand-alone PV system within backup batteries. As shown in Fig.1, the system consists of a PV generator, battery bank and DC-DC Converter. The Fuzzy logic based MPPT control is performed by adjusting the duty ratio of the DC-DC converter.

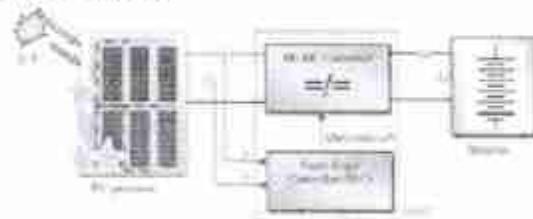


Fig 1: Block diagram of the stand-alone PV system

Photovoltaic generator model

The PV generator is formed by the combination of many PV cells connected in series and parallel to provide desired value of output voltage and current. Solar cell consists of one diode parallel with a photo-current source. To get more accurate model series resistance and parallel resistance added to this combination

VIRTUALIZATION: EFFICIENT UTILIZATION OF RESOURCES

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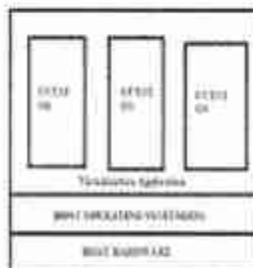
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Abstract - The term 'Virtualization' can be used in many aspects of computer. Virtualization is nothing but creating a virtual environment for hardware platforms, storage devices, OS, network resources, etc. This will help the user by providing multiple machines within a single machine. Virtualization helps user to share a single physical instance of resource or an application with multiple users. Virtualizations in cloud computing is rapidly integrating the fundamental way of computing.

Keywords: Virtualization, Virtualization in Cloud Computing, Types of Virtualization, Tools and products for virtualization.

I. INTRODUCTION

Virtualization is process of sharing the a single application or resource among number of users. Over an existing operating system or hardware, we create a virtual machine, which is used to run different applications or operating systems. The virtual machine provides a separate environment that is logically different from its underlying hardware. The physical system here is called as host and virtual machine is called as the guest machine. The whole virtual environment that we created is managed by a firmware which is termed as a hypervisor.



There are many ways to virtualize servers that are in cloud. They are Grid approach, OS-Level virtualization, hyper visor based Virtualization. With the help of hypervisor's virtualization, there are many more sub methods to run multiple applications & other loads on a single host. There is one technique that allows a virtual machine to move from a single host to other host without any need of shutting down

known as "Live Migration". Dynamic Resource Scheduling technique is used for load balancing multiple hosts to efficiently utilize the resources available in a virtual machine.

Virtualization plays a significant role in cloud technology. Usually, the users will not only share the data which is located in the cloud but also can share their infrastructures with the help of virtualization. Virtualization mainly provides applications with standard versions for the cloud customers. When there is a release of the latest version of an application, the providers can provide that updated application to the cloud to their users using virtualization only. For this Virtualization, all server software required for providers are maintained by some third-party, and they pay to the third parties on a monthly or yearly basis.

II. FEATURES OF VIRTUALIZATION

- ❖ Partitioning: At a single instance of time, multiple virtual servers can run on a single host server.
- ❖ Encapsulation of data: In a file format, all data on the virtual server are encapsulated
- ❖ Isolation: The Virtual server running on the physical server are separated safely without affecting each other
- ❖ Hardware Independence: Virtual server migrates from one hardware to another, while it is running.

III. VIRTUALIZATION TYPES

Based on their characters virtualization of cloud is classified into five different types. They are:

- ❖ Server Virtualization.
- ❖ Desktop Virtualization.
- ❖ Memory Virtualization.
- ❖ Application Virtualization.
- ❖ Storage Virtualization.

Server Virtualization: Server virtualization involves in partitioning a physical server into multiple small, virtual servers with the help of virtualization software. Enterprise data centers have large number of servers. Most of the servers are inactive as work load is given



ANALYSIS AND PERFORMANCE OF MVDC DISTRIBUTION SYSTEM WITH ESS FOR WIND AND SOLAR ENERGIES

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ABSTRACT

In distributed power systems, the integration of renewable energy sources and DC loads are increasing day by day. Medium Voltage Direct Current (MVDC) is a modern concept to meet the DC demand with high reliability and feasibility. A simulation model of hybrid configuration merging both MVDC and ESS (Energy Storage System) for solar and wind energies have been modelled, simulated, and compared. To get a bidirectional power flow, the ESS is connected to a Bi-directional DC-DC converter. In this paper, the comparative performance of the MVDC distribution network integrated with ESS is evaluated for solar and wind energy sources. The study's main contribution is obtaining a coordinated operation of MVDC and ESS, which performs via a supervisory control scheme that defines the set-points for the control loops in each converter.

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INTRODUCTION

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TRACKING AND AUTOMATION OF IMAGES BY COLOUR BASED PROCESSING

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Abstract— Now a day all application sectors are moving for the automation processing and sensing . for example image processing in medical field ,in industrial process lines , object detection and Ranging application, satellite imaging Processing ,Military imaging etc, In each and every application area the raw images are to be captured and to be processed for human visual inspection or digital image processing systems. Automation applications In this proposed system the video is converted into frames and then it is get divided into sub bands and then background is get subtracted, then the object is get identified and then it is tracked in the framed from the video .This work presents a technique for automating the methodology of detecting and tracking objects utilizing color feature and motion. Video Tracking is the methodology of finding a moving object over the long distance using a camera. The main aim of video tracking is to relate target objects in consecutive video frames.

Keywords— Hue Saturation –Intensity, Hue Saturation Value, Cyan Magenta Yellow Black, Gaussian Mixture Model

1. INTRODUCTION

Image processing is any form of signal processing for which the input is an image, Such as a photograph or video frame; the output of image processing may be moreover an image or a set of uniqueness or parameters linked to the image. The majority image processing system involves treating the image as a two-dimensional signal and be appropriate standard signal-processing modulus operandi to it. Image processing usually refers to digital image processing, but optical and analog

Image processing also is possible. This critique is about general modulus operandi that apply to all of them. The acquisition of images (fabricate the input image in the first place) is referred to as imaging. In every research area, they analyze the problem,

mostly image analysis involves maneuver the image data to conclude exactly the information compulsory to help to answer a computer imaging problem.

Digital image processing methods stems from two principal application areas: improvement of pictorial information for human interpretation, and processing of image data for tasks such as storage, transmission, and extraction of pictorial information

The remaining paper is structured as follows. Section 2 deals with the existing method of Image Processing. Section 3 deals with the proposed method of Image Processing. Section 4 deals the results and discussions. Finally, section 5 concludes the work done.

2. EXISTING METHODS OF IMAGE PROCESSING

A The perception of color starts with a chromatic light source, capable of emitting electromagnetic radiation with wavelengths between approximately 400 and 700 nm. Part of that radiation reflects on the surfaces of the objects in a scene and the resulting reflected light reaches the human eye, giving rise to the sensation of color. An object that reflects light almost equally in all wavelengths within the visible spectrum is perceived as white, whereas an object that absorbs most of the incoming light, regardless of the wavelength, is seen as black. The perception of several shades of gray between pure white and pure black is usually referred to as achromatic.

Objects that have more selective properties are considered chromatic, and the range of the spectrum that they reflect is often associated with a color name. For example, an object that absorbs most of the energy within the 565–590 nm wavelength range is considered yellow. A chromatic light source can be described by three basic quantities:

ULTRA LOW POWER AND SECURE VLSI ARCHITECTURE FOR DEDICATED SHORT RANGE COMMUNICATION APPLICATIONS

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Abstract

Dedicated Short Range Communication (DSRC) is being widely deployed in intelligent transportation systems. The DSRC standards typically choose to take up line codes such as Manchester, differential Manchester, and FM₀ codes to achieve dc balance. In this paper, low power and secure VLSI architecture for integrated codes is proposed. The performance of the circuit is evaluated using 18nm FinFET based ECRL adiabatic logic in Cadence tool. The average power dissipation of multimode encoder operating at 877.192MHz is observed to be 32.24 μ w. The design provides not only 100% hardware utilization rate (HUR) but also maximum power saving of 99.99% over reported values of FPGA implementation. The adiabatic logic circuits designed with ECRL exhibit uniform peak current traces and hence are able to withstand differential power analysis (DPA) attacks, thereby offering improved security performance of the circuit.

Keywords:

DSRC, Encoder, Adiabatic, DPA, FinFET

1. INTRODUCTION

The autonomous vehicle technology is gaining importance now-a-days. These vehicles analyze their surroundings with the help of sensors and cameras. The visual information from these devices has limitations in providing safety to the vehicle users. Better traffic management is essential in saving people from road and highway accidents. The dedicated short range communication (DSRC) [1], [2] is useful for a one or two-way medium range transmission between vehicles, vehicle to road side infrastructure, and vehicle to everything. It enables sending of messages and broadcasting these messages among vehicles for announcement of public information and safety issues [3], [4]. To avoid collisions, inter and intra-vehicular communication is considered very crucial in terms of reliability, accuracy and confidentiality [5]. DSRC, with broader perspective of its surroundings by understanding road and traffic that are not easily visible to cameras, can reduce the risks of collisions and accidents.

The DSRC system consists of a transceiver and transponders. The semi-passive transponders operate with the help of batteries. They retransmit the same signal sent by the transceiver and perform frequency shift and encoding of information to be transmitted. Despite advancements in low-power integrated circuits technology, the life of the battery is limited. A totally independent DSRC transponder is not viable in terms of energy consumption. In order to extend the life of the battery, it is required to design DSRC transponder with reduced power consumption.

The remaining part of the paper is organized as follows. Literature review is carried out in section 2 and brief description about adiabatic logic and FinFET device is given in section 3. In section 4, the architecture of multimode encoder is described. The

results are given in section 5 and lastly section 6 concludes the paper.

2. LITERATURE REVIEW

In automotive electronic systems, security plays a crucial role. In these systems, vehicles may prone to attacks from various interfaces such as direct / indirect physical access, short range and long range wireless communication access channels. Hence, it is necessary to provide security in DSRC communications as the basic safety messages (BSM) convey significant information for safety [6]. An attacker can access different electronic control units (ECUs) and safety related critical components. The ECU provides different security applications such as forward collision warning, left turn assistance and lane change warning, etc. In addition, other performance metrics in DSRC system such as energy efficiency, safety, and congestion control are evaluated.

DSRC is the basic platform for many applications of automotive systems. DSRC standard requires encoding of the information bits to increase signal reliability and to provide dc balance [7], [8]. The problem of dc balancing can be overcome by using different encoding mechanisms that the DSRC supports are Manchester, differential Manchester [9] and FM₀. The design and development of multimode encoder suitable for DSRC using CMOS technology, though offers low power dissipation, it suffers from differential power analysis (DPA) attacks, causing security problems. Also, with the scaling of technology, leakage power increases. In the proposed work, to reduce the leakage power and to provide security to DSRC system, FinFET based adiabatic logic is used for the design of multimode encoder. One of the most commonly used adiabatic logic is efficient charge recovery logic (ECRL). The circuits designed with ECRL are found to have constant current peaks, thus offering resistance to DPA attacks [10]. The FinFET design [11] offers low leakage power and that in combination with adiabatic logic [12] which recycles the consumed energy, provides energy efficiency for the circuit. Simulations are carried out with 18 nm FinFET NMOS/PMOS standard threshold voltage (SVT) cells using Cadence tool.

3. BACKGROUND

3.1 DSRC

The architecture of DSRC system is shown in Fig.1. It mainly consists of microprocessor, baseband processing, and radio frequency (RF) units. The microprocessor interprets the media access control instructions to schedule the baseband processing tasks and radio frequency front-end. The baseband process unit is liable for modulation, error correction, clock synchronization, and

Meta Data Management and its governance using Big Data Tools

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Abstract:- Today's deal is to deal with data, the data evolved from binary digit (bit) to Yottabyte and beyond in all aspects of science, arts, engineering, research especially life with so much of competition and concrete proof of knowledge to deal with it. In the point of database access, the knowledge of the data took another leap of escalation which is Metadata management. The organizations are in trauma and not able to protect their data for the goodness and beneficial to the people and society. The vast amount of data is on the road and running like a bee with busy wings. The Meta data and its major flying beings are more important than any other base on the earth and also for the entire universe.

Key words:- metadata, data management, components of metadata, initiatives of metadata

I. INTRODUCTION

Since the day, the Binary Information Digit was instituted in the labs in 1947 by John W Tukey at Bell Labs [1], it has become the residue of each inhale on the earth. Each human is presently articulating the word information by asking, making, erasing, moving, and gathering a lot of its assorted expansion. India with its immense history of science and innovation is presently managing the advantages and disadvantages of enormous information like its populace in the nation and attempting to get things directly by applying the extern to each factor of existing and advanced models of training, administration and sanitization of the framework. [2] The cycle development from bit to Yottabyte (1024 Zettabytes) is the more seized rail framework where the excursion detracting from the gravitational power of everything identified with the humanity.

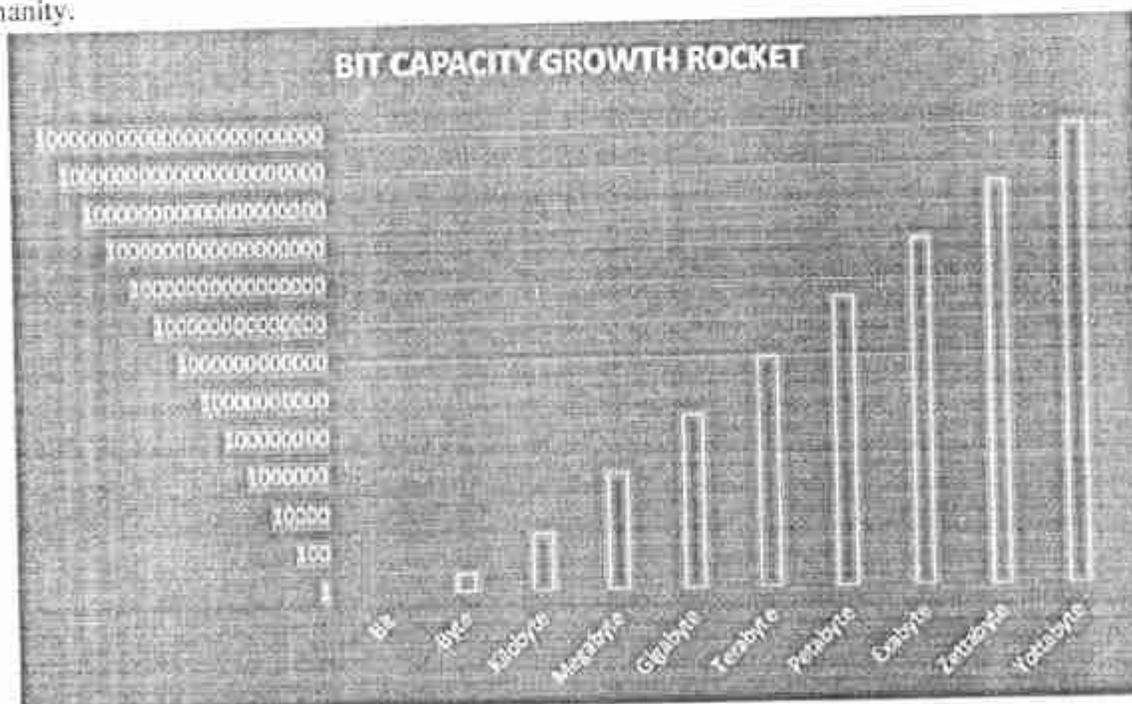


Figure 1.1: Bit limit rate development and its expansion

TEG Cascaded Solar PV System with Enhanced Efficiency by Using the PSO MPPT Boost Converter

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Abstract: Thermoelectric generators (TEGs) are used in small power applications to generate electrical energy from waste heats. Maximum power is obtained when the connected load to the ends of TEGs matches their internal resistance. However, impedance matching cannot always be ensured. Therefore, TEGs operate at lower efficiency. For this reason, maximum power point tracking (MPPT) algorithms are utilized. In this study, both TEGs and a boost converter with MPPT were modeled together. Detailed modeling, simulation, and verification of TEGs depending on the Seebeck coefficient, the hot/cold side temperatures, and the number of modules in MATLAB/Simulink were carried out. In addition, a boost converter having a particle swarm optimization (PSO) MPPT algorithm was added to the TEG modeling. After the TEG output equations were determined, the TEG modeling was performed based on manufacturer data sheets. Thanks to the TEG model and the boost converter with PSO MPPT, the maximum power was tracked with a value of 98.64% and the power derived from the TEG was nearly unaffected by the load changes. The power outputs obtained from the system with and without MPPT were compared to emphasize the importance of MPPT. These simulation values were verified by using an experimental setup. Ultimately, the proposed modeling provides a system of TEGs and a boost converter having PSO MPPT.

Keywords: Modeling, MATLAB/Simulink, PSO MPPT, Thermoelectric Generator.

1. Introduction

Thermoelectric generators (TEGs) are semiconductor devices that convert the temperature difference between surfaces into electrical energy directly. In order to increase their voltage, thermos elements (TEs) of p and n types are electrically connected in series and thermally connected in parallel to raise thermal conductivity. They are utilized as small power electric energy sources both to gain electrical energy from waste heats and to contribute to energy efficiency.

TEGs have some advantages and disadvantages. Their advantages are that there are no moving parts, they have a long service life, and they operate quietly. Moreover, they do not release greenhouse gases and therefore do not have any harmful

effects on the environment. However, they have two disadvantages, which are low efficiency and high cost. For these reasons, the usage areas are limited. However, considering the contribution of TEGs to energy efficiency, the generated electricity is quite valuable.

When a load is directly connected to TEG terminals, if the load resistance and the internal resistance of the TEG are not equal, TEG efficiency decreases further. This is called an impedance imbalance. In order to avoid this, they are used with converters that perform both maximum power point tracking (MPPT) and power regulation as in photovoltaic panels (PVs). Various algorithms have been developed for the MPPT process in these converters. It is observed that these algorithms are adapted from PVs. The most common of these is the particle swarm optimization (PSO) algorithm. The algorithm is a reference for other algorithms and the results of the developed algorithms are compared with those of the algorithm. The focus of the present study is on detailed modeling of a TEG with the Seebeck coefficient and temperature difference provided by the TEG manufacturers, as well as the minimization of impedance imbalance by means of a boost converter with PSO MPPT.

TEG manufacturers publish datasheets of TEGs. The datasheets include maximum power, current, and voltage when the impedance matching is provided. Furthermore, they ensure hot and cold surface temperatures that can be reached by TEGs. In addition, they indicate the Seebeck coefficient, which is one of the most important criteria. When a TEG is modeled via temperature difference and Seebeck coefficient, the power value taken from the TEG can be calculated easily. Furthermore, the power of TEGs is low. For this reason, they must be connected in series and parallel to achieve the desired power value. They are connected in series in order to increase voltage and connected in parallel in order to raise current. If the numbers of series and parallel connected TEGs are arranged in modeling, ideal modeling will be carried out for industrial TEG users.

In the literature, TEG models have been given with the

Original Article

Parvathaneni Rajendra Kumar*, Suban Ravichandran and Satyala Narayana

Ensemble classification technique for heart disease prediction with meta-heuristic-enabled training system

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Abstract

Objectives: This research work exclusively aims to develop a novel heart disease prediction framework including three major phases, namely proposed feature extraction, dimensionality reduction, and proposed ensemble-based classification.

Methods: As the novelty, the training of NN is carried out by a new enhanced optimization algorithm referred to as Sea Lion with Canberra Distance (S-CDF) via tuning the optimal weights. The improved S-CDF algorithm is the extended version of the existing "Sea Lion Optimization (SLnO)". Initially, the statistical and higher-order statistical features are extracted including central tendency, degree of dispersion, and qualitative variation, respectively. However, in this scenario, the "curse of dimensionality" seems to be the greatest issue, such that there is a necessity of dimensionality reduction in the extracted features. Hence, the principal component analysis (PCA)-based feature reduction approach is deployed here. Finally, the dimensional concentrated features are fed as the input to the proposed ensemble technique with "Support Vector Machine (SVM), Random Forest (RF), K-Nearest Neighbor (KNN)" with optimized Neural Network (NN) as the final classifier.

Results: An elaborative analyses as well as discussion have been provided by concerning the parameters, like evaluation metrics, year of publication, accuracy, implementation tool, and utilized datasets obtained by various techniques.

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Conclusions: From the experiment outcomes, it is proved that the accuracy of the proposed work with the proposed feature set is 5, 42.85, and 10% superior to the performance with other feature sets like central tendency + dispersion feature, central tendency qualitative variation, and dispersion qualitative variation, respectively.

Results: Finally, the comparative evaluation shows that the presented work is appropriate for heart disease prediction as it has high accuracy than the traditional works.

Keywords: central tendency; degree of dispersion; ensemble classification; heart disease prediction; optimization.

Introduction

One of the conspicuous illnesses that influence numerous individuals during center or mature age is a coronary illness, and most of the time it in the long run prompts mortal entanglements [1]. Heart illnesses are more common in men than in women [2–4]. As per insights from WHO, it has been assessed that "24% of passing due to non-transmittable sicknesses in India are brought about by heart afflictions." Moreover, one-third of all worldwide demise is because of heart ailments. The Cleveland Heart Disease Database (CHDD) is viewed as the true database for coronary illness examination. Clinical research has called attention to various variables that expand the danger of Cleveland Heart Disease Database (CHDD) and coronary episode [5–8]. "Sex, age, and family ancestry" are those variables that can't be changed, while factors that are identified with way of lifestyle e.g., "smoking, elevated cholesterol, hypertension and physical idleness" can be changed [9–13]. The latter are hazard factors that can be altered, and in certain cases, it can be disposed of with lifestyle changes and drugs.

The clinical conclusion is considered as a huge yet perplexing assignment that should be done decisively and productively. The underlying issue in the determination creates from the information mining process, where there is a chance for the information to get adulterated. Right now, the



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SS < 30 mV/dec; Hybrid tunnel FET 3D analytical model for IoT applications

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ABSTRACT

Low power and high speed devices are the future transistor technology. The low power and higher the wield of Strained Channels with functionality booster becomes more significance with the device scaling in the device modeling. Tunnel FET (TFET) is the cynosure device in the present and future transistor technology. This paper evinced the recent past of different gate structural of TFETs particularly, subsequently made few suggestions on the development of new TFET structure. Young's parabolic approximation 3D analytical method is unveiled to develop TEFT. This proposed model may have least sub-threshold slope, drive current improvement and reduce the ambipolar leakage current when compare with the other existing TFET gate structures. Sentaurus TCAD simulator tool used for the device modeling and characterization.

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1. Introduction

Subthreshold slope or subthreshold swing (SS) is the figure of merit to measure the performance of a transistor. In the scaled devices, due to the short channel effects (SCEs), the minimum value of SS is restricted to 60 mV over decade [1–3]. From the Fig. 1, subthreshold swing is defined as the amount of change in voltage (VGS or VTH) required to reduce the log (ID) current over one decade. Subthreshold swing describes the device behaviour in the subthreshold region of operation, which strongly influences the device speed. If SS is low, the device speed is high and vice versa [4–6]. The minimum subthreshold swing of conventional MOS device is 60 mV over decade at the room temperature. Steep SS indicates the fast switching between ON and OFF states, devices are very suitable for low power. Future power scaling will be stopped by their carrier physical limitations in the SS, usually MOSFET uses a carrier thermal diffusion, which limited the SS to a value of 60 mV over decade at the room temperature [7–10]. This constraint would prohibit further scaling of the power consumption even though there is a multi-gate architecture and III-V / Ge

channels [11]. In order to create 0.5 V operations and Si-CMOS compatibilities, at least to create sub 30 mV over decade required for a low voltage transistors. Up to now several steep slope transistors have been reported Tunnel FETs (CMOS compatibility and Low ON current) [12–16], impact ionization FETs (steeper SS and high voltage/E) [17–19] and mechanical switches (based on MEMS/NEMS, steepest SS ~ 0 mV, high voltage and large size) [20], among them TFET is good candidate because these are good compatibility with their Si-CMOS process and very small OFF-state leakage current due to band offset across the tunnel junction [11].

Hence, the primary concern of the future transistors are the steep transistors to have a low power and high speeds. In order to that, need to decrease the supply voltage VDD. Newer technologies are expected to change the gate, architectures, channel materials and transport mechanisms. In order to reduce the VDD, we have replace the gate architecture from the Fin gate (tri gate) to gate over all around (GAA or SGT (Surrounding Gate Transistor)) [21–24], change channels materials from Si/SiGe to III-Vs/Ge, change the transport mechanism from diffusion to tunnel (steep SS) and the supply voltage VDD from 0.8 V to sub 0.3 V. This is because, the operation power \propto supply voltage², supply voltage = $A \cdot$ ON state voltage, ON-state voltage = SSⁿdigits of (ON-state current-OFF state leakage current). FinFET or SGT is focused

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Facial Expression Recognition System

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Abstract: Emotion recognition is a prominent tough problem in machine vision systems. The significant way humans show emotions is through facial expressions. In this paper we used a 2D image processing method to recognize the facial expression by extracting of features. The proposed algorithm passes through few preprocessing steps initially. And then the preprocessed image is partitioned into two main parts Eyes and Mouth. To identify the emotions Bezier curves are drawn for main parts. The experimental result shows that the proposed technique is 80% to 85% accurate.

Keywords: Facial Emotion, Binary Conversion, Bezier Curve, Hausdorff Distance

1. INTRODUCTION

Facial Expression Acknowledgment (FER) has been drastically evolved as of late, on account of the progressions in related fields, particularly AI, picture handling and human perception. In like manner, Impact and possible use of programmed FER have been developed in a broad range of applications, including contact between human PC, robot power, and driver condition reconnaissance. Be that as it may, until this point in time, vigorous acknowledgment of outward appearances from pictures and recordings is as yet a difficult undertaking because of the trouble in precisely separating the helpful passionate highlights. These highlights are regularly spoken to in various structures, for example, static, dynamic, point-based geometric or area based appearance. Facial development highlights, which incorporate element position and shape changes, are by and large brought about by the developments of facial components and muscles over the span of passionate demeanor [5]. The facial components, particularly key components, will continually change their positions when subjects are communicating feelings. In this way, for any element speaking to a specific feeling, the geometric-based position and appearance-based shape regularly changes starting with one picture then onto the next picture in picture databases, just as in recordings. This sort of development highlights speaks to a rich pool of both static and dynamic qualities of articulations, which assume a basic job for FER.

- > Knowledge-based methods
- > Feature-based methods
- > Template -based methods
- > Appearance-based methods.

At the point when utilized independently, these strategies can't take care of the considerable number of issues of face recognition like posture, demeanor, direction, and impediment. Most of the facial expression recognition methods reported to date are focused on recognition of six primary expression categories such as: happiness, sadness, fear, anger, and disgust and grief [1]. In mid 70s Ekman and Finsen developed Facial Action Coding System (FACS), which provides the detailed description of facial expression. In their designed system the face muscle motions are divided into 44 action units and facial expression is described by their combinations [4].

2. PROPOSED METHODOLOGY

There is an inaccurate location and tracking of facial points. Also Pose, movement and rotation of the test person are limited. Glasses may hinder classification, especially thick and dark frames in detecting emotions [1]. Face Reader can analyze one face at a time. Face Reader cannot classify facial expressions in test persons with a partial facial paralysis. The flow diagram of the proposed methodology is shown in figure 1.

A SURVEY ON DIFFERENT METHODS USED FOR ANALYSIS OF PROTEIN-PROTEIN INTERACTION NETWORK

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Abstract: Bio information system is one of the prominent fields for analyzing of biological process. The main objective of Bioinformatics is to identify the disease and analysis the cause for disease. Protein- Protein Interactions (PPI) is used to analyze the structure of protein sequence and visualization in 3D structure. Many methodologies have been used to analysis the cancer causing protein detection using PPI network. Protein-Protein Interaction networks are used for the drug discovery for a particular disease in humans using protein interactions in Human Interaction Networks. There are many advantages and disadvantages while analyzing the different methods, so different analysis and results of large scale data is gathered. It is used for feature directions for the purpose of data modeling and analyzing to be implemented by using different machine learning and deep learning techniques and 3d visualization. Here different analysis methods have been surveyed for the future directions.

Keywords: Bioinformatics, Protein-Protein Interaction, Machine Learning, Deep Learning, 3D-Visualization.

1. INTRODUCTION

Biomedical applications are one of the major areas in the research field of information technology to identify biological information for a quality analysis. Integrated genetic and biological information which can be used for the gene based discovery of the diseases by using which a information related to the drugs can be known. It is an area which is a relationship between the computer science and biological sciences. Different biological terms and information techniques are applied to understand the association of molecules on a very large data so this is also termed as management information system for biological sciences. There are many tools for molecular biology which integrates computer science and mathematics to preprocess the biological data for the large diseases information database. These tools perform the complex biological sequences from the large databases at a very fast rate of preprocessing on complex data. The main goals of research in bioinformatics are to maintain the data in such a way which can allow to access the information in a simplest format as per the requirement and retrieve the new information whenever it is produced. So, it is necessary to develop a tool that may be useful for analyzing the data and display the outcome in the human readable format. In the field of Bioinformatics there has been a serious consideration and attentions for the research by using PPI networks. PPI networks can be defined as a result of biochemical or

electrostatic forces it forms a connection between two or more proteins. So, the main aim of this paper is to give the different methodologies which are used in the areas of colorectal cancer detection using purification of gene expressions [1]. In this paper describes about the various tools used for colorectal cancer PPI network analysis. Most Cellular functionalities are carried out by two or more proteins rather than a single one. Now a days so many Protein-Protein Interaction datasets are publicly available for analysis. Modern computational and mathematical methods required to analysis complex networks formed by combination of two or more proteins [2]. This reduces the cost and time for analyzing the protein sequence with more accuracy than the conventional methods. A valuable framework is required for better interaction and functional organization of the proteome. PPI's are used for performing the biological process of multiple proteins interaction the main goal is unravelling Protein-Protein Interactions in proteomics, which will decode the molecular functionality underlying the biological proteins to understand the human diseases on root level[4]. For detecting protein functionality, it is necessary to analyze the PPI network. By using the analysis target drug is prepared. In PPI network mainly consider about unbound proteins in large number of cells [3].



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Power quality improvement through dual voltage source inverter of grid connected Renewable Energy Sources

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ABSTRACT: The power quality plays an important role in the micro-grid system. This paper presents a dual voltage source inverter (DVSI) scheme to improve the reliability and power quality of the micro-grid system. In this system we are using distributed energy resources (DERs) for power exchange and also to compensate the local unbalanced and nonlinear load. The control algorithms are developed based on instantaneous symmetrical component theory (ISCT) to operate DVSI in grid sharing and grid injecting modes. The proposed scheme increasing reliability, lower bandwidth requirement of the main inverter, lowers the cost due to reduction in filter size, and better utilization of micro-grid power while using reduced dc-link voltage rating for the main inverter. These features make the DVSI scheme a promising option for micro-grid supplying sensitive loads. The topology and control algorithm are validated through extensive simulation results.

KEYWORDS: Grid connected inverter, instantaneous symmetrical component theory (ISCT), micro-grid, power quality.

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I. INTRODUCTION

In recent years, electric utilities' ability to deliver reliable clean power has become increasingly more difficult. In their rush to meet renewable energy portfolio standards, solar and wind farms have created serious grid stability challenges. This strain on utilities, in combination with the increase in electronic equipment used in industrial facilities means power quality events are only increasing. A grid interactive inverter plays an important role in exchanging power from the micro-grid to the grid and the connected load. This micro-grid inverter can either work in a grid sharing mode while supplying a part of local load or in grid injecting mode, by injecting power to the main grid. Technological progress and environmental concerns drive the power system to a paradigm shift with more renewable energy.

Sources integrated to the network by means of distributed generation (DG). These DG units with coordinated control of local generation and storage facilities form a micro grid. In a micro grid, power from different renewable energy sources such as fuel cells, photovoltaic (PV) systems and wind energy systems are interfaced to grid and loads using power electronic converters.

Maintaining power quality is another important aspect which as to be addressed while the micro grid system is connected to the main grid. The proliferation of power electronics devices and the electrical loads with unbalanced nonlinear currents has degraded the power quality in the power distribution network. Moreover, if there is a considerable amount of feeder impedance in the distribution systems, the propagation of these harmonic currents distorts the voltage at the point of common coupling (PCC). At the same instant, industry automation has reached to a very high level of sophistication, where plants like automobile manufacturing units, chemical factories, and semiconductor industries require clean power. For these applications, it is essential to compensate nonlinear and unbalanced load currents.

Load compensation and power injection using grid interactive inverters in micro grid have been presented in the literature. The main focus of this work is to realize dual functionalities in an inverter that would provide the active power injection from a solar PV system and also works as an active power filter, compensating unbalances and the reactive power required by other loads connected to the system.

In a voltage regulation and power flow control scheme for a wind energy system (WES) is proposed. A distribution static compensator (DSTATCOM) is utilized for voltage regulation and also for active power, injection. The control scheme maintains the power balance at the grid terminal during the wind variations using sliding mode control. A multifunctional power electronic converter for the DG power system is described in. This scheme has the capability to inject power generated by WES and also to perform as a harmonic compensator. Most of the reported literature in this area discuss the topologies and control algorithms to provide

AUTOMATIC GENERATION CONTROL OF HYBRID TWO AREA POWER SYSTEM USING WHALE OPTIMIZATION ALGORITHM

By

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ABSTRACT

The objective of the work is to design a Load frequency controller for a Two area Thermal-Thermal power system interconnected with a Hybrid Distributed generation system in area-1. A Novel nature inspired meta-heuristic optimization algorithm, called Whale Optimization Algorithm (WOA) is used for obtaining the gain values of Proportional-Integral-Derivative (PID) controller. The dynamic system performance is studied and the results obtained are compared with other techniques like Particle swarm optimization (PSO), Harmony search (HS), Flower pollination algorithm (FPA). The results demonstrate the robustness of the proposed algorithm in terms of settling time in the profile of frequency deviations. The simulation process is carried out in MATLAB R2010a environment.

Index Terms: Load Frequency Control, Whale Optimization Algorithm, PID Controller, Hybrid Distributed Generation System.

INTRODUCTION

Now-a-days load demand is increasing rapidly due to the rapid growth of population. The regular use of conventional generation sources leads to the shortage with in a limited duration. In this scenario the cost of fuel also increasing rapidly. Keeping it in mind most of the researchers and power generating units thinking for Non-conventional energy based power generation (Bhatti et al., 1997). They are having so many advantages like less cost, clean, bio friendly etc. Wind energy and solar energy are the promising application of renewable power generation. Moreover the power output from these two sources is depending upon the weather conditions (Yakula & Ramesh, 2017). Hence these hybrid renewable energy sources are interconnected to the main power system. But in an interconnected power system if any mismatch occurs between generations and demand certain deviations occur in frequency and the respective tie-line power changes from its nominal value (Das et al., 2011b). These deviations must be suppressed to obtain an economic, efficient and reliable operation. Load frequency continuously monitoring the generation and demand by adjusting the output of the generator in accordance with

load requirement (Pan & Das, 2016).

The present paper deals with the interconnection of Hybrid distributed generation system (DG) with a single area thermal power system (Lal & Baisal, 2017). In order to mitigate any frequency deviations a controlling action is necessary to get back the system to normal condition. The LFC problem not only deals with the selection of controller but also in the designing of controller gains (Behera et al., 2018a, 2018b). The optimal parameter gain values are obtained by a novel nature inspired meta-heuristic technique named as Whale optimization algorithm (WOA). This technique is used for tuning of gain values of the controller. Also the system dynamic performance is compared with other heuristic techniques to describe the superiority of the propose techniques.

The main contribution of the work is

1. To design the Two area power system interconnected with Hybrid Distributed generation system (DG) in area-1.
2. To optimize the parameters of I, PI and PID controllers with WOA technique and to compare the dynamic performances.
3. To demonstrate the effectiveness found in

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Control of Grid Frequency under Unscheduled Load Variations: A Two Layer Energy Management Controller in Urban Green Building's

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Abstract- Demand side response (DR) became a major tool to the utility companies with the integration of many smaller grids. DR helps to manage the fluctuations in the grid which leads to cost optimization. However, in undeveloped electricity markets the operation of DR is very limited. In such cases, proper energy management controller helps to operate the interconnected microgrids with proper power sharing and minimum frequency deviations. By keeping this point in view this paper proposes, "A Two Layer Energy Management Controller (TLEMC)" to manage the generations and loads in the system formed by interconnecting four microgrids and is referred as 'Minigrid'. In the minigrid system each microgrid (MG) is associated with locally available renewable energy sources (RES) such as photovoltaic (PV), wind (WP), fuel cell (FC), storage systems and local building loads. The proposed controller effectively incorporates interoperability concept in the system considered for study, i.e., the power is shared in between the interconnected microgrids during excess/deficit power conditions. The robustness of the proposed controller is verified by comparing frequency deviations and the exchange of power in the interconnected system under unscheduled loading conditions and also the performance of the controller is tested in the presence of DR. The system configuration and proposed controller considered in this paper are developed in MATLAB/Simulink[®] environment, and from the THD analysis effectiveness of the proposed controller is verified.

Keywords: Microgrid, Demand Response, Minigrid, Renewable Energy Sources, Utility grid.

Nomenclature

<i>MG</i>	Microgrid	P_{Gi}	Generating power of i^{th} microgrid (kW)
P_G	Power Generation (kW)	P_{Di}	Demand power of i^{th} microgrid (kW)
P_D	Demand Power (kW)	P_{Gi}	Generating power of j^{th} microgrid (kW)
t	Time index	P_{Dj}	Generating power of j^{th} microgrid (kW)
i	Index for i^{th} microgrid for $i=1,2,3,\dots,n$	P_{out}	Power extracted from solar cell (kW)
j	Index for j^{th} microgrid for $j=1,2,3,\dots,n$	P_{wind}	Power generation from wind generator (kW)
		P_{fuel}	Power generated from fuel cell (kW)

Power quality improvement through dual voltage source inverter of grid connected Renewable Energy Sources

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ABSTRACT: The power quality plays an important role in the micro-grid system. This paper presents a dual voltage source inverter (DVSI) scheme to improve the reliability and power quality of the micro-grid system. In this system we are using distributed energy resources (DERs) for power exchange and also to compensate the local unbalanced and nonlinear load. The control algorithms are developed based on instantaneous symmetrical component theory (ISCT) to operate DVSI in grid sharing and grid injecting modes. The proposed scheme increasing reliability, lower bandwidth requirement of the main inverter, lowers the cost due to reduction in filter size, and better utilization of micro-grid power while using reduced dc-link voltage rating for the main inverter. These features make the DVSI scheme a promising option for micro-grid supplying sensitive loads. The topology and control algorithm are validated through extensive simulation results.

KEYWORDS: Grid connected inverter, instantaneous symmetrical component theory (ISCT), micro-grid, power quality.

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I. INTRODUCTION

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A new segmentation method for non-ideal iris images using morphological reconstruction FCM based on improved DSA

Satish Rapaka¹ · P. Rajesh Kumar² · Miranji Katta¹ · K. Lakshminarayana¹ · N. Bhupesh Kumar³

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Abstract

In any accurate iris recognition system segmentation of iris plays a vital role. The noise, specular reflections, eyelid/eyelash obstruction, and intensity inhomogeneities in an image make the segmentation more difficult. In this paper, a novel technique is proposed to segment the iris from images that are taken under uncooperative image conditions. The proposed method segments the image in two stages. Firstly, Morphological reconstruction fuzzy c-means clustering (MRFCM) based on an improved differential search algorithm is implemented before the segmentation step. The MRFCM can preserve image contours even in the presence of noise. Secondly, the iris is isolated from the undesired regions of an eye image by implementing geodesic active contours driven by a modified stopping criterion on the resultant images of the pre-segmentation step. The accuracy of the method presented has been tested on the databases such as CASIAv3-Interval, UBIRISv1, MMU1, IITDv1, and MICHE-I. The segmentation accuracy has been demonstrated and compared with other existing methods present in the literature. The obtained results are promising and the proposed model is outperformed the existing methods.

Keywords Iris segmentation · FCM clustering · Morphological reconstruction · Differential search algorithm · Geodesic active contours

1 Introduction

The individual identification based on the iris is one of the most important biometrics due to its unique and apparently stable iris patterns. The noise artifacts such as eyelashes/eyelids occlusion, specular reflections, blurring, non-circular iris boundaries, off-axis gaze, etc., make the segmentation more difficult. The segmentation algorithms can be classified broadly into two groups. Segmentation of perfect (ideal) iris images and segmentation of degraded (non-ideal) iris images. For the segmentation of ideal iris images, numerous techniques have been suggested by many researchers in the literature [1–9]. Segmentation of degraded iris images has grabbed attention for a decade.

Even though numerous approaches have been suggested for the segmentation of non-ideal iris image [10–18] there is still room for improvement in robustness and efficiency.

A wide range of segmentation approaches can be found in the literature, which include level set model [15], active contours [16], clustering [19, 20], watershed transform [21], graph cut [22], region growing [23], deep learning [24], etc. Among these varieties, clustering is employed for segmentation due to its rapidity and effectiveness. The purpose of clustering is to group the pixels of an image into various subgroups, based on pixel intensities, which are called clusters. Pixel intensities that belong to the same subgroup are as similar as possible to each other, whereas adjacent groups share the maximum difference.

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A Hybrid multi-level disease filtering framework using biomedical documents and ICD drug discovery

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Abstract

Abstract — Multi-level disease prediction plays a vital role in the drug to disease discovery process. Most of the conventional models use static parameters and filtering approaches in order to filter the high dimensional feature space due to high computational time and memory. Also, these models are having less accuracy and high error rate for the classification models. In order to overcome these issues, a hybrid filtering method is proposed in order to optimize the data preprocessing and feature extraction on the high dimensional dataset. Experimental results proved that the hybrid data filtering and feature extraction models have better efficiency in terms of classification accuracy and runtime(ms) than the conventional models.

Keywords: Biomedical documents, gene-disease entities, ICD codes

1. INTRODUCTION

The volume of information is growing rapidly in different domains with the growth of distributed biomedical repositories. Document preprocessing is a reductive transformation of peer documents to generate summary by selecting an important information in the source documents. However, this has caused the problem of information overload. In order to resolve this drawback, multi-document clustering and feature extraction can be used to minimize the inter-cluster variation. This work considers the feature extraction strategy and the key phrase clustering and pattern discovery approach to eliminate information redundancy resulting from the multiple original documents. Breast cancer, diabetes, liver disease, breast cancer, bowel cancer, obesity, and other heart disorders have all become epidemics in recent years, posing a danger to global health. Cancer [1] is a terrible illness that is sometimes life-altering, life-threatening, and fatal. Most of their signs have a genetic origin [2], and preventing, diagnosing, treating, and curing these diseases poses a slew of challenges. Medical data classification has remained one of the leading research fields in the realms of biomedical informatics, machine learning, and pattern classification since medicine plays such an important role in saving human lives. Medical data [3,4] is the core

Music Listener Mood Prediction from the Lyrics Using Machine Learning

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Abstract

Human Beings are vexed up with a variety of problems such as anxiety, stress, work tensions, and emotional outbreaks. This may be caused due to Job, family problems, responsibilities, and pressure from friends. During the battle with an emotional crisis, a human desperately searches for means to riddance the problem. Music, being one of the most popular means of entertainment, can help during such situations. It provides a way to express our feelings and to enhance our state of mind. The core part of music is the mood. Every situation we go through has a spirit associated with it. There are many songs that are written on emotions. Many public places, such as restaurants, tourist places, and cultural events, have a theme song in the background. This enhances the mood of the customers. In this regard, we are performing a mood classification of songs using lyrics alone. We are implementing Decision Tree and Random Forest models for the problem. The exploratory outcomes through training and testing the model show that music related to "happy" and "sad" states of mind can be anticipated with sensible accuracy dependent on features extracted from tune verses.

Key Words: Mood, Natural Language Toolkit, Machine Learning, Music Information Retrieval, Part-of-Speech, Term Frequency, Inverted Document Frequency, Natural language processing, Frequency Vectorizer.

1. Introduction

With the fast development of computerized music libraries just as progressions in innovation, music characterization and proposal has expanded prevalence in the music business and among the audience members. There are many applications which utilize the AI techniques in their models. They are used to group the music based on Artist, Genre, Instruments used, Title, and Year of release, Artist similitude, and type [1], [5]. Modern studies suggest that human beings use music as a means of riddance of their tensions and stress. The Web platform is an ocean of musical content, so there is a difficulty to the people to group according to their need. Hence by using ML algorithms, this can be automated and can be done quickly. As the web is a vast platform, the successful preparation of a model using ML algorithms to classify the mood of a song using verses can be done. Digital music has been expanded beyond our imagination. As it increases, it becomes hard to collect the songs we desire. So we use cutting edge technologies to provide an option for clients to get what they need [2], [3]. For example, clients might want to have the opportunity to look for tunes dependent on different properties like the title of the track, its artist, genre of the song, and the year it was released. Sometimes, the client may even want to search through recommendation systems present on the web [4]. Few individuals might wish to distinguish their playlist according to the emotion of the lyrics. Here we explore the chance of allocating such data

Analysis of Airline Connectivity System using Graph Theory

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Abstract

In the recent era, analytics plays a vital role in understanding and improving profits of many businesses. Now a day's different analytic models available in the market. Some of them are descriptive analytics, predictive analytics, prescriptive analytics, big data analytics, and mathematical analyticsetc. The powerful and simple Graph theory based analytic models was used in this paper. Two different airline systems are selected and applied Graph analytics. In the initial process, spice Jet and Vistara datasets are converted into graphs Spice Jet and Vistara. Graph analytics were applied to the above graphs and found that one i.e., Vistara is weakly connected over spice Jet. An incremental model was proposed to increase the connectivity of Vistara so that the performance will be increased. So that Vistara can increase the business by adding trips in an incremental order from one trip to 15 trips. Finally, we compared the above airline companies with the proposed model generated results and it was observed that the proposed model is giving a feasible solution to Vistara airlines by adding trips in incremental order.

Keywords: Data Analytics, Graph Analytics, TGO topology, optimization, python.

1. Introduction

Foreign investment restrictions in 2012, Vistara's company, has collaborated with Tata Sons Private Limited and Singapore Airlines Limited (SIA), wherein Tata Sons have a 51% stake hold, and Singapore Airlines owns a 49% stake. They were registered as TATA SIA Airlines Limited. In 2013, both famous companies decided to satisfy their passenger's a long-cherished shared dream to cause a singular flying experience to their customers across India. Both the groups were firm believers within the growth potential of the Indian aviation sector and hence tried to enter the market within the past. The main agenda of this venture is to redefine aviation in India to supply Indian travelers with a seamless and personalized flying service excellence and legendary hospitality. The name 'Vistara' derived from the Sanskrit word 'Vistaar,' which means 'a limitless expanse.' The name Vistara takes out from the inspiration of the planet, which means the 'limitless' sky, with its brand tagline as 'fly the new feeling'. In solving many engineering applications, the best way is to represent a problem in the form of a diagram or a graph. In this research, the connectivity of these two airline systems and investigate theoretically by using graph theory parameters. Connectivity places an efficient role in increasing services

Impacts of Thermophoresis, Joule heating and Soret & Dufour effects on mixed convective Jeffrey fluid flow over an elongated sheet

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Abstract

The magneto hydrodynamics radiative flow of an in-compressible Jeffrey fluid through porous medium over a linearly stretching sheet is presented. The impacts of thermo-phoresis effects, joule heating and Soret & Dufour effects in the radiative flow have been investigated. Similarity transforms are adopted to obtain the system of ordinary differential equations from the governed system of partial differential equations. The Runge- Kutta -Fehlberg with shooting technique is used to solve reformed ODE numerically. The influences of several pertinent parameters on velocity profiles ($f'(\eta)$), temperature profiles ($\theta(\eta)$) & concentration profiles ($\phi(\eta)$) are studied through several plots. The effect of Deborah number and the permeability on velocity, temperature & concentration profiles having opposite phenomena comparing with retardation times. The values of physical parameters like co-efficient of skin friction, Nusselt number & Sherwood number for several pertinent parameters are tabulated.

Keywords: Thermo-phoresis effect, Porous medium, Joule heating, Soret and Dufour effects, Jeffrey fluid, Skin friction co-efficient, Nusselt number & Sherwood number.

1. Introduction

Most significant fluids that are used in several industry and engineering problems are Non-Newtonian fluids. Analysis of non-Newtonian fluids plays very vital role in the applications of chemical, plastic processing and petroleum industries, oil exploration, biological sciences and astrophysical sciences etc. Non-Newtonian conduct has gigantic significance while examining momentum and heat transfer. Numerous physical phenomena are modeled as system of differential equations based on non-Newtonian fluids. Solutions of such systems are exceptionally unpredictable. Jeffrey fluid is a non-Newtonian fluid which is capable of depicting the characteristics of relaxation & retardation times.

Thermo-phoresis is a tool for movement of particles from a hot surface to cold surface with certain velocity. It plays major role in radioactive particle depositions in nuclear reactors, decomposition of silicon thin films, microelectronic manufacturing, formation of scale on the surface of heat exchangers etc. The Soret and Dufour effects exhibit singular reactions to the force of a temperature gradient of a moving particles and energy flux due to the mass concentration gradient respectively.

The impact of magnetic field in an asymmetric channel of a Jeffrey fluid was given by kodandapani et al.[1]. Nadeem S et al. and Afsar Khan A et al. worked on thermal radiation over a exponentially stretching surface and variable viscosity in an asymmetric channel of a Jeffrey fluid. [2&3] Hayat.T et al. [4, 6] investigated on

Indian Financial Services are 'Going Green'

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Abstract

At present 'GOING GREEN' is the one of the important approach following by financial institutions. Green approach which is adopted by the various financial services includes insurance, banking, stock brokerage and consumer finance companies etc., Green customer's needs are recognized by the companies across the world and they are trying to meeting these opportunities profitably. Today protection of the environment gaining importance and it is noticed by every sector in the world. Here there is no exception for financial services sector. the study is descriptive and the data has been collected from secondary sources like books, journals, websites, and news papers.

Keywords : Green Marketing, Carbon Credit Green Insurance, Carbon commodity products and Services.

I. INTRODUCTION

Green marketing involves achieving organizational goals by considering ecological friendly aspects and serve the target markets. Green marketing adopts a strategy that motivates consumers to purchase eco-friendly products and its leads to sustainable development in the country. Financial products that start to gain clients add value and build careers by capturing public and corporate image worldwide through their eco-consciousness. Financial firms are putting efforts to occupy the market by introducing new or modified products and services like green auto insurance, eco-mortgages and new sustainability backing investment funds.

1.1 Green Marketing :

In the opinion of Kangis (1992) there is no proper definition about green marketing. Grove et al (1996) opined that the application of 'green' to the marketing mix (4P's) is called green marketing. Peattie and Charter (1999) opined that the requirements of customers and society satisfied in profitable and sustainable way is called green marketing. Evangelinos et al (2000) defined the green marketing of financial products as, those improves financial institutions reputation and environmental performance.

Top Three Countries Response Level on Green Marketing

S.NO.	COUNTRY	RANK
1.	India	1
2	UK	2
3	US	3

Source – Names International Journal of Management Research

Table 1

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Table 1



Hydrodynamic Lubrication of Asymmetric Rollers by Power-Law Fluids

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ABSTRACT: Hydrodynamic lubrication characteristics of asymmetric rollers by power-law fluids for a heavily loaded rigid line contact system are studied in this work choosing the incompressible lubricant is to be varied with hydrodynamic pressure. The important governing equations like continuity and momentum are solved analytically under usual boundary conditions and the obtained a numerical solution using MATLAB. The velocity profiles of power-law fluids are presented and some significant changes in pressure, load, and traction are observed. The results are in good agreement with the previous findings.

Keywords: Hydrodynamic Lubrication, Non-Newtonian, Power-Law, Incompressible, Asymmetric Rollers.

I. INTRODUCTION

Hydrodynamic theory of lubrication is one of the important parts of Tribology. The theoretical study of hydrodynamic lubrication of roller bearings as received attention of many researchers because these are amenable to easy mathematical analysis. These bearings are widely used in industries for the purpose of supporting transverse loads [1].

Further, in hydrodynamic lubrication different types of lubricants are used to sustain the load of the system. The Newtonian lubricant is the simplest one which presence the linear relationship between shear stress and shear strain rate with a great no of lubricant molecule. However the non-Newtonian characteristics have also been invariably served in various lubrication problems [2]. In most of the classical problem lubricant is assumed to be Newtonian. However since the lubricant is subjected to extremely high pressure and shear stresses, heavily loaded rolling element bearings which act for a very short time, the Newtonian behavior of the lubricant ceases to exist [3]. Besides many lubricants contain high molecular weight polymers also make them strongly non-Newtonian. Hence, the effect of non-Newtonian lubricant is to be incorporated along with the effects of hydrodynamic pressure.

On the line of non-Newtonian fluids, Power-law lubricant model has got attention in the recent years because of its simplicity and potential to describe many lubricants such as silicon fluids, polymer solutions [4]. In fact this power law model characterizes to different types of non-Newtonian fluids i.e., visco-elastic and dilatants plus Newtonian as well when index of the power law model is unity [5]. Dien and Elrod (1983) examined the same non-Newtonian fluid model and developed a new numerical technique based on perturbation expansion for velocity under coquette dominated flow condition [6]. Sinha *et al.*, (1983) examined a lubrication problem with squeezing motion for non-Newtonian power law lubricant [7].

Prasad *et al.*, (1987) extended the same result adding thermal effects assuming the consistency of the lubricant to be varied with pressure and the mean temperature [8]. Jang *et al.*, (2008) studied the EHL line contact problem and emphasized the fact that the non-Newtonian character of the lubricant must be taken in to account in order to predict the film thickness [9]. Prasad *et al.*, (2012) studied hydrodynamic lubrication of asymmetric rollers including thermal effects considering the consistency of the lubricant is to be varied with hydrodynamic pressure and mean film temperature under usual boundary conditions [10]. Sajja and Prasad (2015) dealt with the qualitative analysis of hydrodynamic lubrication of asymmetric rollers with non-Newtonian incompressible power law lubricants assuming consistency of lubricant to be varied with hydrodynamic pressure and mean film temperature under isothermal and adiabatic boundaries [11]. Revathi *et al.*, (2019) studied the similar problem considering Bingham plastic fluid for a heavily loaded rigid system in which consistency of the lubricant is assumed to vary with hydrodynamic pressure under usual boundary conditions neglecting thermal effects [12].

The main aim of the present paper is to study the lubrication characteristics of asymmetric roller bearings under usual boundary conditions for a heavily loaded rigid line contact system by incompressible power-law fluids assuming the consistency of lubricant to be varied with hydrodynamic pressure.

II. MATHEMATICAL MODEL

Consider the problem of hydrodynamic lubrication of asymmetric rollers for a heavily loaded rigid line contact system in such a way that the two rollers having same radius and moving with different velocities lubricated by incompressible power-law fluids as mentioned in the Fig. 1.



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3.3.1 Number of research papers published per teacher in the Journals as notified on UGC CARE list during the last five years

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISBN/ISSN number	Link of the recognition in UGC enlistment of the Journal		
						Link to the website of the Journal	Link to article/paper/abstract of the article	Is it listed in UGC Care list/Scopus/ Web of Science/ other mention
2019								
In Silico Prediction of an Unknown Function of a Protein Using Bioinformatics Tools	Dr. A. Yesubabu	CSE	International journal of research in electronics and computer engineering	2019	ISSN: 2393-9028	http://www.i2or-ijrce.com/	https://nebula.wsimg.com/1b08e566d0356a068eff9717811eb23?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allo	UGC

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A Degree of Realism Commendation Reproduction Established Accompanied by Customer Conviction and Product Ranking	Gopala Krishna	CSE	International journal of research in electronics and computer engineering	2019	ISSN: 2393-9028	https://www.i2or-ijrece.com/	https://nebula.wsimg.com/de1e99a14c6d030ded4a71a69411db047AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allow	UGC
Fuzzy Identity-Based Encryption Data Service with Security Auditing in Clouds	Gadi Nirmala	CSE	International Journal of Research in Electronics and Computer engineering	2019	ISSN: 2348-2281	http://www.i2or-ijrece.com/vol.-7-issue-1--version-7-.html	https://nebula.wsimg.com/9ceb63893aef33feacf37b4a55a36754?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allow	UGC
Phylogenetic Tree Construction For Highly Conserved Mitogen Activated Protein Kinases	Dr. G. Nirmala	CSE	International journal of research in electronics and computer engineering	2019	ISSN: 2393-9028	http://www.i2or-ijrece.com/	https://nebula.wsimg.com/1b223a1ace6cea78cdc170168387348f?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allow	UGC

Phylogenetic Tree Construction For Highly Conserved Mitogen Activated Protein Kinases	Dr. Deepak Nedunuri	CSE	International journal of research in electronics and computer engineering	2019	ISSN: 2393-9028	https://www.i2or-ijrece.com/	https://nebula.wsimg.com/1b223a1ace6cea78cdc170168387348f?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allowhttps://nebula.wsimg.com/deaccbdcdfa0d23e2064hd4701500d2?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allowhttps://nebula.wsimg.com/1bb08e566d0356a068eff9717811eb23?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allowhttps://nebula.wsimg.com/f1882e3a2db5159c5c2d422ba143edba?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allow	UGC
Systematic Spatial Keyword Perception Suggestive Travel Route Recommendation Algorithm	Dr Deepak Nedunuri	CSE	International journal of research in electronics and computer engineering	2019	ISSN: 2348-2281	https://www.i2or-ijrece.com/	https://nebula.wsimg.com/deaccbdcdfa0d23e2064hd4701500d2?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allowhttps://nebula.wsimg.com/1bb08e566d0356a068eff9717811eb23?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allowhttps://nebula.wsimg.com/f1882e3a2db5159c5c2d422ba143edba?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allow	UGC
In Silico Prediction of an Unknown Function of a Protein Using Bioinformatics Tools	Dr. Deepak Nedunuri	CSE	International journal of research in electronics and computer engineering	2019	ISSN: 2393-9028	https://www.i2or-ijrece.com/	https://nebula.wsimg.com/1bb08e566d0356a068eff9717811eb23?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allowhttps://nebula.wsimg.com/f1882e3a2db5159c5c2d422ba143edba?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allow	UGC
K-Rle Compression Using Vhdl	Naga Madhavi Latha Kakarla	CSE	International Journal of Research in Electronics and Computer engineering	2019	ISSN: 2348-2281	https://www.i2or-ijrece.com/	https://nebula.wsimg.com/f1882e3a2db5159c5c2d422ba143edba?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allowhttps://nebula.wsimg.com/1bb08e566d0356a068eff9717811eb23?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allowhttps://nebula.wsimg.com/deaccbdcdfa0d23e2064hd4701500d2?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allow	UGC

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Restrict disseminate denial of service flooding problems with change Routing Identifiers	B. Madhava Rao	CSE	International journal of research in electronics and computer engineering	2019	ISSN: 2393-9028	https://www.i2or-ijrece.com/	https://nebulawising.com/1b01999498cf7816f09e0aed491d5c8b?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allo	UGC

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Hardware And Software Execution Fault Detection Using Round Trip Delays (Rtd's) And Paths (Rtp')S In Wireless Sensor Network	G.Satyanarayana	CSE	International Journal of Research in Electronics and Computer engineering	2019	ISSN: 2348-2281	https://www.i2or-ijrece.com/	https://nebulawsimg.com/6ac893de3c4094fa182e1f33075a0dda?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allo	UGC

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Phylogenetic tree construction for highly conserved mitogen activated protein kinases	Dr Satyanarayana Kotha	Information Technology	International Journal of Research in Electronics and Computer Engineering	2019	ISSN: 2348-2281	http://www.i2or-ijrecc.com/home.html	1b223a1ace6ee a78cdc170168387348f (wsimg.com)	UGC

Efficient method for segmentation of noisy and non-circular iris images using improved particle swarm optimisation-based MRFCM	Dr R Satish	ECE	The Institution of Engineering and Technology 2019	2019	ISSN 2047-4938	https://www.researcher-app.com/	https://www.researcher-app.com/paper/4478275	SCOPUS
Performance analysis of Tri-Gate SOI FinFET structure with various fin heights using TCAD simulation	Ajaykumar Dharmireddy	ECE	Journal of Advanced Research in Dynamical and Control Systems	2019	ISSN: 1943-023X	https://www.jardcs.org/	https://www.researchgate.net/profile/Dharmireddy-Ajaykumar-2/publication/347254178_Issue_spl-2/link/56484fd4https://impressco.com/experimental-investigation-on-performance-and-emission-characteristics-of-di-diesel-	SCOPUS
Experimental Investigation on Performance and Emission characteristics of DI Diesel Engine using Canola oil as Bio-diesel fuel	Dr. M. Sri Rama Murthy	Mechanical Engineering	International Journal of Thermal Technologies Vol.9, No.1 (March 2019)	2019	E-ISSN: 2277-4114	https://impressco.com	https://www.researchgate.net/profile/Dharmireddy-Ajaykumar-2/publication/347254178_Issue_spl-2/link/56484fd4https://impressco.com/experimental-investigation-on-performance-and-emission-characteristics-of-di-diesel-	UGC
Rainfall Prediction Using Bpnn	M Krishna	CSE	International Journal Of Innovative Technology And Exploring Engineering	2019	ISSN: 2278-3075	https://www.ijitee.org/	https://www.ijitee.org/wp-content/uploads/papers/v8i6s4/F11350486S-419.pdf	SCOPUS

An Effective Security Verification Model for Big Data by using Potent key-length for real time systems	J.S.V.G. Krishna	CSE	International Journal of Recent Technology and Engineering (IJRTE)	2019	ISSN: 2277-3878	https://www.ijrte.org/	https://www.ijrte.org/wp-content/uploads/papers/v7i6s4/F10670476S419.pdf	SCOPUS
Rainfall Prediction Using Bpnn	S Mohanbabu Chowdary	CSE	International Journal Of Innovative Technology And Exploring Engineering	2019	ISSN: 2278-3075	https://www.ijitee.org/	https://www.ijitee.org/wp-content/uploads/papers/v8i6s4/F11350486S419.pdf	SCOPUS
Application of Fuzzy K-Means (FKM) Algorithms in Identifying Better Clusters of Few Drugs from Drug bank Database	Naga Madhavi Latha Kakarl	CSE	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	2019	ISSN: 2278-3075	https://www.ijitee.org/	https://www.ijitee.org/wp-content/uploads/papers/v8i6s4/F11340486S419.pdf	SCOPUS
An efficient method for segmentation of noisy and non-circular iris images using optimal multilevel thresholding	Dr R Satish	ECE	Journal of Advanced Research in Dynamical and Control Systems	2019	ISSN: 1943-023X	https://www.jarcds.org/	https://www.researchgate.net/publication/334536026_An_Efficient_Method_for_Segmentation_of_Noisy_and_Non-circular_Iris_I	SCOPUS

Image Forgery Detection by using Machine Learning	J.Malathi	Information Technology	International Journal of Innovative Technology and Exploring Engineering	2019	ISSN: 2278-3075	https://www.ijitee.org	https://www.ijitee.org/wp-content/uploads/papers/v8i6s4/F11160486S419.pdf	UGC
Smart Women to Built Smart Society	M.Veera Kumari	EEE	Journal of Emerging Technologies and Innovative Research	2019	ISSN: 2349-5162	SMART WOMEN TO BUILT SMART SOCIETY (jetir.org)	https://www.jetir.org/papers/JETIRBN06028.pdf	UGC
Smart women to Built Smart Society	Syed Zareena	English	JETIR(Journal For Emerging Technologies and Innovative Research	2019	ISSN: 2349-5162	https://www.jetir.org/papers/JETIRBN06028.pdf	https://www.jetir.org/papers/JETIRBN06028.pdf	UGC
Anisotropic Image Restoration Based on Image Inpainting with Diffusion Enhancement	Marlapalli Krishna	CSE	International Journal of Recent Technology and Engineering	2019	ISSN: 2277-3878	www.ijitee.org	https://www.ijitee.org/wp-content/uploads/papers/v8i2/B2259078219.pdf	SCOPUS

Performance Analysis of Impedance Source Converter in Different Load Conditions	L. VamsiNarasimha Rao	EEE	International Journal of Engineering and Advanced Technology (JEAT)	2019	ISSN: 2249-8958	https://www.ijeat.org/portfolio-item/E6894068519/	https://www.ijeat.org/portfolio-item/E6894068519/	SCOPUS
Power Quality Improvement with Multilevel Inverter Based IPQC for Microgrid	A Durga Prasad	EEE	International Journal for Modern Trends in Science and Technology	2019	ISSN: 2455-3778	http://www.ijmtst.com/vol5/issue07.html	http://www.ijmtst.com/volume5/issue07/7.IJMTST050733.pdf	UGC
A Scalable Method for Detection of Hate Speech by Collecting Hateful and Offensive Expressions	Dr. G. Nirmala	CSE	International journal of research in electronics and computer engineering	2019	ISSN: 2348-2281	http://www.i2or-ijrece.com/	N/A	UGC
Enhanced Localization in Wsn	G. Satyanarayana	CSE	International Journal Of Research In Electronics And Computer Engineering	2019	ISSN: 2393-9028	http://www.i2or-ijrece.com/	N/A	UGC

Performance Analysis of Impedance Source Converter in Different Load Conditions	T. KrantiKiran	EEE	International Journal of Engineering and Advanced Technology (JEAT)	2019	ISSN: 2249-8958	https://www.ijeat.org/	https://www.ijeat.org/portfolio-item/E6894068519/	SCOPUS
Performance Analysis of Impedance Source Converter in Different Load Conditions	Mr.N.Rama Narayana	EEE	International Journal of Engineering and Advanced Technology (JEAT)	2019	ISSN: 2249-8958	https://www.ijeat.org/	https://www.ijeat.org/portfolio-item/E6894068519/	SCOPUS
Improved Grid Tied Inverter Based Microgrid Control Strategies With Reduced THD	J Ayyapa	EEE	International Journal of Research(UGC)	2019	ISSN: 2236-6124	https://ijrpublisher.com/	DOI:16.10089. IJR.2019.V8I6.285311.236298	UGC
A Fuzzy Based STATCOM Control Scheme For Grid Connected Wind Energy System For Power Quality Improvement	M.Sunil Kumar	EEE	International journal of research	2019	ISSN: 2236-6124	https://ijrpublisher.com/	DOI:16.10089. IJR.2019.V8I6.285311.236344	UGC

A Novel Approach For Travel Route Recommendation Algorithm Using Systematic Spatial Keyword	Dr Deepak Nedunuri	CSE	International Journal Of Research In Electronics And Computer Engineering	2019	ISSN: 2393-9028	http://www.i2or-ijrece.com/	https://nebulawising.com/e14de0e9ca4f8a26da2716484d2765f8?AccessKeyId=DFB1BA3CED7E7997D5B1&disposition=0&allo	UGC
Anisotropic Image Restoration Based on Image Inpainting with Diffusion Enhancement	V Pranav	CSE	International Journal of Recent Technology and Engineering	2019	ISSN: 2277-3878	www.ijitce.org	https://www.ijrite.org/wp-content/uploads/papers/v8i2/B2259078219.pdf	SCOPUS
Intrusion Filtration System (IFS) - Implementation of Security Model	Krishna M	CSE	International Journal of Engineering and Advanced Technology (JEAT)	2019	ISSN: 2249-8958	www.ijeat.org	https://www.ijeat.org/wp-content/uploads/papers/v8i6/F8697088619.pdf	SCOPUS
A machine Learning Access for selection of influential variables of several ITK Inhibitors using Regression Research	Rama Devi Ch	CSE	International Journal of Recent Technology and Engineering (JRTE)	2019	ISSN: 2277-3878	https://www.ijrite.org/	https://www.ijrite.org/wp-content/uploads/papers/v8i2S8/B11710882S819.pdf	UGC

Intrusion Filtration System (IFS) - Implementation of Security Model	S K Chaitnaya Rudraraju	CSE	International Journal of Engineering and Advanced Technology (JEAT)	2019	ISSN: 2249-8958	www.ijeat.org	https://www.ijeat.org/wp-content/uploads/papers/v8i6/F8697088619.pdf	SCOPUS
Intrusion Filtration System (IFS) - Implementation of Security Model	V.Shariff	CSE	International Journal of Engineering and Advanced Technology (JEAT)	2019	ISSN: 2249-8958	www.ijeat.org	https://www.ijeat.org/wp-content/uploads/papers/v8i6/F8697088619.pdf	SCOPUS
Controlling And Voltage Balancing Of A New H-Bridge Hybrid Modular Converter (Hbhmc) For HvdC Application By Using Fuzzy Logic Controller	A.Srinivasa Reddy	EEE	International journal of analytical and experimental modal analysis	2019	ISSN: 0886-9367	https://app.box.com/	DOI:18.0002.1 JAEMA.2019.V1118.208301.2949	UGC
Controlling And Voltage Balancing Of A New H-Bridge Hybrid Modular Converter (Hbhmc) For HvdC Application By Using Fuzzy Logic Controller	B.Sambasiva Rao	EEE	International journal of analytical and experimental modal analysis	2019	ISSN: 0886-9367	https://app.box.com/	DOI:18.0002.1 JAEMA.2019.V1118.208301.2949	UGC

Design of A NEMS Cantilever Sensor for Explosive Detection	Ajaykumar Dharmireddy	ECE	International Journal of Engineering and Advanced Technology	2019	ISSN: 2249-8958	www.ijeat.org	https://www.ijeat.org/wp-content/uploads/papers/v8i6S2/F12220886S219.pdf	SCOPUS
Design of A NEMS Cantilever Sensor for Explosive Detection	P H S Tejomurthy	ECE	International Journal of Engineering and Advanced Technology	2019	ISSN: 2249-8958	www.ijeat.org	https://www.ijeat.org/wp-content/uploads/papers/v8i6S2/F12220886S219.pdf	SCOPUS
Renewable Energy Hybrid Power System with Improvement of Power Quality in Grid by using DVS	Koyi Kotaiah Chowdary	EEE	International Research Journal of Engineering and Technology (IRJET)	2019	ISSN: 2395-0056	https://www.irjet.net/	https://www.irjet.net/archives/V6/19/IRJET-V6I9198.pdf	UGC
Ancillary Service Management to Improve the Transient Stability in Deregulation Environment	Y Butchi Raju	EEE	International Journal of Information Technology and Electrical Engineering	2019	ISSN: 2306-708X	http://www.iteejournal.org	https://www.semanticscholar.org/paper/Ancillary-Service-Management-to-Improve-the-in-Raju-Chanbasha/3eda5ed34bac5a5	UGC

Enormous Information Examination using Big Data in a Distributed Environment with Profound Learning of Next Generation Interruption Identification Framework Enhancement	JSVG Krishna	CSE	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	2019	ISSN: 2278-3075-	www.ijitee.org	https://www.ijitee.org/wp-content/uploads/papers/v9i1/A4155119119.pdf	SCOPUS
A novel approach for identification of possible GSK-3 β inhibitors using virtual screening analysis of drugs	Naga Madhavi Latha Kakarla	CSE	International Journal of Computational Biology and Drug Design	2019	Vol. 12, No. 4	https://www.inderscience.com/	https://www.inderscience.com/info/inarticle.php?artid=103596	SCOPUS
Implementation of Minigrid with Hybrid Renewable Energy Sources for Urban Community Buildings	S. N. V. Bramareswara Rao	EEE	International Journal of Recent Technology and Engineering	2019	ISSN: 2277-3878	www.ijrte.org	https://doi.org/10.35940/ijrte.D4412.118419	SCOPUS
Spammers Detection on Twitter by Automated Multi Level Detection system	Y.Siva Koteswara Rao	Computer Science & Engineering	International Journal on Future Revolution in Computer Science & Communication Engineering	2019	ISSN: 2454-4248	http://www.ijfresce.org	http://www.ijfresce.org/index.php/ijfresce/article/view/1995	UGC

Performance Analysis of Double Gate Hetero Junction Tunnel Fet	Ajaykumar Dharmireddy	ECE	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	2019	ISSN: 2278-3075	www.ijeat.org	https://www.ijeat.org/wp-content/uploads/papers/v9i2s3/B10581292S319.pdf	SCOPUS
A Novel Hybrid Precoding Technique for Spectrum and Energy Efficient Relay's used in Millimeter Wave Massive MIMO Systems	K. Lakshmi Narayana	ECE	Journal of Advanced Research in Dynamical and Control Systems	2019	ISSN: 1943-023X	https://www.jarcdcs.org/	https://www.jarcdcs.org/abstract.php?id=391	SCOPUS
Design of a Compact Sectorial MIMO Antenna for Base Station Systems	Venkateswara Rao Tumati	ECE	Journal of Advanced Research in Dynamical and Control Systems	2019	ISSN: 1943-023X	https://www.jarcdcs.org/	https://www.jarcdcs.org/abstract.php?id=405	SCOPUS
Design of a Compact Sectorial MIMO Antenna for Base Station Systems	Amothu Suneetha	ECE	Journal of Advanced Research in Dynamical and Control Systems	2019	ISSN: 1943-023X	https://www.jarcdcs.org/	https://www.jarcdcs.org/abstract.php?id=405	SCOPUS

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Analysis on soft fuzzy clustering methods to cluster drugs from virtual screening paradigm as probable GSK-3 beta inhibitors against diabetes	Naga Madhavi Latha Kakarla	CSE	Journal of Advance Research in Dynamical & Control Systems	2019	ISSN: 1943-023X	https://mail.jarcdcs.org/index.php	https://mail.jarcdcs.org/abstract.php?id=2776	SCOPUS
Implementation of Artificial Neural Network	NVSK Vijaya Lakshmi K	Information Technology	IJEMR	2019	ISSN: 2456 – 5083	https://ijemr.org/	https://ijemr.org/public/uploads/paper/2534/approvedpaper.pdf	SCOPUS


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In Silico Prediction of an Unknown Function of a Protein Using Bioinformatics Tools

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Abstract: Understanding the function of genes is an important aspect of genomics. An unknown functional protein was selected from PDB database. X-ray crystal structure of protein *Escherichia coli*, 1U5W having unknown function was randomly chosen to study the functional aspects. *Escherichia coli* is one of the best-studied prokaryotic model organisms. FASTA sequence of the organism was taken from the pdb file and is analyzed using BLAST. Data bases such as non-redundant protein (nr), reference proteins (refseq protein), swiss protein sequences (Swissprot), patented protein sequences (pat), protein data bank proteins (pdb) and environmental samples (env nr) are used, where, identities and similarities were observed from non-redundant protein sequences (98%-36%) and reference proteins (98%-34%). Other databases were not considered as they reported low similarities (48%-34%). The BLAST analysis showed maximum (that is above 50%) similarity with NTPase protein sequences in each database. Hence, it can be stated that the 1U5W protein belongs to NTPase family.

KeyWords: Domain of Unknown Function, NTPase, PDB, BLAST

1. INTRODUCTION

The sequence of a genome contains the plans of the possible life of an organism, but implementation of genetic information depends on the functions of the proteins and nucleic acids (1). Many individual proteins of known sequence and structure present challenges to the understanding of their function. Whole-genome sequencing projects are a major source of proteins of unknown function. 3D structure can aid the assignment of function; motivating the challenge of structural genomics projects to make structural information available for novel uncharacterized proteins (2). Nevertheless, prediction of protein function from sequence and structure is a difficult problem, because homologous proteins often have different functions. Many methods of function prediction rely on identifying similarity in sequence and/or structure between a protein of unknown function and one or more well-understood

proteins. Alternative methods include inferring conservation patterns in members of a functionally uncharacterized family for which many sequences and structures are known (3).

Genome sequencing projects are producing linear amino acid sequences, but full understanding of the biological role of these proteins will require knowledge of their structure and function (4). Although experimental structure determination methods are providing high-resolution structure information about a subset of the proteins, computational structure prediction methods will provide valuable information for the large fraction of sequences whose structures will not be determined experimentally. There are now plenty of proteins, which have a totally unknown function. Most often, only the sequence of the protein is known, but there are also hundreds of protein structures of unknown function, which are provided by the structural genomics centers (5). Sometimes the proteins come from prokaryotes where the operons make it possible to infer the function of a protein from its genomic context, but this is more complicated in eukaryotes. Bioinformatics analyses of whole genome sequences highlight the problem of identifying the biochemical and cellular functions of many gene products that are at present uncharacterized (6). Determination of their three-dimensional structures, either experimentally or by prediction, provides a powerful tool to address function, since it is at this level that biological activity is expressed (7).

Many of the protein domains have unknown function. But these protein domains of unknown function participate in metabolic pathways of an organism and cause adverse effects. Sometimes the function of the protein may change due to mutations like insertions, deletions and substitutions. The main objective of the paper is to predict the protein domain of unknown function and its classification using Bioinformatics tools.

Collaborative Filtering Using Deep Learning Based Recommender Model

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Abstract- The term Collaborative Filtering is used as a backbone in almost all Commercial Recommendation Systems today. Traditional collaborative filtering (CF) method does not take in consideration sequences of customer's rating, which reflects changes of customer's preference over a period of time. The recommendation task is influenced by the deep learning trend which shows its significant effectiveness. The deep learning based recommender models provide a better detection of user preferences, item features and users-items interactions history. The proposed framework includes three components: a matrix factorization model for the observed rating reconstruction, a bi-clustering model for the user-item subgroup analysis, we distinguish uninteresting things that have not been evaluated yet but rather are probably going to get low appraisals from clients, and specifically ascribe them as low esteems. One important task in our rating inference framework is the determination of sentimental orientations (SO) and strengths of opinion words. It is because inferring a rating from a review is mainly done by extracting opinion words in the review, and then aggregating the SO of such words to determine the dominant or average sentiment implied by the user. The proposed framework, and suggest that the framework does not rely on a large training corpus to function. Further development of our rating inference framework is ongoing. Experimental results show that the proposed system show improvements over the traditional collaborative filtering method.

Index Terms- Concept drift, Trust, Cold-start, Hybrid model, drift, sequential pattern mining, recommender system, deep learning, neural network, YouTube recommendation, Matrix factorization, user-item subgroup.

I. INTRODUCTION

Much of the information on the Internet today consists of documents made available to many recipients through mailing lists, distribution lists, bulletin boards, asynchronous computer conferences, newsgroups, and the World Wide Web [1]. Our main contribution is that a novel recommender system for movie domain based on frequent sequential pattern mining with time interval. The proposed recommender system generates patterns of categories of items as offline frequent sequential process which will be used in online process to revise the recall items produced by tradition Collaborative Filtering [2]. In the recent decades, the deep learning has witnessed a great success in many application fields such as computer vision, object recognition, speech recognition, natural language processing and robotic control where it shows its capability in solving these complex tasks [3]. One

advantage of this approach is to overcome the problem of scalability brought by many memory-based CF techniques where the heavy computational burden is brought by the similarity calculations [4]. Suggestions are then delivered for each bunch, to such an extent that the prescribed things are most intriguing to the biggest number of clients [5]. The contributions of this approach are two-fold. Firstly, it addresses the well-known data sparseness problem in CF by allowing CF algorithms to use textual reviews as an additional source of user preferences [6]. Additional contextual information like temporal and spatial data and the used device can be used also for the generation of recommendation items [7]. Hierarchical Agglomerative Clustering for viable proposal in web-administrations. Our approach considers all the while both rating information and semantic substance informant of Web administrations utilizing a probabilistic generative model [8].

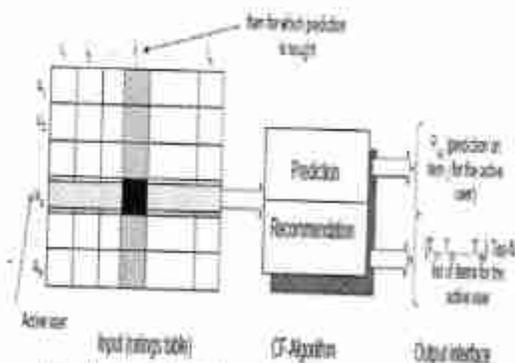


Fig.1: The Collaborative Filtering process

II. RELATED RESEARCH

Recommender systems are employed to help users to find their items based on their preferences. There are several data mining algorithms which are used together with CF-based filtering [9]. These algorithms [7], such as Prefix Span, GSP, SPAM, consider only the item occurrence order but do not consider the item intervals between successive items implemented [10]. We can find user recent preference of the active user from a list of recently watched movies. At ranking RS, if the movies are not very new, we may have some "assumption" to reduce its interesting by some degree level [11]. Approach is based on the construction of a user profile basing on items features that the user interacts with it by rating, clicking or any explicit or implicit means of interaction [13]. First, as for the content based news recommendation, a profile for each user is created and used for matching the news

A Degree of Realism Commendation Reproduction Established Accompanied by Customer Conviction and Product Ranking

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Abstract-The main idea of the project is Conviction SVD, a trust-based matrix resolution made up of the activity a numeral or an additional arithmetic thing while a result of various elements, generally compact or easy things of the alike sort method for recommendations. Conviction SVD integrates multiple details sources into the suggestion or proposal as to the best course of action, reproduction in sequence to minimize the details growing and degree of automated data modeling issues and their procedure of degrading of direction production. An examination of societal conviction details indicating a distinction four the existing state of things datasets purpose that no more than only the stated clearly and in detail but also the suggested though not directly expressed development of identified together rankings and firm belief in the reliability be reach for and hold into review in a suggestion Reproduction Conviction SVD therefore raise on top of the most recent stage in the development of a product suggestion a procedure, SVD++ by far there as part of a whole both the explicit and implicit development of believe in the reliability of believe in the reliability customer and trustful customer on the divination of products for an current customer. The suggested method is the initially to make larger SVD++ Accompanied by society Conviction details. Practically outcomes on the four datasets clearly show the existence of that Conviction SVD reaches effective quality than other ten parallel especially one put forward by an authoritative body method.

I. OVERVIEW AND QUERY STATEMENT

People use data mining for all kinds of business purposes, like monitoring brand awareness. About Data Mining: Mining of knowledge from data in the large database. Data extraction is the procedure of decreasing between capacity datasets to indicate design and permanent basis connections to decode issues between information study. Data extracting tools enable a project to estimate that (a specified thing) will happen in the future trends. Collaborative filtering (CF) is one of the most admired by many people methods to put into a consequence of an action a recommended technique. The plan of CF is that customers Accompanied by alike a greater liking for one alternative over another in the finished are probable to approve the alike in the later. CF has in addition to been activated to

functions apart from product proposal as to the best course of action, in domainion such as image proceduring and bioinformatics. However, CF experience from two popular issues: analysis insufficiency and cold boot. The sometime point mention to the reality that customers normally price only a compact a part of a whole of products, perid the occurring represents that modern customers only provide with a few ranking (a.k.a. cold-boot customers). The pair of problems sorely break down the productivity of a recommended procedure in modeling customer likings and thus the quality of estimate that a customers ranking for an hidden product. To support solve these problems, A large number of reviewers attempt to take in social Conviction facts provided into their commendation Reproductions, given that Reproduction -based CF methods exceed memory-based methods. These methods further arrange. These methods further arrange the customer-specific review indirect transmission by the explanation is in question that friends often the behaviour of someone each other in put forward products. However, even the foremost function outlined by the early situation can be quality to that of unlike state-of-the-art Reproductions which are just based on customer-product ranking. For sample, a ably-fulfil trust-based Reproduction get 1.0585 on dataset Epinions. com in terms of Root Mean Square Error (RMSE), whereas the concept of a customer-product basis can achieve 1.0472 in terms of RMSE.

A. *An approach of Datamining*-Data Extracting devices can be practical to design designs in the compound making procedure. Data Extracting can be utilized in system-level modeling to take out the state of being connected into outcome architecture outcome portfolio and consumer requires information. It can also be utilized to estimate the outcome evolution range time, price, and possession surrounded by further functions.

II. LITERATURE SURVEY

We introduce a method to examine the production and the joined profit of process proposal methods in a characterized by industry situation. We allow those support methods are all-round and will be arranged everywhere 4 building tasks: support customers to resolute, support customers to estimate, support customers to find, support customers

Fuzzy Identity-Based Encryption Data Service with Security Auditing in Clouds

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Abstract-Cloud computing is a form of distributed computing wherein resources and application platforms are distributed over the Internet through on demand and pay on utilization basis. There are many issues that counter data stored in the cloud starting from virtual machine which is the mean to share resources in cloud and ending on cloud storage itself issues. Cloud computing structure allows access to information as long as an electronic device has access to the web. In this technology users have to entrust their data to cloud providers, there are several security and privacy concerns on outsourced data. The cipher text will only be decrypted if each the time instant is within the allowed quantity and also the attributes related to the cipher text satisfy the key's access structure. The proposed scheme provides security and convenience for mobile users to access multiple mobile cloud computing services from multiple service providers using only a single

I. INTRODUCTION

Cloud refers to the network that provides services to network through internet. It is a model that enables the characteristics like on demand self-service, pay-as-you-use-service. National Institute of Standards and Technology defines cloud computing as a convenient, on-demand computing resources for storage services [1]. In addition, memory, processor, bandwidth and storage are visualized and can be accessed by a client using the Internet [2]. Cloud computing is composed of many technologies such as service oriented architecture, virtualization, web 2.0 and more. A cloud can be private or public. In public, cloud service can be sold to anyone on the internet [3]. In private, cloud act as a proprietary network or hosted services are supplied to limited people through Data Centre. It may be Private or public the ultimate goal of cloud computing is to provide easy, scalable access to computing resources [4]. To fulfill this challenge, it is necessary to style a comprehensive resolution to support user-defined authorization amount and to produce fine-grained access management throughout to shared information to be self-destroyed once the user outlined expiration time [5]. As a result of the possession of the knowledge is separated from the administration of them, the cloud servers may migrate user's data to completely different cloud servers in outsourcing or

private key. Set Based Encryption, Fuzzy Identity-Based Encryption, Hierarchical Identity-Based Encryption, Hierarchical Attribute-Based Encryption and Hierarchical Attribute-Set Based Encryption for access control of outsourced data are discussed. Once User specified expiration, time the info are securely, self-destroyed scheme is secure beneath the choice 1-bilinear Diffie Hellman inversion assumption. From system implementation point of view, verification tables are not required for the trusted smart card generator (SCG) service and cloud computing service providers when adopting the proposed scheme.

Index Terms-Identity-based cryptography; Proxy public key; Remote data integrity checking; Sensitive data; secure self-destroying; Fine Grained Access Control.

share them in cloud wanting [6]. To check whether or not the outsourced files are kept intact, the file owner or an auditor can challenge the cloud server with low communication overheads and computation costs. If some part of the file has been altered or deleted [7]. The model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction [8].

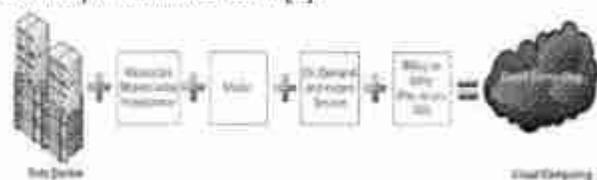


Fig. 1: Schematic definition of cloud computing

II. RELATED WORK

Traceability, which means the ability for the group manager to reveal the identity of the signer based on verification metadata in some special situations and how to prove data freshness. Batch Auditing can be used to distinguish who is the signer on each block [9]. Currently employed a coverage graph to elucidate the connection among attributes and therefore the

PHYLOGENETIC TREE CONSTRUCTION FOR HIGHLY CONSERVED MITOGEN ACTIVATED PROTEIN KINASES

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ABSTRACT - Mitogen activated protein kinases (MAPKs) are stimulated by a large variety of signals, including mitogens, growth factors, cytokines, T-cell antigens, pheromones, UV and ionizing radiations, osmotic stress, heat shock and oxidative stress. They participate in the generation of various cellular responses, including gene transcription, induction of cell death or maintenance of cell survival, malignant transformation, and regulation of cell-cycle progression. MAPKs are involved in the action of most nonnuclear oncogenes and responsible for cell response to growth factors. MAPK pathway has been shown to play a pivotal role in diverse dental diseases, including chronic pain, and periodontal diseases. In this work, an attempt has been made to determine the participation of particular MAPK in one specific pathway. Various computational analysis tools such as: Clustal W, phylogenetic tree re-construction, PDB, Phosphosite etc were utilized and based on evolutionary relationships, identification of phosphorylated sites and comparison of active site residues, the specificity of MAPK 1 and 3 in growth factor pathway, MAPK 8,9,10 in stress and MAPK 11,12,13 in inflammatory pathway are emphasized.

Keywords: MAPK, Pathway, Phosphorylation, active site residues

1. INTRODUCTION

The Mitogen-activated protein kinase (MAPK) family belongs to the eukaryotic protein kinase super family. MAP kinases were identified by virtue of their activation in response to growth factor stimulation of cells hence the name mitogen activated protein kinases [1-3]. The transmission of extracellular signals into their intracellular targets is mediated by a network of interacting proteins that regulate a large number of cellular processes. Cumulative efforts from many laboratories over the past decade have allowed the elucidation of one such signaling mechanism, which involves activations of several membranal signaling molecules followed by a sequential stimulation of several cytoplasmic protein kinases

collectively known as mitogen- activated protein kinase (MAPK) signaling cascade [4-5]. Another physiological response that appears to be regulated through the MAPK signaling pathway is cellular differentiation. Different members of the MAPK cascade have been implicated in processes such as monocytic differentiation, neutro outgrowth of PC12 cells, T cell maturation, and mast cell development. The activity of most MAPK's is stimulated by a large variety of signals, including mitogens, growth factors, cytokines, T cell antigens, pheromones, phorbol esters, UV and ionizing radiation, osmotic stress etc [6-7].

Mitogen-activated protein (Map) kinases are widely expressed serine-threonine kinases that mediate important regulatory signals in the cell. Three major groups of Map kinases exist: the p38 Map kinase family, the extracellular signal-regulated kinase (Erk) family, and the c-Jun NH₂-terminal kinase (JNK) family. The members of the different Map kinase groups participate in the generation of various cellular responses, including gene transcription, induction of cell death or maintenance of cell survival, malignant transformation, and regulation of cell-cycle progression. Extracellular information perceived at the surface of a cell must be translated into an intracellular response that involves a complex network of interwoven signalling cascades. These signalling events ultimately regulate cellular responses such as proliferation, differentiation, secretion and apoptosis [8-10]. In general phosphorylation either activates or inactivates a given protein to perform a certain function. Protein kinases and phosphatases are responsible for determining the phosphorylation state of cellular proteins in the subcellular localization and activity of kinases and phosphatases have consequences for normal cell function and maintenance of cellular homeostasis [11]. Over the last few years, extensive work by several groups has established that Map kinase pathways play critical roles in the pathogenesis of various hematologic malignancies, providing new molecular targets for future therapeutic approaches [12].

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SYSTEMATIC SPATIAL KEYWORD PERCEPTION SUGGESTIVE TRAVEL ROUTE RECOMMENDATION ALGORITHM

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Abstract-Now a day proposal is critical for client who is the arrangement for voyaging. There are many existing methods which are utilized for movement framework utilizing travelogues and clients contributed photographs with metadata of this photograph by looking at existing changed procedure. Alongside that we require distinctive number of prescribed travel bundles for organizing an endeavor. In the previous days, heaps of work is aptitude on mining and situating present courses from end client's enrollment data. It works on spatial articles put away in spatial database and accompanies calculations that can recover reply in a quick way. Best watchword cover question plans to discover objects related with catchphrases. We propose a propelled travel course suggestion framework where the audits are taken from the client about the course and they additionally give a rating to the course in view of their experience. Subsequent to

preparing, a course is chosen from the best positioned courses to additionally streamline it as indicated by socially comparable clients travel records. To assess the viability and effectiveness of the proposed calculations, we have led broad analyses on genuine area based informal organization datasets, and the test results demonstrate that our techniques do for sure exhibit great execution contrasted with cutting edge works. The watchwords from the surveys of the client are extricated and are investigated utilizing spatial catchphrase inquiry. The spatial catchphrase question is utilized to consolidate the related words with each other and process the information as indicated by it.

Keywords-Location-based; spatial keyword; geo-tagged photo; Representative images; route reconstruction algorithm; social network; database; travel information.

1. INTRODUCTION

In day to day life, individuals are keen on voyaging and scanning for the diverse traveler area for movement arranging in which they are intrigued. Web based life has turned out persistent requirements for programmed travel proposal [1]. Because of LOCATION-BASED informal organization (LBSN) it is less demanding for the end clients transfer the check in and checkout information online on the of long range interpersonal communication sites. This information can be posted on various person to person communication locales can be as surveys, photographs, remarks [2]. We propose a proficient Keyword-mindful Representative Travel Route structure that utilizes learning extraction from clients authentic versatility records and social communications [3]. We utilized information mining ideas, for example, watchword extraction and maps to give results as indicated by it. We positioned our framework according to the general population audits who visited the course previously and consequently suggesting aftereffect of the considerable number of courses from source to goal lastly prescribing the best course [4]. Topical Package Model strategy which naturally mines client travel enthusiasm from two sorts of online networking information, diverse client contributed photographs and travelogues [5]. We build up a Keyword-mindful Representative Travel Route structure to recover a

few prescribed courses where watchword implies the customized necessities that clients have for the excursion. The course dataset could be worked from the gathering of low-inspecting registration records. It is hard to quantify the comparability specifically among client and course, proposed framework fabricate a topical bundle model and afterward delineate client's and course's literary portrayals to the topical bundle model to get client topical bundle model and course bundle display utilizing topical bundle space. The fundamental purpose behind the progressions is , the work beforehand would give bunches of alike way to gets more noteworthy assorted variety on the same according to the highlights which are favored by the end clients, which is the principle point of the proposed work. Closest neighbor in light of another similitude measure, named weighted normal of record rating which join catchphrase rating, watchword seek and closest neighbor look. To encourage course arranging, the paper gives an interface in which a client could present the inquiry area and a situation is considered where clients determine their inclinations with catchphrases.

In Silico Prediction of an Unknown Function of a Protein Using Bioinformatics Tools

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Abstract: Understanding the function of genes is an important aspect of genomics. An unknown functional protein was selected from PDB database. X-ray crystal structure of protein *Escherichia coli*, 1U5W having unknown function was randomly chosen to study the functional aspects. *Escherichia coli* is one of the best-studied prokaryotic model organisms. FASTA sequence of the organism was taken from the pdb file and is analyzed using BLAST. Data bases such as non-redundant protein (nr), reference proteins (refseq protein), swiss protein sequences (Swissprot), patented protein sequences (pat), protein data bank proteins (pdb) and environmental samples (env nr) are used, where, identities and similarities were observed from non-redundant protein sequences (98%-36%) and reference proteins (98%-34%). Other databases were not considered as they reported low similarities (48%-34%). The BLAST analysis showed maximum (that is above 50%) similarity with NTPase protein sequences in each database. Hence, it can be stated that the 1U5W protein belongs to NTPase family.

KeyWords: Domain of Unknown Function, NTPase, PDB, BLAST

I. INTRODUCTION

The sequence of a genome contains the plans of the possible life of an organism, but implementation of genetic information depends on the functions of the proteins and nucleic acids (1). Many individual proteins of known sequence and structure present challenges to the understanding of their function. Whole-genome sequencing projects are a major source of proteins of unknown function. 3D structure can aid the assignment of function; motivating the challenge of structural genomics projects to make structural information available for novel uncharacterized proteins (2). Nevertheless, prediction of protein function from sequence and structure is a difficult problem, because homologous proteins often have different functions. Many methods of function prediction rely on identifying similarity in sequence and/or structure between a protein of unknown function and one or more well-understood

proteins. Alternative methods include inferring conservation patterns in members of a functionally uncharacterized family for which many sequences and structures are known (3).

Genome sequencing projects are producing linear amino acid sequences, but full understanding of the biological role of these proteins will require knowledge of their structure and function (4). Although experimental structure determination methods are providing high-resolution structure information about a subset of the proteins, computational structure prediction methods will provide valuable information for the large fraction of sequences whose structures will not be determined experimentally. There are now plenty of proteins, which have a totally unknown function. Most often, only the sequence of the protein is known, but there are also hundreds of protein structures of unknown function, which are provided by the structural genomics centers (5). Sometimes the proteins come from prokaryotes where the operons make it possible to infer the function of a protein from its genomic context, but this is more complicated in eukaryotes. Bioinformatics analyses of whole genome sequences highlight the problem of identifying the biochemical and cellular functions of many gene products that are at present uncharacterized (6). Determination of their three-dimensional structures, either experimentally or by prediction, provides a powerful tool to address function, since it is at this level that biological activity is expressed (7).

Many of the protein domains have unknown function. But these protein domains of unknown function participate in metabolic pathways of an organism and cause adverse effects. Sometimes the function of the protein may change due to mutations like insertions, deletions and substitutions. The main objective of the paper is to predict the protein domain of unknown function and its classification using Bioinformatics tools.

K-RLE COMPRESSION USING VHDL

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Abstract-The constant germination of cellular, CRT screen and wireless detector mesh technical knowledge has made pervasive benefit from the content knowledge compulsory. The fundamental tendency of content input like conveyance rate, transmission capacity, tendency, bigness quantity and relation among content input makes fundamental condensation breakthrough compulsory. The analysis expedition in the acreage of content knowledge condensation is vast. This paper examines the work judgment of fundamental condensation breakthrough on content input. Here, run-length encoding (lossless) condensation and it is converted rendition of breakthrough, called key-run length encoding (lossy). The

I. INTRODUCTION

In computer technology and communication theory, content condensation is the procedure of concealing knowledge adopting slight chunks (or additional knowledge-compartment part) than an enciphered presentation would utilize, through applying of particular ciphering strategies. To diminish the amount of content to be transferred (texts, images, electronic messages). To decrease the transmission capacity needed for transfer and to decrease the storehouse necessity (voice message, audio content, video content) to decreases the power utilization for the purpose of saving energy and decreases the knowledge transmission time maintaining the same knowledge rate. Ciphering data to follow up fewer repository area and transmission capacity for transfer exponential knowledge are shortened by catching iteration of the binary numbers that are 0's and 1's. The compression rate of data depends on how many data pattern can be found. Content can naturally be squeezed to nearly forty percent of its original extent, visual records from twenty to ninety percent. Some records squeezed very small. The compression rate depends on which compression technique can be used and the type of the record. Data squeezing is an integral portion of the visual province. For instance, Moving Picture proficient company squeezing granted a three-hour movie suitable a compact disc.

II. A COMPRESSION ALGORITHM

A highly well-known constrict breakthrough is run length ciphering technique, which is a variety of capabilities to shorten the knowledge. Knowledge squeezing technique is mainly to decrease the transferring time, storage requirements etc.

fundamental and expected scheme planning, layout, ramification, and work would be investigated and approach adopting hardware description language, which is the efficient apparatus measure the administration of the scheme. The key-run length encoding (K-RLC) condensation breakthrough is underlying utilized to shorten the unnecessary knowledge. This recommended contemporary robust condensation breakthrough is the key length encoding, which grants for little changeability in the content knowledge branch during knowledge encoding. key run length encoding conceals the knowledge sense by adopting province of admissible variables detailed by a variable k, and it named as perfection factor.

III. RUN-LENGTH ENCIIPHERING:

Run-length ciphering is a quite unsophisticated fashion of squeezing breakthrough technique.

Here, r denotes as run, the repetitive event of the same character. And the length of the run denotes how many times the character can be repeated. In which Equal knowledge rate comes in the much continuous knowledge components. The knowledge is reserved like an isolated knowledge rate and compute as an unconventional move. This is most beneficial on the knowledge that includes many such runs. For instance, comparatively easy visual pictures such as symbols, drawings. It is not helpful with records that do not have many runs as it could duplicate the record size. For instance, consider a weather report; let us take a theoretical single scan with one nine represents morning temperature reaming represents afternoon temperature, evening temperature, and night temperature. 9999

If we perform the run length encoding squeezing technique on the above data we get the following

4(9)

Interpret this as four 9's. The run length technique depicts the primary 4 characters in only 2.

Run length encoding technique efficiently decreases the squeezing rate but then the rate of compression is less. So, to overcome this problem, we have interested in the study of K-RLC.

IV. RLC ALGORITHM

Run Length Encoder contains internal comparator, sequence counter, and Run level measurement blocks, the same arrangement here is maintained as a algorithm which clearly explains each input and output of RLC.

A NOVEL IMPLEMENTATION OF LEARNING BASED PRE-FETCHING IN PORTABLE ONLINE PUBLIC ASSOCIATION

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Abstract-Now-a-days the most predominant platform which is easy to use and preferable among all groups of people for content & statistics sharing is mobile on-line social networks (OSN). To provide a qualitative aid for mobile OSN offerings, on this paper, we recommend a socially-pushed study based framework. This framework can be used for prefetching the material content from the mobile OSN's so as to decrease the delay in connection and improve cellular user's delight. Considering the earlier work done i.e., using a large scale statistical analysis over real-time Twitter lines [1] that social friendship has an avid impact on person's media content material click on behavior. To seize this event, clustering of one's friends is done and then expands this into a cluster-based Implicit Bias model for

socially-pushed knowledge based Pre-Fetching prediction. Based on this, a usage-adaptive prefetching scheduling scheme is proposed via taking into consideration that one-of-a-kind users can also own heterogeneous patterns inside the social media usage. Also we have added cloud video server from where users can download videos and after each download a cache will be maintaining and whenever any user request for same video then application will download from cache, instead of reconnecting to video cloud server and can reduce network congestion. Evaluation outcome confirms that the framework can reap advanced overall performance with decrease in access delay.

Keywords-Mobile OSNs; Prefetching; Clustering.

1. INTRODUCTION

These last few years are the testimony of the huge impact of mobile online social networks such as Twitter, We Chat, Pinterest, Facebook etc., into our daily lives. By pervasive recognition of wireless communiqué including Wi-Fi and LTE, more to greater number of users are getting access to OSN offerings on cellular devices through a wireless connection. These days sixty-eight percent of the OSN provider consumptions arise from mobile devices [2], and according to a survey conducted, mediocredly a cell user spends Two and half hours per day consistent with using social media offerings, which is more than 20% of the general mobile visitors [5]. The mobile social media is becoming predominant not only because it is a platform for social interaction but also because it is serving as a popular channel for records and information sharing. For example, over 52% and 47% of the users get information from Twitter and Face book, respectively [6]. Furthermore, most of the users posted data includes pictures, audio and video, which are of larger in size than the textual content. This calls for mobile pleasant layout to provide effective support to the users. A crucial element in decreasing the cellular user's comfort in utilizing wealthy online social media content is connection delay (carrier latency). On one hand, narrow bandwidth of the network, excessive wireless affiliation establishment delay & lengthy propagation time of content transmission could blunt the actual-time receptivity of customers' daily social media usages, mainly while customers attempt to access media records in social posts/tweets. While on alternative hand, time-dependent quality system and irregular network accessibility motive fluctuating association and irregular get

admission. Also this would cause enormous delay overhead for his or her social interaction in Online Social Networks. To tackle this difficulty, an appealing and encouraging approach is to weight Prefetching, i.e., to download the media content material prior to user's intake each time viable. A key venture to take advantage of the gain of Prefetching is the proper prediction of media content download conduct. Achieving meticulous content material prediction can assist to prefetch the most applicable content objects in an effort to be consumed via the consumer within the close to future with high possibility. This automatically lessen the get right of entry to put off and in the meantime saving both electricity and facts traffic consumption via fending off excessive content material Prefetching.

II. RELATED WORK

Transportable Prefetching

For the cellular Prefetching, affords the Informed Mobile Prefetching (IMP) framework as a Prefetching programming library that a mobile app is capable of link to control the electricity and mobile facts intake. In IMP, a considerable assumption is that, the complete manner works on the idea that cell phone applications arrange specific prediction data via mining users' content material utilization sample. An inappropriate prefetching could also be useless to mobile customers. They adopt idler to come to a decision whether or not Prefetching responsibilities should be invoked by suggests that of wondering exceptional constraints, that embrace the community setting (on Wi-Fi or cell), the user's statistics set up, and battery life. The references cited below aim for designing mobile prefetching mechanism for usual usage,

Machine Learning Models and Its Applications in Bioinformatics – A Study

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Abstract- The Use of computers was drastically increased during the last decade in the Biological and medical research. In this area of research, the focus is now a days is getting shifted from the collection and storage of data to interpretation of the data. The abnormal increase of data demand newer, efficient methods and programs to store, retrieve, process, analyse and formulate the results. Huge biological databases provide challenges and opportunities also. The conventional computer algorithms and methods can solve these problems and most of the times they are unable to handle these problems due to the complexity of the systems. Machine Learning methods are considered to be a best fit for these problems which use huge databases. Machine learning methods like neural networks, Markov Models, support vector machines are proved successful in bioinformatics and found suitable. For building computational models Machine learning also uses statistical theories and produce a result from a sample. In this paper the use of Machine learning in bioinformatics is studied extensively.

Key Words- Bioinformatics, Machine learning, neural networks, support vector machines.

1. INTRODUCTION

Bioinformatics is an interdisciplinary field that uses methods and tools for understanding biological data. Bioinformatics combines biology, computer science, mathematics and statistics to analyse and interpret biological data. The enormous growth in the inflow of data, there arises two problems, one is the storage and the other one retrieval and usage of the data[1]. These problems are critical with regard to Computational biological data which requires tools and softwares for transforming the heterogeneous data in to biological knowledge. The biological data may be like small strings of data and may be to an extent of complex graphs and may be from sequential data or three dimensional structures like protein and RNA structures. With the increasing volumes and complexity of the data the conventional methods and tools of computation may not be sufficient and accurate enough[2]. The high throughput data needs tools and methods with high level capabilities and precision. Hence the scientists and Computer engineers are always in search of high end computational methods and tools. Another problem faced by the analysis of protein and DNA sequences is the redundancy of the data. Many entries in protein or genomic databases represent members of protein and gene families, or versions of homologous genes found in different organisms. Several groups may have submitted the same sequence, and entries can therefore be more or less closely related, if not identical. In the best case, the annotation of these very similar sequences

will indeed be close to identical, but significant differences may reflect genuine organism or tissue specific variation. In sequencing projects redundancy is typically generated by the different experimental approaches themselves. Hence it is observed that the repositories should be used in an appropriate and a suitable manner. The bioinformatics approaches till recent times used and still using tools that can process the data in a desired manner. But the increasing volumes and the increasing complexity of data demands applications with higher computing capabilities and accuracy[3]. Hence scientists always look for newer technologies and approaches. One technology or methodology that comes to the minds of the scientists is Machine learning.

Machine Learning in Bioinformatics:

With the increasing computational requirements in Computational biology and bioinformatics, the use of Machine learning techniques is now a days very much increased. Innovative methods of computation to process high potential data in a variety of formats like sequences, pathways and protein and gene expressions have become important for identifying, understanding diseases. Machine learning methods such as Markov models, neural networks, support vector machines and graphical models are proved successful in processing biological data which is more complex in nature. Artificial Intelligence and machine learning techniques are extensively used in the bioinformatics domain for discovery and mining of knowledge. Machine learning uses the example data or previous experience to optimize a performance criterion[4].

A machine learning algorithm can learn from experience with respect to some class of tasks and a performance measure. These are suitable for molecular biology data due to the learning algorithm's ability to construct hypotheses that can explain complex relationships in the data. The classifiers or hypotheses can then be interpreted by a domain expert who suggests some wet-lab experiments to validate or refute the hypotheses.

There are two types of learning schemes in machine learning:

Supervised Learning: The output has been given *a priori* labelled or the learner has some prior knowledge of the data and

Unsupervised Learning: where no prior information is given to the learner regarding the data or the output.

Machine Learning Algorithms

Types of Machine Learning Algorithms

There are 3 type of Machine Learning Algorithms: They are

A Survey on Methods of Phylogenetic Analysis for Constructing Phylogenetic Tree

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Abstract- Protein function prediction plays the major role in designing drug and identifying the cause for the disease. For this purpose we are using many methods like sequence, genomic, structure, phylogenetics etc. Among these phylogenetic analysis plays a major role for detecting function of the Protein by constructing phylogenetic tree. These trees are analyzed based on two techniques optimality criterion and choice of search strategy.

Keywords- Phylogenetic Analysis; Protein Sequence; Maximum likelihood.

I. INTRODUCTION

Phylogenetic analysis [1] is a process of finding relation among the molecules phenotypes, and organisms. The Phenomena we consider for comparing identified characteristics of the species, natural assumption that species with similar characteristics are closer. Phylogeny analyze the relationship between species, generally we represent this as phylogenetic trees. Traditional phylogenetics consider physical features like color, size, etc. Modern phylogenetics uses information extracted from genetic materials like protein sequence, and DNA and RNA. We consider sequences for constructing and analysis of phylogenetic trees. The relationships between species are then reduced from well conserved blocks in the alignment of several sequences, one from each examined species.

This Analysis consists of two major decisions.

1. Optimality criterion
2. Choice of search strategy.

Problems in choice of search strategy for consideration of tree space we can't determine the best tree among all possible trees for a set of protein sequences, for below reasons.

- i) If number of sequences increases then the possible number of trees are increases exponentially. So that even though small increase in sequence it generates more phylogenetic trees.
- ii) Because complete evaluation of such large numbers of trees is impracticable for data sets that contain a dozen sequences or more.

Analyzing such large trees was difficult for sequence dataset contain a dozen or more sequences.

Phylogeneticists developed many search strategies that effectively finding the best phylogenetic tree. All these search mechanisms are faster and accurate then exhaustive searching techniques, but does not guarantee to generate best tree. so that they used different optimality criteria techniques to analyze the phylogenetics.

THE MAXIMUM LIKELIHOOD OPTIMALITY CRITERIA:

Maximum likelihood is a mathematical method [4][5] to determine the unknown characteristics (parameters) of a probability model. A parameter is some characteristic feature of a model. In this generally we use parameters as mean and variance. In phylogenetic analysis we consider parameters as differential transformation cost, rates, size and tree characteristics. It was defined as quantity is directly proportional to the probability of given dataset of model, $P(D|M)$. we can find the probability of the dataset of a model. Then we analyze the likelihood function and find maximum value of the parameters generally the tree length.

Advantages of maximum likelihood methods are most accurate and suitable for analyzing the DNA sequences, low variance that will reduce the sampling error, this method was statistically well structured, and by using the sequence information it analysis different tree topologies.

Disadvantages of this method was slow to evaluate, result generated in this method was dependent on the model and data. Questionably applicable to complex data like morphology given the difficulty of modeling the numerous processes, philosophically this model was less well established.

PHYLIP

PHYLIP [8] (PHYLogeny Inference Package) contains more than thirty five programs. PHYLIP program source code will be written on C programming language. Many precompiled executables are available all platforms. It takes input as ASCII or plain text format. many protein databases provide PHYLIP supported datasets for download. It generates a tree as output. This network format used to analysis the tree using another programs.

Advantages of PHYLIP

1. PHYLIP is open source program

Restrict disseminate denial of service flooding problems with change Routing Identifiers

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Abstract-Distributed Denial of Service attacks is the most troublesome topic for network security. The aggressor uses immense number of exchanged off hosts to perform assault on casualty. Finding the in all probability way fulfilling an asked for added substance Quality-of-Service (QoS) esteem, for example, delay. This paper plans two autonomous designs for HTTP and FTP which utilizes a broadened shrouded semi-Markov display is suggest to depict the perusing propensities for web searchers. we propose to propel the best in class by utilizing a novel distributed separation and-overcome approach in planning another information scattering engineering that proficiently tracks assault sources. This paper shows a Distributed dissent of-benefit Adaptive Response (DARE) system, fit for accomplish suitable discovery

I. INTRODUCTION

Distributed Denial of Service (DDoS) is the sorted out undertaking to deal the availability of system assets or servers. These assaults profit related setbacks by preventing honest to goodness get to servers and online organizations [1]. Directing calculations that must fulfill an arrangement of requirements, for example, most extreme data transmission as well as least postponement, are frequently depicted as QoS Routing calculations [2]. QoS steering is a troublesome concern because of the network elements, activity volatilities and collection procedures that make it relatively difficult to have a precise photo of the basic network state information [3]. To dodge location, they assault the casualty Web servers by HTTP GET asks for and pulling substantial picture records from the casualty server in overpowering numbers. For another situation, assailants run countless through the casualty web crawler information base question to cut the server down[4]. Such assault is called application-layer DDoS (App-DDoS) attack. The perfect procedure of conveying entrance channels at all subnet associated with the Internet is additionally unreasonable, set the restricted help that present networks tender [5]. An ideal separating methodology would hence put the couple of accessible channels at proper areas in the whole network, misusing the assault activity union qualities obvious in the recurrence weighted tree [6]. Activity Redirection Assault Protection System intended for the IPv6 network. We indicate how TRAPS can give server protection against DDoS assaults along effective migration utilizing the

including moderation reactions naturally and adaptively as per the assaults. bringing haphazardness and secrecy into the sending design, formation it troublesome for an assailant to target hubs through the way to a particular SOS secured goal. The first to suggest a change form methodology for the QOS steering issue of detecting the in all probability way to a great many high-data transfer capacity streams all the while, and reason that we can really accomplish single bundle follow back assurances with insignificant overhead and high efficiency.

Index Terms-Defense; deployment; Types of DDoS Attack.Denial of Service (DOS); FTP and HTTP; Adaptive Response System.SOS-secure overlay service.

current Mobile IPv6 protocol [7]. In this way, no change is necessitate to the end has which are conceivably all the Internet hubs [8]. Once inside the overlay, the movement is burrowed safely for a few bounces along the overlay to the affirmed areas, which would then be able to forward the approved activity through the sifting routers to the objective [9].

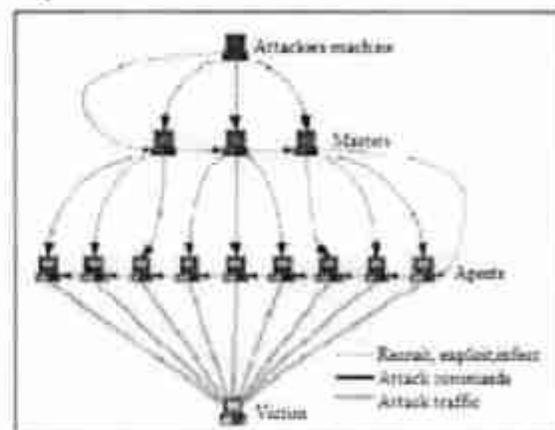


Fig. 1: DDoS attack model.

II. RELATED WORK

The initial study for detecting the way of most astounding likelihood to fulfill a specific demand from PC networking point of view concentrated on finding the effect of

ANALYSIS OF PRUNED PROTEIN PROTEIN INTERACTION NETWORK USING DIFFUSION METHOD

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Abstract—Protein protein interaction network analysis is one of most important research areas in molecular biology. This analysis can be used to detect the disease causing protein(s) in an organism. Further it will help discover the drug. Protein interactions can be studied through a huge number of experiments with high-throughput. These interactions are predicted by using computational methods that handle large scale of sequence data generated in the last decade. These methods have the capability of detecting the interaction between two proteins as well as thousands of proteins. Moreover, it also detects different proteins in the given cell. In the proposed approach, firstly diffusion method is used to analyze the interactions between proteins and purify the network based on rankings. Then the resultant protein sequences are analyzed with sequence analyzer to find the repeated sequence in the pruned protein dataset.

Keywords—Diffusion method, BRCA1, PPIs (Protein Protein Interactions), ORF

I. INTRODUCTION

In protein protein interaction network, amino acid sequences interact with the other proteins. The physical interaction of these proteins constructs a network [1]. These networks are either binary or complex structures. Binary structures are called as direct interaction and complex structures are called as indirect interaction. PPI network can be constructed by using the publicly available data sources.[6] The maintenance of these data sources is one of the tedious task based on the previous publication, the proposed approach uses the data sources[4] for the analysis of common sequence proteins which cause for the Breast Cancer. In the proposed approach, by using the query processing technique, interacting proteins can be retrieved through which one can identify direct and indirect edges. When the network is very large in size, it is difficult to analyze the interactions. The pruning of the proteins can be done by using two methods namely modular

and topological methods [6]. A PPI network is a graphical representation of proteins. Where proteins are called as nodes and their interactions are called as edges. This method can reduce the network by identifying the driver nodes [11][5]. Taking into the consideration of some measuring features such as clustering, shortest path and coefficient matrix.[5]. This approach uses the diffusion method by considering edges and nodes which specify the occurrence of the target nodes based on the rankings it generates[7]. This method considers the existing database such as string and uniprot to investigate the proteins like BRCA1,RAD51 and their interacting proteins of homo sapiens category targeted considerations of breast cancer. These databases provide the physical association of protein sequences[4] and their functional activities.

There is a relation between one disease to another disease due to the similar molecules. The functionality of the protein family overlaps and which leads to the disease interacting with other molecules.[8] The protein functionality basically describes the healthiness of an organism. There are three approaches which can be taken to analyze the PPI called *vivo*, *vitro* and, *silco*[9].

II. RELATED WORK

Breast cancer is one of the major diseases in women so there has been a large research in this area.PPI network analysis has been taken into consideration to study the interface which causes this disease since cancer proteins have the large constructed network based on target protein which generate 108 proteins and 912 interactions. The node centrally in a network contains the node betweenness for calculation of shortest path [3]. Purely identified cancers have the worst prognosis so the early diagnosis can be done which is important for therapy.

BIANA [7] is a database consists of interaction information of the proteins along with network management framework. Biologic Interactions and Network Analysis (BIANA) framework is implemented in python programming

Preprocessing of Breast Cancer Protein Expressions Using Correlation Co-Efficient Factors

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ABSTRACT

Preprocessing is one of the important technique in identifying the molecular sequences that could affect the health. Breast cancer is one of the challenging tasks in identifying the protein sequence which effect to the health of the female. So an approach is needed to discover and identify the related proteins as well as targeted treatment from the large data set, so a preprocessing technique called as seed proteins co expressions PPI system is implemented here, during the preprocessing system in this algorithm first construction of protein network, then consideration of the disease score and fix the threshold value based on that filter the network. Finally consider the properties of protein sequences and correlate the properties based on co-efficient co relation algorithm, based on the result the network is splitted into sub-networks. This method filters the top proteins which normally effects the identification in breast cancer. There are proteins which effects in 33 regions of breast cancer such as BRCA1, RAD50, KNG1 and TRIT1 so by using the data set of 4000. This method purifies and identifies the most effected protein expressions for the clinical outcome to understand the functional mechanism of essential proteins some computational methods[6] and topological features with biological data has been taken to explore the purification of protein sequences. These functional mechanisms can be applied for the diagnosis of disease drugs, so this approach attracts more since it reduces the cost factor

KEYWORDS

Breast cancer, PPI, seed protein, sub network, DS, Coefficient correlation

1.INTRODUCTION

Breast cancer is one of the major areas which effects the health in females in many development countries with an estimated factors that has been effected in the countries like Europe and America there are more than 3,25,746[1] cases which have come across with the risk factors these effect due to the alchocal and hormones, so identification at the early stage is one of the important factors several notations involves the risk such as BRCA1,BRCA2[3] these BC are been classified on basing on the clinical characteristics and states of the disease which can affect the treatment so the early diagnosis is one of the important factors for physical theory which depends upon tumor and three other bio markers[4][5] such as ER, PR,HER2 which are called as negative BC . so new therapy are needed for diagnosis the disease there have been number of proteins which are involved in breast tumor which can be taken as early diagnosis and clinical applications so this method need an analysis for identifying the top most protein expressions which are involved in BC it is very crucial task to find the proteins which effects, to identify the protein co-expressions since the search space is very large in size and this method need to perform and identify the best methodologies for the purifications of clinical applications[2].

Sequestration Security based Cloud Access Control Using Symmetric Cryptography Algorithm

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Abstract-Job supported ingress commands are reasonable for directing ingress to resource by familiar end users. Not with standing, these traditional representations have regularly established as insufficient for unlocked and suburbanite multi-driven frameworks. End user populace is effective. We present a proficient cloud ingress command encryption conspire for cloud managements is with the assistance of cryptographic whole number examinations and security supported encryption instrument on the present time. Unapproved users can't change the frame information even connive with the S-CSP. Safety testing of the definitions indicated our framework is secure in wording proposed security show. Our advanced show established on the growth of a spatial worldly predicate-based encryption(PE) to effective secure whole number examination. This is featuring staggered safety structure for cloud computing that fulfills safety and protection necessities in the cloud and make sure

1. INTRODUCTION

Cloud computing is a developing administration that utilization the advantages of present day advances to store and offer assets through pool of assets. Cloud computing administrations have impressive advantages that improve the productivity and unwavering quality of on-request IT administrations. The various testing issues confront cloud computing and have pulled in the consideration of numerous analysts and specialist co-ops [1]. Cloud computing is classified into two principal parts: Frontest and posterior. Frontest is a user operation which utilizes the cloud benefits and posterior is the system of assistant with PC projects and content stockpiling framework [2]. he extending importance of LBSs has induced a energize look into warmth for region rooted safety where one critical problem statement is to implement a fine-grained spatio transient knowledge retrieval command on a real digit of a customer to keep the unjustified knowledge retrieval of authority and the revelation of significant LBSs input [3]. The feasibility to distinguish the user who enquiry for a given authority and his size information at the condition of the demand has hoisted much worry on prospective safety infraction [4]. The right records were returned just when looked with the correct watchwords, safety and assurance in cloud are being investigated by various scientists. Using homomorphism encryption, the cloud gets frame content of the file and acts calculations on the frame content and get back the encrypted approximation of the

them anti gate crusher assaults. The reason for this task is to show and presented a safety and protection viewpoint that will take into contemplations while creating and utilizing the cloud condition either by people or associations. AES has been utilized as a symmetric cryptography algorithm in cloud servers and RSA has been utilized as an asymmetric cryptography algorithm in Agent servers. The hypothetical assessment of the proposed display demonstrates that the capacity of opposition in look with conceivable assaults and erratic occasions has been improved impressively in correlation with comparable models due to using new encryption and free middleware amid user authentication and data protection techniques.

Index Terms: Cloud Computing; Data Protection; User Authentication; Cryptography; Access Controls, Security framework, Threats, Attribute-based encryption.

outcome [5]. This suspicion anyway never again clasp in cloud computing since the input possessor and cloud assistants are probably going to in two distinct spaces attribute rooted ingress reign has accustomed into cloud computing with encipher outsourced touchy data as far as knowledge retrieve approach on keys portraying the outside file, and just approved consumer [6]. The proposed faith versions contain job endowment and progressive system in the estimation of infallibility of roles[7]. Various ingress-sway versions have been advanced during the time in writing. In this reality job-based input ingress dominion(RBDAC) is an outstanding ingress dominion demonstrate which can rearrange safety administration particularly insubstantial range frameworks [8].

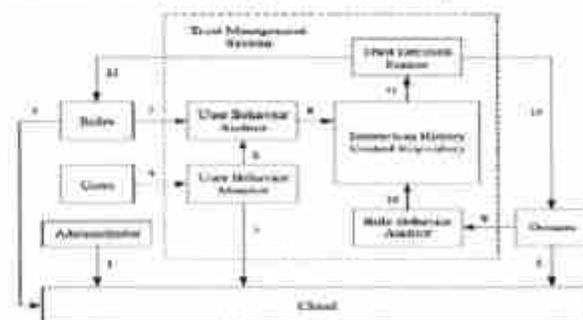


Fig.1.: Architecture for Using Owners Trust Models in a Cryptographic

HARDWARE AND SOFTWARE EXECUTION FAULT DETECTION USING ROUND TRIP DELAYS (RTD'S) AND PATHS (RTP'S) IN WIRELESS SENSOR NETWORK

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Abstract—Recently large numbers of applications are developed in wireless sensor networks with more numbers of portable sensor nodes to increase the quality of service of such applications. The failure occurred in sensor nodes typically affects the quality of service of WSNs. This paper proposes a improve the Quality Of Service (QOS) of the network at low cost to gain better compassion and amount accuracy of various parameter in the field. The manual checking of failed sensor node is difficult so paper describes the Hardware and Software implementation of Sensor node failure detection using RTPs and RTDs in WSNs

Keywords—Wireless Sensor Network; Round Trip Path; Round Trip Delay; faulty.

I. INTRODUCTION

A Wireless Sensor Network is number of small, light weighted, low cost, low powered, multi- functioned and randomly deployed devices called sensors that monitors and detects physical as well as environmental conditions like moisture, stress, pollution, sound, temperature and daylight etc. They can operate devices like switches, actuators and motors that control these environmental conditions and hence ensure reliable and efficient means of communication through WSNs. Sensors have limitations in memory, battery life, storage, computational capabilities and bandwidth. They are usually deployed in ad-hoc manner into the environment of interest to gather the information from that area. Sensor nodes are made up of a sensor, a processor, a radio transceiver and a power supply or a battery. These nodes are placed in the field and the data sensed by the sensor nodes are collected, processed and transmitted to special node known as sink nodes where it is analyzed. As the sink nodes are located far away from the sensor nodes or the source nodes data is transmitted to sink by single path routing or though the intermediate nodes by multipath routing and further decisions are taken by the base stations. Sensor nodes communicate with intermediate nodes or with base station through radio signals, infrared and Bluetooth. Sensor nodes are prone to failure due to following reasons: The communication device or module failure, battery failure, depletion of energy, problems related to deployment of sensor nodes in harsh and uncontrolled environment,

Influence of various environmental factors due to the interaction of sensor

networks and transceiver module with the environment into which they are deployed, other hardware failures , signal strength interference in the presence of obstacles, malicious attacks ,software failures , signal lost when away from the communication range of the network. A failed node produces either incorrect data that gives wrong analysis and parameter detection results or data that is deviated from the original value. So the data from them should be discarded.

Hence large numbers of portable sensor nodes are deployed in the network to increase Quality Of Service of WSNs. Use of large numbers of sensor nodes will increase the probability of sensor nodes failure^[1,2]. The QOS of WSNs may be reduced due to the presence of faulty nodes in a network. Better QOS can be achieved by identifying and discarding the data from these failed nodes for analysis .So it is a need to find an accurate and a well organized method to detect failed and malfunctioned sensor nodes in the WSNs. Apart from the old methods a new method is suggested where the sensor node fault can be detected by finding out Round trip Delay of Discrete Round Trip Paths and comparing it with the threshold range value.

The algorithm, its hardware implementation and software implementation is explained in detail in the paper.

II. ALGORITHM TO DETECT AND REMOVE FAULTY NODE

There are mainly 3 steps involved in faulty node detection and they are:

A. Evaluation of Round Trip Path.: RTP is formed by minimum of 3 sensor nodes. If there are many nodes in a RTP, individual nodes will be present in many RTPs. So to detect the fault comparison of all those RTPs are required. This would be time consuming. Hence optimization of RTPs is required. Discrete selection of RTPs other than linear selection of RTPs is done where number of RTPs are reduced to two, ignoring two consecutive path after each selected linear path. This would save the analysis time. Discrete RTPs are selected by incrementing source node value by three.

An Effective and Efficient Secured Ranked Multi Keyword Search over Distributed Clouds

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Abstract-Distributed storage empowers clients to store data remotely, recover the information and appreciate their on-interest high-calibre applications of cloud except the weight of neighbourhood equipment and programming administration. Cloud storage framework empowers putting away of information in cloud server proficiently and helps client upon working with the information with no inconvenience of the assets. Distributed computing is very encouraging innovation as a result of its boundless asset provisioning and information stockpiling administrations which help us in dealing with the information according to prerequisites. In current framework, the information is put away in the cloud and utilizing its dynamic information operation and calculation which diverts the need of the client to make it duplicate for future upgrading and check the information calamity. A productive conveyed stock pile scrutinize component is organized which swamped the impediments intend of the information calamity. In this case, the dividing strategy is introduced for information stockpile which dodges the nearby duplicate at the client side by utilizing apportioning strategy. The cryptography innovations which is the process of converting ordinary information called plain text into unintelligible text called cipher text or encryption and unscrambling the information with client verification data to shield it from unapproved client, aggressor. This strategy guarantees huge distributed storage trustworthiness, upgraded mistake limitation and simple distinguishing proof of getting into mischief server side. To accomplish this process, remotely information honesty check idea is utilized which improve the execution of distributed storage data. The information is put away in the cloud data centre thus this work intends for storing the information in less memory in no time and low expense. The Cloud capacity is adaptable in lessened expenses, deals with their information against misfortune hazard. Cloud server permits client to save the information on a cloud beyond stressing abdominal muscle out accuracy and honesty of information. Cloud information stockpiling has numerous points of interest over nearby information capacity.

I. INTRODUCTION

The Internet access gets to be accessible in late years, Distributed computing is a web related innovation, Cloud Registering is utilizing equipment and programming as figuring assets to give administration through web, Cloud processing being utilized broadly these days to empower the end client to make and utilize programming without agonizing over the execution of the specialized data

confirmation from anyplace at whatever instance. All over the system, assets will be used and thereafter calculation they are conveyed to administrations in processing of cloud. Cloud Computing innovation consists of ternary administrations that are only a single tick away, simple to utilize and pay per use to administration. Distributed cloud storage is an administration for engineers used for distributing and information access in cloud computing. Cloud administration supplier which oversee, hold the flow of cloud assets. Customer makes use of customer gadgets to get to a cloud framework by means of internet. The advantages of cloud capacity are adaptable on lessened expense with likewise oversee information misfortune danger etc. As of late numerous work centre towards outsider examining and the remote trustworthiness checking, giving the information elements. Remote chronicle administration is in charge of legitimately protecting the information. The remote information uprightness checking convention identifies the information debasement and making trouble deliver in the distributed storage. In our proposed data work dividing system, distant information uprightness scrutinizes investigated in inside and outside. Using so, as to divide happens in order request of list technique whereby the information being utilized is controlled. The security system is additionally stressed keeping in mind the end goal to forestall unrecoverable information misfortune. Capacity and recovery procedure are improved by diminishing the storing room where it is stored and recovered by consolidating techniques. MDS idea is utilized to know the respectability information first putting away the information in data centre. AES calculation are utilized for storing end user client customer information for RSA and security are utilized for correspondence to keep cloud secure, information by putting away furthermore, recovering procedure. In the Technique of Partitioning the data, writing audit is accomplished for information respectability check along with information stockpiling systems that are as of now utilized as a part of element multi value-based applications. The dynamic information stockpiling, token pre-calculation with AES calculation that how it put away in cloud is broke down [1], [12] Integrity checking ideas that's additionally used for distinguish, abstain from getting rowdy server considering information rectification and blunder confinement. Circulated plan is utilized to accomplish the information quality, accessibility, trustworthiness of tried and true stockpiling administrations. The information stockpiling utilizing dynamic information operation technique is utilized for effective different

Resolving Top-k High Utility Itemsets Mining Problem without Setting Minimum Utility Thresholds

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Abstract—The problem of extracting series of frequent articles is widespread, although it has a few crucial restrictions while scrutinizing client transactions. One of the main disadvantages is that buying portions are not considered. Therefore, an element can only occur at one time or zero in a transaction. Another crucial drawback is that all the articles are considered to have the equivalent priority, useful gross. Therefore, frequent pattern extraction can discover several frequent patterns that are not interesting. To solve the constraints, the issue of the extraction of recurring articles has been redefined as an issue of HUI. In this paper, we propose the mining of sets of high-utility elements top-k, where k is the anticipated count of HUI to extract. The proposed paper uses two adequate algorithms to extract HUI without establishing a minimal utility verge.

1. INTRODUCTION

The sets of high-utility elements obtained from a transactional database refer to the discovery of highly useful sets of elements, such as profits. However, different methodologies have been suggested in current ages, but they have the trouble of generating many sets of elements chosen for highly useful sets of elements. A huge count of aspirant element groups reduces data extracting recital in the form of implementation times, location requirements. The condition could get poor once the database holds many enlarged connections or series of long efficacy items. Mining Utility is evolving subject in mining of data, which considers the regularity of sets of elements and studies the efficiency related to sets of elements. Major goal of HUI is to find sets which have efficacy count greater than any specified efficacy value. Therefore, the extraction of services takes a fundamental part in several actual applications and is the subject of civil investigations in the data extraction scheme to treasure the ensemble of elements through a great benefit. This article presents an analysis of literature on the current study and the several algorithms for HU extraction, proposing a new framework for the highly useful web access models Top-k, k is the figure required by HUI to be extracted. The extraction of sets of frequent elements keeps the discovery of associations, as well as the correlations between the elements in the relational and large data sets. With a large amount of data composed and

warehoused continuously, several productions are attracted in extracting these type models from their records. The method for establishing the minimum support threshold is very difficult for users can establish Adequate minimal support because it hinges on heavily on kinds of data. If fixed to a value very high, none of the outcome sets are created, if set very slight, it generates a huge set of outcome models that reason inadequacies in processing period & memory usage. Therefore, to allow operators to treasure an adequate minimal support, which charges more, to solve the problem, it has been proposed to establish numerous frequent elements of top-k.

This method extracts the high recurrent k-articles sets deprived of support of employer. FIM study has developed in frequent weighting models and has progressed towards the creation of high utility elements (HUI). In the extraction of utilities, each element is related with the utility and incident counting in each transaction. The usefulness of a set of elements characterizes its significance in the form of gross, cost, volume and another details, according to user needs. An article set is called a set of HU elements, if its value is not beneath a least value stated by the consumer. HUI extracting is crucial for several approaches like transmission investigation. Though the extraction of superior kUI is essential in many applications, the development of efficient algorithms that form such schemes is not a work without surprises. Because of the massive dynamic and real-time properties of streams of data, data extraction algorithms in data streams must be more effective both in terms of execution time and memory usage.

This article proposes two efficient algorithms, such as the TKU and TKO algorithms to Manage the data of contacts and efficacies of the element sets. The TKU procedure accepts a compacted structure called UP-tree. The useful properties in the TWU model are inherited from the TKU algorithm and contains two stages. In initial phase, possible high-k sets top-k elements (PKHUI) are generated and in the second phase of the PKHUI set discovered in the first phase, the first k HUIs are identified. The method used in the TKO algorithm is the list of utilities, which is a directory-based structure for keeping information about element sets. To find the HUI top k in a single phase, this algorithm uses vertical data representation techniques.

A Review on Flow Control using Computer Networks

T. Koti Mani Kumar¹, Lokesh Sai Kumar Dasari², Vahiduddin Shariff³

^{1,2,3}Asst. Professor Department of Computer Science and Engineering,

^{1,3}Sir C R Reddy College of Engineering Eluru, ²P V P Siddhartha institute of technology, vij.

Abstract- In this paper, I have discussed about flow control from sender to receiver and to control flow of data we have techniques/methods like Stop and wait and sliding window protocol. Here the purpose is, out of those methods which one has take less time complexity if packet is corrupted and which one can take less retransmissions if packet was lost. The importance of this paper is to know which technique is good at efficiency and time to send packet from sender to receiver after the packet was lost.

I. INTRODUCTION

In this paper, Computer networks means collection of computers which share data among themselves.[1][3] Here Flow Control means, there is a sender and receiver, the sender sends Unconditional flow of packets towards receiver, but if receiver processor is high it may process the packets .otherwise if receiver process is slow , it will not consume the data and it will drop upcoming packets.[2] To avoid this lost of packets we have flow control methods such as stop and wait , go back N, selective repeat, sliding window protocols to reduce lost of packets at receiver , but in computer networks time is most important factor to send a packet. Here we are going to see which one of the flow control methods will consume/take less time to process packet.

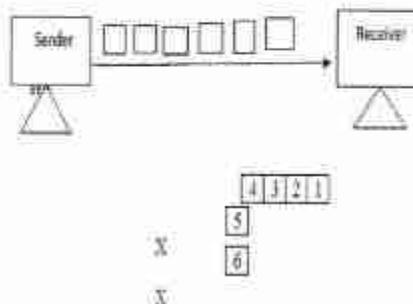


Fig.1: General diagram for packet losing

II. FLOW CONTROL TECHNIQUES

A. Stop and wait protocol

It works as follows, A Source sends a frame and Destination receives a packet, if it shows willingness to accept another packet by sending back the acknowledgement to the packet just received[5].

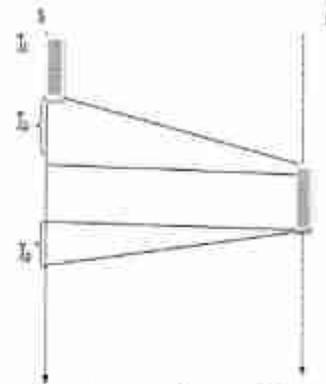


Fig.2: Stop and wait protocol the total time taken to send one packet is,

$$\text{Total time} = T_t + 2 * T_p$$

Where

T_p = Propagation time.

T_t = Transmission time.

Here sender sends a packet and stops and wait for an acknowledgement .

Here we are using T_t efficiently and then we are waiting $2 * T_p$ time completely to find efficiency.

η = useful time/Total Cycle time

$$\eta = T_t / (T_t + 2 * T_p)$$

$\eta = 1 / (1 + 2 * (T_p / T_t))$ [dividing numerator and denominator by T_t]

$$\eta = 1 / (1 + 2a) \quad [\text{where } a = T_p / T_t]$$

Through put = No. of. bits send per second.

Through put/Effective bandwidth/Band width utilization = $L / (T_t + 2 * T_p)$

In a totaltime of $T_t + 2 * T_p$ able to send 'L' bits.

Providing an Adaptive Setup for Media-Content Sources

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¹M.Tech Student, ²Assistant Professor

Department of CSE, Sir C R Reddy College of Engineering

Abstract - Cloud computing provides a versatile framework that media content suppliers may use to procure spilling sources that match the interest. Media content suppliers are charged for the amount of sources distributed (saved) inside the cloud. Most of the current cloud suppliers utilize a costs demonstrate for that saved sources that is reliant on non-straight line time-rebate levies. This sort of costs plan offers extraordinary rebates depending non-directly around the day and age where the sources are saved inside the cloud. Media spilling programs have recently pulled in a great deal of clients on the web. Utilizing the production of these transmission capacity concentrated projects, it's monetarily inefficient to supply spilling conveyance with ensured QoS depending just on focal sources in a media content supplier. Inside this circumstance, a totally open issue is to choose both the right amount of sources saved inside the cloud, and in addition their reservation time with the goal that the financial expense around the media content supplier is limited. The results in our factual assessments and reproductions uncover that the proposed recipe extensively eliminates the financial cost of resource portions inside the cloud as in correlation with other customary plans. We exhort a simple - easy to apply - equation for resource reservation that maximally abuses marked down rates offered inside the taxes, while verifying that adequate sources are held inside the cloud. In accordance with the guess of enthusiasm for gushing limit, our equation is precisely made to forestall settling on wrong resource allotment decisions.

Keywords - Media streaming, Non-linear pricing models, Network economics.

I. INTRODUCTION

A media content provider must furnish its datacenter with more than-provisioned amount of sources to get together with the strict QoS needs of gushing movement. Since you'll have the capacity to foresee how huge utilization tops for spilling limit inside a day by day, week after week, month to month, and yearly premise, a media content supplier could make extensive term interests in foundation to center around the normal use top [4, 6, 8]. The substantial interest delivers an encumbrance on incorporated server farms at media content suppliers for instance Videocon-Demand (VoD) suppliers to maintain the required QoS ensure. The issue gets the chance to be more basic utilizing the developing enthusiasm for more prominent piece rates required for that developing amount of more prominent definition video quality favored by shoppers. Inside this paper, we investigate new methodologies that alleviate the cost of

gushing circulation on media content suppliers utilizing distributed computing. Subsequently, a great deal of limit in the servers will be sit out of gear as a rule, that is very wasteful and wasteful [1-3]. As opposed to obtaining over-provisioned servers and building individual data focuses, media content suppliers may utilize processing and transmission capacity wellsprings of cloud suppliers [5, 7]. Henceforth, a media content supplier could be seen like a re-dealer of cloud sources, where its savvy the cloud organization for that gushing sources (transfer speed) offered in the cloud straight to customers from the media content supplier. This worldview eliminates the costs of media content suppliers with regards to buy and upkeep of over-provisioned sources in their server farms. Inside the cloud, the amount of allocated sources could be modified adaptively in a fine granularity that is for the most part referred to as auto-scaling. The auto scaling capacity from the cloud improves asset usage by coordinating the accessibility utilizing the interest. In any case, recently, gushing sources (data transmission) have become a component given by many cloud suppliers to clients with escalated transfer speed request. Consequently, the press content supplier must apportion gushing sources inside the cloud so the enthusiasm for spilling limit could be managed at any moment of your opportunity [9-14]. The ordinary kind of asset provisioning plan that is given by cloud suppliers is referred to as on-request plan. This arrangement of activity empowers the press content supplier to purchase sources upon required. The costs demonstrate that cloud suppliers utilize for that on-request plan's the compensation per-utilize. Another sort of gushing asset provisioning plans that is given by many cloud suppliers is subject to asset reservation [15,17,18]. The held spilling sources are basically the transmission capacity (gushing information rate) where the cloud supplier certifications to give to customers from the media content supplier in light of the required QoS. For the most part, the costs (taxes) from the reservation plan are less expensive than people from the on-request plan. We consider a costs show for asset reservation inside the cloud that is subject to non-straight line time-rebate levies. In this costs plan, the cloud organization offers more noteworthy unique rebates towards the sources held inside the cloud for broadened events [16,19,22]. Our essential commitment inside this paper is extremely a pragmatic - easy to apply - Conjecture-Based Resource Allocation recipe (PBRA) that limits the money related cost of asset reservation inside the cloud by maximally abusing reduced rates offered inside the levies, while verifying that adequate sources are held inside the cloud with a couple of level of trust in probabilistic sense. This kind of costs plan

A Review on Flow Control using Computer Networks

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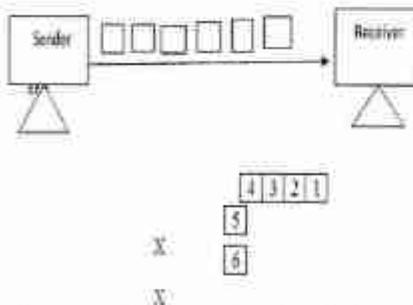


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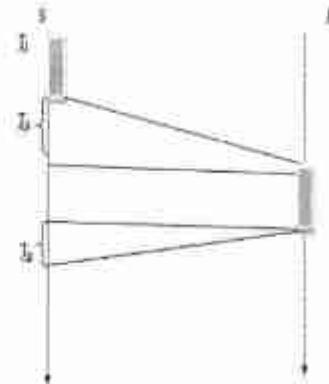


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A COST-EFFECTIVE PARADIGM FOR MULTIPLE INTERMEDIATE DATASETS USING UPPER-BOUND CONSTRAINT APPROACH

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Abstract-Cloud computing is an unique aspects of complicated security and privacy assert. In cloud providing security to the data is critical task, to overcome from this problem security principle is used to secure data, its applications and framework associated within the cloud computing automation. Without any infrastructure investment the intensive data applications generate more number of intermediate datasets, so that it saves the cost of computing. Now a day's privacy preserving of intermediate datasets is a demanding problem , so this problems may recover by analyzing multiple intermediate datasets from privacy-sensitive information. The data sets in cloud must be conserve privacy by using encryption and anonymization from the Existing approaches. Encrypted data on data sets is efficiently a difficult task, as most unencrypted data sets are running on existing systems. A proposed practical upper-bound searching algorithm is used to point out which data needs to be enciphered for preserving privacy while other datasets need not be enciphered. This approach can naturally decreases privacy-preserving cost over other approaches, which is favorable for the cloud users who employ services in a pay-at-sight.

Key words -Cloud Computing; Data Sets; Privacy Preserving; multiple Intermediate Dataset ;Enciphered.

I. INTRODUCTION

Cloud Computing is one of the important and useful technology compared to existing technologies, collected within a new framework hierarchy that offers improved extensibility, flexibility, business techniques, increased startup time , low administration costs, and at the last minute availability of resources. In Cloud computing storage users has more capacity to store and process the data in third force data centers. The benefactor must establish the framework secure and that their users data and applications are also protected. Cloud Computing specify to manage, construct and uses the hardware and software sources from anywhere. It offers online data storage, infrastructure and application. Security and privacy is a big challenging task in cloud computing. Data management and infrastructure managing in cloud is done by third-party, to handover sensitive information to the cloud user is always a critical job. Security structure is more only when the correct defensive executions are in the project. Fully homomorphism encryption and Searchable enciphered are used in encryption algorithm

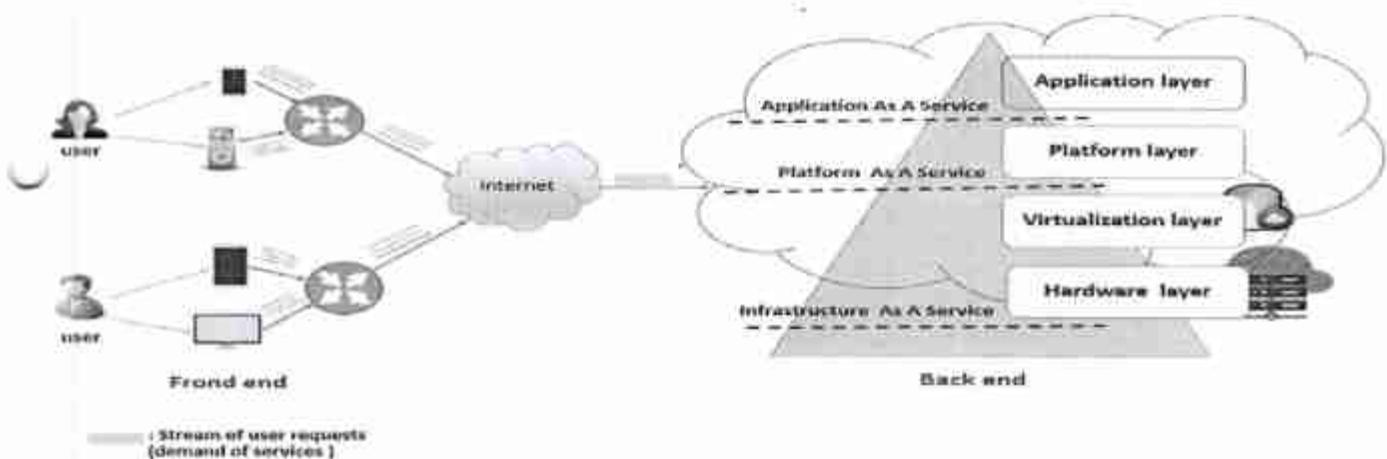


Fig.1: Cloud Computing Architecture

Fuzzy Identity-Based Encryption Data Service with Security Auditing in Clouds

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Abstract-Cloud computing is a form of distributed computing wherein resources and application platforms are distributed over the Internet through on demand and pay on utilization basis. There are many issues that counter data stored in the cloud starting from virtual machine which is the mean to share resources in cloud and ending on cloud storage itself issues. Cloud computing structure allows access to information as long as an electronic device has access to the web. In this technology users have to entrust their data to cloud providers, there are several security and privacy concerns on outsourced data. The cipher text will only be decrypted if each the time instant is within the allowed quantity and also the attributes related to the cipher text satisfy the key's access structure. The proposed scheme provides security and convenience for mobile users to access multiple mobile cloud computing services from multiple service providers using only a single

I. INTRODUCTION

Cloud refers to the network that provides services to network through internet. It is a model that enables the characteristics like on demand self-service, pay-as-you-use-service. National Institute of Standards and Technology defines cloud computing as a convenient, on-demand computing resources for storage services [1]. In addition, memory, processor, bandwidth and storage are visualized and can be accessed by a client using the Internet [2]. Cloud computing is composed of many technologies such as service oriented architecture, virtualization, web 2.0 and more. A cloud can be private or public. In public, cloud service can be sold to anyone on the Internet [3]. In private, cloud act as a proprietary network or hosted services are supplied to limited people through Data Centre. It may be Private or public the ultimate goal of cloud computing is to provide easy, scalable access to computing resources [4]. To fulfill this challenge, it is necessary to style a comprehensive resolution to support user-defined authorization amount and to produce fine-grained access management throughout to shared information to be self-destroyed once the user outlined expiration time [5]. As a result of the possession of the knowledge is separated from the administration of them, the cloud servers may migrate user's data to completely different cloud servers in outsourcing or

private key. Set Based Encryption, Fuzzy Identity-Based Encryption, Hierarchical Identity-Based Encryption, Hierarchical Attribute-Based Encryption and Hierarchical Attribute-Set Based Encryption for access control of outsourced data are discussed. Once User specified expiration, time the info are securely, self-destroyed scheme is secure beneath the choice 1-bilinear Diffie Hellman inversion assumption. From system implementation point of view, verification tables are not required for the trusted smart card generator (SCG) service and cloud computing service providers when adopting the proposed scheme.

Index Terms-Identity-based cryptography; Proxy public key; Remote data integrity checking; Sensitive data; secure self-destroying; Fine Grained Access Control.

share them in cloud wanting [6]. To check whether or not the outsourced files are kept intact, the file owner or an auditor can challenge the cloud server with low communication overheads and computation costs. If some part of the file has been altered or deleted [7]. The model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction [8].



Fig. 1: Schematic definition of cloud computing

II. RELATED WORK

Traceability, which means the ability for the group manager to reveal the identity of the signer based on verification metadata in some special situations and how to prove data freshness. Batch Auditing can be used to distinguish who is the signer on each block [9]. Currently employed a coverage graph to elucidate the connection among attributes and therefore the

MODELING AND ANALYSIS OF GANTRYCRANE WITH DIFFERENT MATERIALS USING FEM

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Abstract: A crane is lifting machinery, discontinuous movement aimed at raising and distributing loads in space, suspended from a hook. Cranes available in the market are grinder travelling crane, overhead travelling crane, jib cranes, wire rope hoist, and gantry cranes. The Gantry cranes are one of the most important mechanical components in the heavy weight lifting and loading in to cargos, into trains, in to heavy truck vehicles, etc. Different types of gantry cranes available in the industries are container cranes, workstation gantry cranes (or) light weight mobile gantry cranes and semi gantry cranes. These vase verity of gantry cranes are differed based on the tonnages and area to be covered for lifting and moving the weights

The workstation gantry crane is the most economical solution in all those places where it is desired or civil works or expensive fixed mount metal structures, and where necessary make loading (or) unloading on a regular basis and at points different.

In our project, first, three dimensional geometry of the workstation gantry crane is built in, CATIA. Then analysis of I-section beam, the part which is used to carry the loads in Gantry crane, is carried out by using finite element method in ANSYS software for different loads Apply on I section,clamp,hook and at different positions. Using materials in this project structural steel, 34CrMo4 Chrome steel, carbon steel 1020, AISI 4130.

We estimate the load bearing capacity of I-section beam by placing the loads at different positions i.e. (from left end of I-section, 1st position is 1300mm, 2nd position is 4300mm and 3rd position is 5300mm) and by observing von-missies stresses, Shear stress, and deflections generated from static analysis in ANSYS 14.5. finally concluded the suitable material on these 4 materials and which position and findout the deformations in different frequencies by using modal analysis

Keywords: CATIA, I-section beam , ANSYS, structural steel, 34CrMo4 Chrome steel, carbon steel 1020, AISI 4130.

1.1 DEFINITION OF CRANE: Lifting device, used to elevate or lower loads vertically and to move them horizontally while they are hanged It will be presented all types of cranes with their mainly characteristics. The classification will be done as follows

1.2 CRANES CLASSIFICATION AND CHARACTERISTICS

- 1.2.1 According to design.
- 1.2.2 According to movement possibilities.
- 1.2.3 According to the device control.
- 1.2.4. According to orientation possibilities.

1.2.1 ACCORDING TO DESIGN

1.2.1.1 JIB CRANE:

Revolver crane portal mounted
Revolver crane semi-portal mounted
Crawler mounted latticework boom crane

- a. Railroad crane
- b. Floating crane
- c. Crane vessel
- d. Derrick crane
- e. Slewing jib crane

1.2.1.2. BRIDGE CRANE

- i Overhead Bridge crane
- ii Gantry crane
 - a. Work station gantry crane
 - b. Semi-Gantry crane

1.2.2 JIB CRANE:

It will be explained bellow each of the devices mentioned in the above list and their Characteristics that will be explained bellow each off the devices mentioned in the above list and their characteristics It is a crane where the hoist is hanged from a boom or jib that moves along:

1.2.3 (A) REVOLVER CRANE PORTAL MOUNTED:

MODELING AND CRASH ANALYSIS OF CAR INTEGRAL FRAME USING FEM METHOD

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Abstract: The safety to driver and passengers is a major concern to every car manufacturer. For accomplishing this, new standards are being set for the safety of the occupant in different car scenarios like frontal head collision. The automotive chassis is the main load carrier and energy absorbing component in all crash events. In the modern world, fuel consumption also constituted as a serious issue that has to be considered. Keeping all these constrains in consideration, a light and strong material should be used in chassis. In current work, integral frame chassis has been designed with honeycomb structure using CATIA V5 software and was analyzed using a finite element analysis (FEA) program ANSYS. The current research provides a standard finite element analysis procedure for designing off road vehicle integral frame. A multi body dynamic crash analysis is an option to understand the exact behavior of the chassis for frontal collisions, to study the effect of speed (20,40,60 mph) of a vehicle. This report includes the creation of the safe design and material mater for dynamic impact analysis under different loading conditions finally will conclude the suitable design and material based on stresses, deformations, shear stresses.

Keywords: Car, Integral Chassis Frame, Honey Comb, Al6061, Carbon Fiber, Steel, Crash Analysis, CATIA V5, ANSYS.

1. INTRODUCTION

In automobile design, crash and structural analysis are the two most important engineering processes in developing a high quality vehicle. Computer simulation technologies have greatly enhanced the safety, reliability, and comfort, environmental and manufacturing efficiency of today's automobiles. This significant achievement was realized with the advanced software and powerful computers that have been available in the last twenty years. The primary concern for drivers and passengers is safety. Governments have responded to this key concern and expectation with an increasing number of regulations. Although the details may vary slightly from country to country, the fundamental requirements are almost similar. A vehicle is expected to provide adequate protection to drivers and passengers in a not so serious accident. To protect the occupants of a car, there are many new tangible safety features such as airbags, ABS control brakes, traction control. A less tangible feature that cannot easily be seen by drivers and passengers is the crash response behavior. In a well-designed automobile, the car body and various components are the protective layer for the occupants of the vehicle. They serve as the crumpling zone to absorb the energy of impact. The traditional approach involves multiple iterations of design, prototype and crash tests. The process is time consuming and expensive. The availability of high performance computers and crash simulation software has revolutionized the process. Instead of relying on experimental validations, the safety design process is supplemented with computer simulation to evaluate the design. Since the inception of crash simulation, the product cycle of a new automobile has been reduced by half and the resultant vehicle is safer, better and more comfortable.



Figure 1 Crashing of Two Cars

1.1 ROLE OF CHASSIS IN AUTOMOTIVES:

Every vehicle body consists of two parts; chassis and bodywork or superstructure. The chassis is the framework of any vehicle. Its principal function is to safely carry the maximum load for all designed operating conditions. It must also absorb engine and driveline torque, endure shock loading and accommodate twisting on uneven road surfaces. The chassis receives the reaction forces of the wheels during acceleration and braking and also absorbs aerodynamic wind forces and road shocks through the suspension. So the chassis should be engineered and built to maximize payload capability and to provide versatility, durability as well as adequate performance. To achieve a satisfactory performance, the construction of a heavy vehicle chassis is the result of careful design and rigorous testing.

It should be noted that this 'ladder' type of frame construction is designed to offer good downward support for the body and payload and at the same time provide torsional flexibility, mainly in the region between the gearbox cross member and the cross member

A Review on Effects of Mobile SIM Radiation

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Abstract - There is a rapid increase in the usage of mobile phones will implicitly effects on the human health and immune system. In today's world, we are living in the electromagnetic radiation field and runs on the 3G/4G technology. This paper discusses about the radiation emitted from the mobile handsets and clear distinction about the ICNIRP guidelines strictly followed by the mobile operators. It also concerns with the public health, causes and effects of mobile radiation on public health. There are no scientific evidences which prove that these radiations from mobile handsets will harm to human till now. But this paper can give a review on the studies of human health and mobile radiation. In this paper we aim to provide review of some studies that concentrate on the biological effects of mobile radiation on the human health, particularly brain and human immune system in a network of mobile users. Our conclusion shows that long term exposure to the electromagnetic radiations in a network will cause long term adverse effects on the human life

Keywords - Electromagnetic Radiation(EMR), Radio Frequency Radiation(RFR), ICNIRP

I. INTRODUCTION

Mobile communication technology usage has been quickly develop internationally in the last 10 decades, which has ensued in concern of public about the harmful health effect of Electromagnetic (EM) radiation that are discharged by cell phones. As per statistics, depicts that the total number of smart phone users worldwide increasing day-by-day. Now it is forecast to reach 2.1 billion, as it grows 5 billion in 2020. People spent their most of the time with the mobile phone handsets. As it is considering as a public health issue, ICNIRP set some guidelines to the mobile users. Electromagnetic waves generated by mobile phone network systems which emit invisible radiation. The Sources of Electromagnetic waves from Mobile Phone Base Stations (BTS) and Mobile Phone Handsets. Mobile phones, sometimes known as cellular phones or handsets, form an integral part of modern telecommunications and are fast becoming a social lifestyle. In some parts of the world, they are the most reliable or the only phones available. In others, mobile phones are very popular because they allow people to maintain constant and continuous communication without hampering their freedom of movement. The individual mobile phone operates by communicating with a fixed installation known as a base station or a telecommunications structure. Since the mobile phone and its base station is a two-way radio, they produce radiofrequency (RF) radiation as a means of communicating and expose the people near them to RF radiation. The radiation emitted by EMF

depends on several factors like temperature and humidity which influences the EM radiations. In the crowded places, the temperature predicts to be slightly greater than the normal room temperature because of less humidity. In places like classrooms, movie halls, work places, many IT industries etc. The radiation from Mobile phone Base stations (BTS) or mobile towers which affect birds [1]. The radiation emitted from mobile phone communication technology is a non ionizing radiation. Increase in the usage of growth of smart phones and using more than two Sims in the mobile handsets. As of Today, most of the mobile users use a dual SIM which leads to increase in radiation emission by almost a factor of 2X as compared to single SIM. Mobile operators use radiofrequency waves in the range up 300MHz-3GHz that can be harmful to human body. Millions of people around the world use mobile phones as a communication tool every day. Base stations or telecommunication towers are continuously being erected. Because of this, scientists worldwide are concerned about the potential health risks associated with the use of this device. Even small adverse effects on health could have major public health implications. Mobile Phone handsets acts like low-powered radio frequency transmitters, when it is powered on, then it starts to receive the radio frequencies. operating at 0.2 watts of power. There are no issues when the devices are operating at 10-30 cm distance away from the human body. While the physical effects of non-ionizing radiation is negligible on the human health. There are no proven facts that RF radiations will cause cancer [2] and effects on human health. Doctors, Public health specialists and many society groups believe that prolonged exposure to radio frequency radiation can cause DNA damage, reduce sperm count, increase memory loss and risk of even cause cancer. So the regular mobile phone user will have a risk in high exposure to these radiations. The main interest for this project is to measure the mobile signal radiation from the Mobile phone handsets, which are mostly close to the residential area covering the GSM bands of 0.9GHz, 1.8GHz, 2.1GHz, and 2.5GHz.

II. LITERATURE SURVEY

Electromagnetic radiation consists of electromagnetic waves, which are synchronized oscillations of electric and magnetic fields that propagate the speed of light. The radiation is of two types: Ionizing Radiation (UV rays, gamma rays, X-rays, cosmic rays) and Non- ionizing Radiation (Above Visible light, Radio waves, Micro Waves, Infrared rays etc.) The effects of non- ionizing radiation which is discussed in this paper is negligible. But the prolonged exposure to the radiation will affect the human life. Cell phones use non-ionizing radiation, which doesn't

A Model to Detect and Minimize of Mobile Radiation using IoT

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Abstract - Smart phones became a prominent part of everyday work and personal life. The Smartphone users range worldwide is increasing day-by-day. Currently, individuals of all ages using smart phones with web connectivity. The use of internet and data communication is growing with a great extent. However, this massive culture shift in personal technology delivers an endless stream of information that negatively impacts us psychologically – being coupled to feeling anxiety, stress, concentration, sleep etc. There are a lot of established facts that the radiation emitted from the portable phones and antennas can negatively impact on human health. There are some long term adverse effects with a long time exposure to mobile phone radiation. Mobile phone operates at different frequencies using Electro-magnetic waves which are responsible for effective communication. These waves have several effects on the human body as well as our daily lives. The effects of electromagnetic waves cause several issues and diseases in the human body like cancer. As of now, the type of cancer caused by these waves has enlarged, because mobile users have increased. Owing to the importance of human life, this paper will address how humans are exposed to mobile SIM radiation among the huge number of users. The proposal consists of an automatic system which detects radiation from a group of Mobile SIM users and provides a solution to minimize the radiation.

Keywords - EM (Electromagnetic) Radiation, ICNIRP, RF Radiation Detector, Mobile Jammer

1. INTRODUCTION

With the advancement of technology and innovation, most of the things are connected to the web around the world. The Internet of Things helps us in developing most of the applications for human lives and provides more over comfort. Over the years, mobile communication has evolved from the primary generation (1G) to the fourth generation (4G) mobile systems. The tiny size, ease of use and class of GSM mobile phones are the key reasons why it's dominated the telecommunication market around the world. At the present state of mobile phone deployment and therefore the annual increase within the variety of individuals that are using them, billions of individuals are exposed to radiation from mobile phones around the world. The number of Smartphone users worldwide is foreseen to grow by one billion during a time span of five years, which suggests the number of Smartphone users within the globe is foreseen to achieve a pair of 0.7 billion by 2019. As per the stats, the

typical mobile phone user checks their device 47 times on a daily basis. 85th of individuals check their phones while speaking with friends and family. Increase in the usage of growth of smart phones and using more than 2 Sims in the mobile handsets. As of nowadays, most of the mobile users use a twin SIM that ends up in a rise in radiation emission by virtually a factor of 2X as compared to one SIM. Mobile operators use radiofrequency waves within vary of 300MHz-3GHz which will be harmful to the human body [1]. Many surveys and scholars concluded in their findings that radiation emitted by mobile phone handsets is harmful to the human lives. Long time exposure to this kind of mobile phone radiation will have negative impact on a psychological behaviour of the human. Many Experimental results reveal that, when the number of radiating sources increases the amount of emitted radiation also increases [2]. Electromagnetic wave emitted by mobile phone handsets depends on many factors like temperature and humidity, its wavelength etc. based on the temperature and humidity, the EM waves that emit some kind of radiation. Therefore, it's required to extract the worth of electrical (E) -field (volts/meter) from the individual frequency parts of the GSM bands like 0.9 GHz, 1.8 GHz, 2.1 GHz, and 3.5 GHz to be compared with ICNIRP level. Our goal is to provide a safer environment by minimizing the radiation which impacts the human kind. The proposal system minimizes the impact of radiation on human health by limiting mobile phone usage. Therefore, the most interest for this project is to live the mobile signal from the base stations, are principally near to the community covering the GSM bands of 0.9 GHz, 1.8 GHz, 2.1 GHz, and 3.5 GHz. This paper describes that the project is completed beneath the subsequent modules:

1. Design the RF detector system that receives the mobile operative frequencies and changing to DC voltage.
2. Interfacing the detector system to the microcontroller and wifi-shield.
3. Design and transfer the software onto the cloud platform so as to observe the RF values.
4. Calculate the typical frequencies with regard to temperature and limitation values.
5. Decreasing operative performance on the mobiles with respect system limitations.
6. Design and develop a graphical interface to watch the projected system performance.

Problem Statement - Radiation emitted from many mobile Sims from crowded areas like colleges, film theatres, and

PHYLOGENETIC TREE CONSTRUCTION FOR HIGHLY CONSERVED MITOGEN ACTIVATED PROTEIN KINASES

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ABSTRACT - Mitogen activated protein kinases (MAPKs) are stimulated by a large variety of signals, including mitogens, growth factors, cytokines, T-cell antigens, pheromones, UV and ionizing radiations, osmotic stress, heat shock and oxidative stress. They participate in the generation of various cellular responses, including gene transcription, induction of cell death or maintenance of cell survival, malignant transformation, and regulation of cell-cycle progression. MAPKs are involved in the action of most nonnuclear oncogenes and responsible for cell response to growth factors. MAPK pathway has been shown to play a pivotal role in diverse dental diseases, including chronic pain, and periodontal diseases. In this work, an attempt has been made to determine the participation of particular MAPK in one specific pathway. Various computational analysis tools such as Clustal W, phylogenetic tree re-construction, PDB, Phosphosite etc were utilized and based on evolutionary relationships, identification of phosphorylated sites and comparison of active site residues, the specificity of MAPK 1 and 3 in growth factor pathway, MAPK 8,9,10 in stress and MAPK 11,12,13 in inflammatory pathway are emphasized.

Keywords: MAPK, Pathway, Phosphorylation, active site residues

1. INTRODUCTION

The Mitogen-activated protein kinase (MAPK) family belongs to the eukaryotic protein kinase super family. MAP kinases were identified by virtue of their activation in response to growth factor stimulation of cells hence the name mitogen activated protein kinases [1-3]. The transmission of extracellular signals into their intracellular targets is mediated by a network of interacting proteins that regulate a large number of cellular processes. Cumulative efforts from many laboratories over the past decade have allowed the elucidation of one such signaling mechanism, which involves activations of several membranal signaling molecules followed by a sequential stimulation of several cytoplasmic protein kinases

collectively known as mitogen- activated protein kinase (MAPK) signaling cascade [4-5]. Another physiological response that appears to be regulated through the MAPK signaling pathway is cellular differentiation. Different members of the MAPK cascade have been implicated in processes such as monocytic differentiation, neutrite outgrowth of PC12 cells, T cell maturation, and mast cell development. The activity of most MAPK's is stimulated by a large variety of signals, including mitogens, growth factors, cytokines, T cell antigens, pheromones, phorbol esters, UV and ionizing radiation, osmotic stress etc [6-7].

Mitogen-activated protein (Map) kinases are widely expressed serine-threonine kinases that mediate important regulatory signals in the cell. Three major groups of Map kinases exist: the p38 Map kinase family, the extracellular signal-regulated kinase (Erk) family, and the c-Jun NH₂-terminal kinase (JNK) family. The members of the different Map kinase groups participate in the generation of various cellular responses, including gene transcription, induction of cell death or maintenance of cell survival, malignant transformation, and regulation of cell-cycle progression. Extracellular information perceived at the surface of a cell must be translated into an intracellular response that involves a complex network of interwoven signalling cascades. These signalling events ultimately regulate cellular responses such as proliferation, differentiation, secretion and apoptosis [8-10]. In general phosphorylation either activates or inactivates a given protein to perform a certain function. Protein kinases and phosphatases are responsible for determining the phosphorylation state of cellular proteins in the subcellular localization and activity of kinases and phosphatases have consequences for normal cell function and maintenance of cellular homeostasis [11]. Over the last few years, extensive work by several groups has established that Map kinase pathways play critical roles in the pathogenesis of various hematologic malignancies, providing new molecular targets for future therapeutic approaches [12].

Efficient method for segmentation of noisy and non-circular iris images using improved particle swarm optimisation-based MRFCM

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Abstract: Segmentation of the iris is a crucial stage in an automated iris-based recognition system. The performance of any biometric system primarily relies on how effectively the iris is extracted from the unwanted parts of an iris image. The process of iris segmentation is mainly affected by the noise artefacts such as eyelid/eyelashes occlusions, specular reflections, intensity inhomogeneities, and non-circularity of the iris boundary. A novel and an efficient method has been proposed in this work to segment noisy and non-circular iris boundaries. The mathematical modelling of morphological reconstruct fuzzy C-means clustering (MRFCM) has been presented. The MRFCM based on improved particle swarm optimisation has been implemented before the segmentation in the recognition framework. The resultant images are then segmented by employing geodesic active contours incorporated by a new stopping function. The effect of the proposed segmentation method on iris recognition is observed through matching score distribution. The popular and publicly available datasets such as UBIRISv1, CASIA-v3-Interval, MMU1, and Mobile Iris Challenge Evaluation databases are considered for the evaluation of the proposed method. Recognition accuracy is validated and compared with the well-existing methods.

1 Introduction

The iris is a robust biometric attribute for recognition of individuals due to its richness and stability of the iris patterns. The noisy imaging, non-circular iris boundaries, eyelashes, and eyelids occlusion, specular reflections, off-axis gaze etc., make the recognition inefficient [1]. Thus, the recognition accuracy primarily depends on how effectively the iris is extracted from the unwanted parts of an iris image.

Even though many approaches have been proposed by various authors in the literature, there is still scope for enhancement in the robustness and efficiency of the algorithms. Table 1 shows several existing iris segmentation methods in the recognition pipeline. Most of the authors proposed methods based on the hypothesis that the limbic and pupillary boundaries are circular.

Daugman [2] and Wildes [10] proposed the integro-differential operator (IDO) and Hough transform (HT) segmentation algorithms, respectively, that are widely used for ideal iris image databases. Another method proposed by Daugman [1], employ

active contours and generalised coordinates to detect the iris boundaries. Active contours are employed to detect non-circular boundaries. It offers efficient recognition on non-ideal image databases. Roy *et al.* [3] presented a model for segmentation of non-ideal iris databases. Employed edge-based level set curve evolution for segmentation of inner boundaries and Mumford Shah segmentation model for outer boundaries.

Another fascinating technique proposed by Shah and Ross [4], which employs geodesic active contours (GACs) to find both the pupil and limbic boundaries. The GACs have an advantage that they can localise objects in spite of their shapes and can segment multiple objects simultaneously. Two-dimensional (2D) Gabor filters and hamming distance are then employed for encoding of iris and matching, respectively.

Clustering is just another means to partition objects in an image into several distinct components for further processing. Among the segmentation technologies available in the literature, clustering (grouping) is one of the extensively used technique for segmentation because of its effectiveness and rapidity [14].

Table 1 State-of-the-art iris segmentation methods

Authors	Pre-segmentation	Iris segmentation
Daugman [1]	—	active contour and generalised coordinates
Daugman [2]	—	IDO
Roy <i>et al.</i> [3]	—	level set methods
Shah and Ross [4]	—	GACs
Sahmoud and Abuhaiba [5]	K-means clustering	CHT
Li <i>et al.</i> [6]	—	RANSAC
Hilal <i>et al.</i> [7]	—	HT and active contours
Li and Ma [8]	—	edge detection-based HT
Bouaziz <i>et al.</i> [9]	multilevel thresholding based on artificial bee colony metaheuristic	IDO and CHT
Wildes [10] and Masek and Kovsi [11]	—	edge detection-based HT
Satish <i>et al.</i> [12]	PSO-based FCM	GACs and HT
Satish and Rajesh Kumar [13]	IPSO-based Otsu	GACs with a modified stopping function
proposed approach	MRFCM based on IPSO	GACs and HT

Performance analysis of Tri-Gate SOI FinFET Structure with various fin heights using TCAD Simulation

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Abstract This work mainly focuses on the performance analysis of Tri-Gate SOI FinFET using Sentaurus TCAD simulation. Various simulations are performed on the scaling parameters like Fin width, Fin height and to determine the performance of proposed structure in terms of off current (I_{off}), saturation current (I_{sat}) and Sub-threshold Swing (SS). All the simulations are done through a 3D numeric simulator Sentaurus TCAD. The results show for impact of different fin heights and Fin width is 5nm have I_{sat} , I_{off} , threshold voltage and SS are analysed, which is more suitable for low power circuit applications.

Keywords: Tri-Gate SOI FinFET, TCAD simulation, Fin width, Fin heights, Sub-threshold Slope (SS).

1. Introduction

Advancement in IC technology has to follow the shrinkage in transistor dimensions in order to keep pace with Moore's law, new materials and new techniques over gate controlling of the channel was proposed. Device scaling has brought considerable changes in conventional MOS structures so that additional downscaling leads to suffering from short channel effects in the present MOS Technology. Single gate MOSFETs were substituted by double gate structures due to their better electrical control over the channel [2]. Thin body and Silicon-On-Insulator (SOI) substrates rather provided better results in terms of leakage current, thus replacing conventional bulk substrates [3]. To address the boundaries of MOS transistor, FinFET Technology concerned a lot of attention as a substitute device which possibly outperforms with the nano meter dimensions.

FinFET stands for "Fin" shape Field Effect Transistor. It is a switching device. FinFET has multiple gates and three dimensional structure. The gate is deposited wraps around the channel (fin) to appearance the triple gate structure. As the channel is particularly thin gate has better control over the carriers within it causing reduced short-channel effects like sub threshold leakage, Drain-Induced-Barrer Lowering (DIBL), etc.

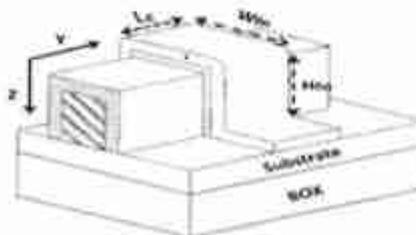


Figure 1. Schematic view of Tri-gate SOI FinFET

Experimental Investigation on Performance and Emission characteristics of DI Diesel Engine using Canola oil as Bio-diesel fuel

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Abstract

Experiments are carried out to study performance and emission characteristics of a diesel engine fuelled with diesel fuel, a Canola Biodiesel and its blends 10% by volume (BD10), 20% (BD20), 30% (BD30), 40% (BD40), 50% (BD50) and 100% (BD100). Tests have been conducted on four stroke, single cylinder, vertical, water cooled, cold start, compression ignition high speed diesel engine with different loading conditions at a constant speed of 1500 rpm. The results are presented in the form of Brake specific fuel consumption, mechanical efficiency, brake thermal efficiency and emission characteristics of CO, CO₂, UHC and NO_x. From the results it is observed that BD10, BD20, BD100 biodiesel blends given better Brake specific fuel consumption, mechanical efficiency, brake thermal efficiency than pure diesel. HC, CO, CO₂ emissions are lower for BD10 and BD20 blends and NO_x emissions are lower for BD100 except at 20% load. Also HC, CO₂, NO_x emissions are lower for pure biodiesel (BD100) compared to pure diesel and a reverse behavior is observed with respect to CO emissions. The results revealed that the Canola biodiesel showed comparable performance and can be a good replacement to diesel fuel.

Keywords: Biodiesel, Canola oil, Blending, DI diesel engine, Performance, Emissions.

1. Introduction

Biofuels are drawing increasing attention worldwide as substitutes for petroleum-derived transportation fuels to help address energy cost, energy security and global warming concerns associated with liquid fossil fuels. The term biofuel is used here to mean any liquid fuel made from plant material that can be used as a substitute for petroleum-derived fuel. Biofuels can include relatively familiar ones, such as ethanol made from sugar cane or diesel-like fuel made from soybean oil, to less familiar fuels such as dimethyl ether (DME) or Fischer-Tropsch liquids (FTL) made from lingo cellulosic biomass.

In addition, biodiesel has very low sulphur content and high flash and fire points than the diesel fuel, hence it is very environment friendly and safe to operate. A lot of research work revealed that biodiesel can be used as an alternate fuel for diesel engine without any modifications in the existing engine.

V. Amosu and S.K. Bhatti performed the investigations on performance and emissions characteristics of DI diesel engine operating with Rapeseed methyl ester (RME) and concluded that RME blends were good alternative for diesel without

modifications in the Engine. The Brake Thermal efficiency decreases with increase in percentage of RME. The Brake Thermal efficiency of RME B20 at full load is 42.38% which is slightly lower than the diesel fuel. The exhaust temperature for diesel fuel and RME B20 was comparable. The NO_x emissions of RME B20 higher than the diesel fuel due to high oxygen content. The CO and CO₂ emissions of RME blends were comparable with the Diesel fuel. Hydrocarbon emissions were low for all RME blends and ranges between 4 and 16 ppm.

M.Harinathareddy *et al* conducted experimental investigations on 4-stroke, Single cylinder Diesel engine to know the performance of the engine using Cotton Seed Oil (CSO) Methyl ester as alternate fuel at full load conditions. Comparisons of CSO with Diesel and Jatropha biodiesel were made and concluded that brake thermal efficiency and indicated thermal efficiency of CSO biodiesel was slightly higher than that of diesel fuel and Jatropha oil. The study revealed that the use of cotton seed biodiesel oil improves the performance parameters of CI engine compared with pure diesel.

Experimental tests were carried out by ShyamPandey *et al* to study the performance and emissions of DI engine fuelled with Ethanol, Diesel and Jatropha based Biodiesel blends. The blends used for

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Rainfall Prediction using Bpnn

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Abstract—Gauge of precipitation and ground water of an express area will assist water aid executives to preference the application of water and limit of water. The records for envisioning organized in time direction of movement i.e., functions that helps for parent are yr, month, common precipitation, ground water level. For this conjecture lower back expanded neural frameworks with widely appealing weight replace at n-degree disguised layer changed into made to constrain the bungle fee and enhance the preference. Our system engaged with information estimate and statistics discernment challenge to mining process. for purchasing ANN based figure with APRIORI-NN based totally portrayal method become taken into consideration to widen and assist water aid chiefs.

Keywords: Rainfall, Prediction, NARX neural network, feed forward, back propagation.

I. INTRODUCTION

preferably, we could utilize a mass equalization to compute groundwater tiers using Mass in = Mass out + stockpiling, but for all intents and purposes, we will simply gauge global mass motions from estimations taken at discrete regions at discrete activities. Precipitation, energize from drift and lake levels and subsurface streams carry mass (water) into the framework, and evapo-transpiration, withdrawals (well siphoning), launch to streams, and subsurface streams take mass (water) out of the framework. In an unconfined aquifer, the adjustment away inside the aquifer is spoken to through alternate in groundwater desk as anticipated with the aid of piezometers. The alternate in groundwater desk upward push is a sort of instantly potential of quantity positioned away, contingent upon aquifer geometry.

inside the subject of hydrology, models of subsurface water streams usually require records or estimation of the hydrologic parameters of the bowl. The pressure pushed conductivity and porosity of a dirt signify how water will pass via the subsurface, but those parameters are hard to decide experimentally; it requires careful three-dimensional getting to know of the subsurface. on this way most hydrologic fashions gauge the powerful water powered conductivity and porosity from commonly few soil assessments. This paper will enterprise to display groundwater tiers with no unequivocal facts of the dirt parameters of the bowl. via making prepared an AI version, the parameters and masses will verifiably speak to the effective soil parameters of the bowl. in place of bowl soil

parameters, the contributions for the AI version for this paper will include each day weather, lake degree, and stream information.

II. LITERATURE EVALUATE

Neha Khandelwal et al. [8] displayed a MLR situation to foresee precipitation utilizing 4 numerous climatic variables for Jaipur town, Rajasthan, India, for selecting the ones entertainers the writer implemented Pearson connection coefficient and in a while make use of the final results to determine the dry spell plausibility. In her paintings, she applied Jaipur precipitation dataset that is collect from the India Meteorological branch and implemented normal temperature, gasoline outflow, weight, winds heading, wind speed. within the wake of doing whole investigation of the data they separate beneficial information for the exam sector due to the fact there are this form of large range of additives that have extra noteworthy effect at the environment. simply so they put off a few climatic elements.

Folorunsho Olaiya [9], explore the usage of facts mining tactics in figuring out precipitation, maximum hot temperature, vanishing and wind pace. This paintings he completed making use of artificial Neural community and decision Tree calculation. He carried out meteorological records collected someplace within the range of 2000 and 2009 from the city of Ibadan, Nigeria. In his artwork he implemented C5 desire tree order calculation to create desire tree and guidelines for characterizing climate parameter viz. most extreme and least temperature, precipitation, vanishing, wind velocity as a long way as month and 365 days. His works display how this parameter has impacted the climate visible in the ones months over the research time frame.

Paras et al. [10] built up the version for weather gauging. They said it is straightforward in mild of the fact that it makes use of number one numerical circumstance. The recorded climate information that's time association records, of a selected station. They predicted greatest and least temperature, relative stickiness. Relative dampness likewise expected utilizing time arrangement of maximum immoderate and least temperature and precipitation. model is acquired from MLR situation and the coefficient of these relapses has been implemented to assess the destiny climate conditions. His version demonstrates that the assessed consequences are tasteful.

P. Hemalatha [11], carried out choice tree order plan to predicate the climate forecast for direction of supply making use of international Positioning device (GPS). GPS enables in spotting the area wherein the deliver is as of now

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An Effective Security Verification Model for Big Data by using potent key length for real time systems

J.S.V.G.Krishna, M.Venkateswara Rao, Kattupalli Sudhakar

Abstract: Applications in chance basic areas, for example, crisis administration and mechanical control frameworks require close ongoing stream information preparing in huge scale detecting systems. The key issue is how to guarantee online end-to-end security (e.g., secrecy, respectability, and realness) of information streams for such applications. We allude to this as an online security confirmation issue. Existing information security arrangements can't be connected in such applications as they can't manage information flows with high-volume and high-speed information continuously. They present a critical buffering delay amid security confirmation, bringing about a necessity for an extensive cradle estimate for the flow preparing server. To tackle this issue, we propose a Dynamic Key-Length-Based Security Framework (DLSeF) considering a common key got from synchronized prime numbers; the key is progressively refreshed at short interims to frustrate potential assaults to guarantee end-to-end security. Hypothetical investigations and test aftereffects of the DLSeF structure demonstrate that it can altogether enhance the proficiency of handling stream information by decreasing the security confirmation time what's more, support use without trudging off security.

Key Words: Sensor systems, enormous information stream, key trade, proficient, security, time-synchronization

I INTRODUCTION

An assortment of uses, for example, crisis administration, SCADA (Supervisory Control and Data Acquisition), remote wellbeing checking, media transmission misrepresentation identification, and extensive scale detecting systems, require ongoing handling of information streams, where the conventional store-and-process strategy misses the mark regarding the test. These applications have been portrayed as creating fast, continuous, delicate, and expansive volume information input, and in this manner a new worldview of information preparing. The information in these applications comes in the enormous information classification, as its size is past the capacity of normal database programming apparatuses and applications to catch, store, oversee, and examine progressively.

The four Vs reflect the nature of information process and the examining of such data must be carried out in the following formats:

- a) Information aging

- b) Distinguished Information in hazardous applications
- c) Information Sustainability
- d) Information Flexibility to embrace heterogynous data

Stream preparing motors offer two noteworthy points of interest. To start with, they go around the store extensive volumes of information, and second, they empower ongoing calculation over information as required by developing applications, for example, crisis administration and modern control frameworks. Further, combination of stream preparing motors with versatile distributed computing assets has additionally altered huge information stream calculation as stream handling motors can presently be effectively scaled because of changing volume and speed. Even though stream information preparing has been contemplated lately inside the database inquire about group, the emphasis has been on inquiry handling circulation and information combination. Information security-related issues, be that as it may, have been disregarded.

Numerous rising danger basic applications, as talked about before, need to process huge gushing information while guaranteeing terminal-terminal security. For instance, consider crisis administration applications that gather soil, climate, and water information through field detecting gadgets. Information from these detecting gadgets are prepared progressively to identify crisis occasions, for example, abrupt flooding and avalanches on railroads and interstates. In the applications, bargained information can prompt wrong choices and now and again even loss of lives and basic open foundation. Thus, the issue is the way to guarantee end-to-end security (i.e., privacy, respectability, what's more, credibility) of such information streams in close constant preparing. We allude to this as an online security confirmation issue.

The complexity here is handling of millions of the information by testing and subjecting them through self arranging via established processed information. The sensors is another aspect which can restrict the handling of the forced data, stockpiling, vitality etc., the prerequisite is to create a premier security information through various plans by addressing them via security check of streams of data, cryptographic strategies based on topsy-turvy and symmetric key encryption etc., The un balanced key encryption plays out various exponential tasks.

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Rainfall Prediction using Bpnn

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Abstract—Gauge of precipitation and ground water of an express area will assist water aid executives to preference the application of water and limit of water. The records for envisioning organized in time direction of movement i.e., functions that helps for parent are yr, month, common precipitation, ground water level. For this conjecture lower back expanded neural frameworks with widely appealing weight replace at n-degree disguised layer changed into made to constrain the bungle fee and enhance the preference. Our system engaged with information estimate and statistics discernment challenge to mining process. for purchasing ANN based figure with APRIORI-NN based totally portrayal method become taken into consideration to widen and assist water aid chiefs.

Keywords: Rainfall, Prediction, NARX neural network, feed forward, back propagation.

I. INTRODUCTION

preferably, we could utilize a mass equalization to compute groundwater tiers using Mass in = Mass out + stockpiling, but for all intents and purposes, we will simply gauge global mass motions from estimations taken at discrete regions at discrete activities. Precipitation, energize from drift and lake levels and subsurface streams carry mass (water) into the framework, and evapo-transpiration, withdrawals (well siphoning), launch to streams, and subsurface streams take mass (water) out of the framework. In an unconfined aquifer, the adjustment away inside the aquifer is spoken to through alternate in groundwater desk as anticipated with the aid of piezometers. The alternate in groundwater desk upward push is a sort of instantly potential of quantity positioned away, contingent upon aquifer geometry.

inside the subject of hydrology, models of subsurface water streams usually require records or estimation of the hydrologic parameters of the bowl. The pressure pushed conductivity and porosity of a dirt signify how water will pass via the subsurface, but those parameters are hard to decide experimentally; it requires careful three-dimensional getting to know of the subsurface. on this way most hydrologic fashions gauge the powerful water powered conductivity and porosity from commonly few soil assessments. This paper will enterprise to display groundwater tiers with no unequivocal facts of the dirt parameters of the bowl. via making prepared an AI version, the parameters and masses will verifiably speak to the effective soil parameters of the bowl. in place of bowl soil

parameters, the contributions for the AI version for this paper will include each day weather, lake degree, and stream information.

II. LITERATURE EVALUATE

Neha Khandelwal et al. [8] displayed a MLR situation to foresee precipitation utilizing 4 numerous climatic variables for Jaipur town, Rajasthan, India, for selecting the ones entertainers the writer implemented Pearson connection coefficient and in a while make use of the final results to determine the dry spell plausibility. In her paintings, she applied Jaipur precipitation dataset that is collect from the India Meteorological branch and implemented normal temperature, gasoline outflow, weight, winds heading, wind speed. within the wake of doing whole investigation of the data they separate beneficial information for the exam sector due to the fact there are this form of large range of additives that have extra noteworthy effect at the environment. simply so they put off a few climatic elements.

Folorunsho Olaiya [9], explore the usage of facts mining tactics in figuring out precipitation, maximum hot temperature, vanishing and wind pace. This paintings he completed making use of artificial Neural community and decision Tree calculation. He carried out meteorological records collected someplace within the range of 2000 and 2009 from the city of Ibadan, Nigeria. In his artwork he implemented C5 desire tree order calculation to create desire tree and guidelines for characterizing climate parameter viz. most extreme and least temperature, precipitation, vanishing, wind velocity as a long way as month und 365 days. His works display how this parameter has impacted the climate visible in the ones months over the research time frame.

Paras et al. [10] built up the version for weather gauging. They said it is straightforward in mild of the fact that it makes use of number one numerical circumstance. The recorded climate information that's time association records, of a selected station. They predicted greatest and least temperature, relative stickiness. Relative dampness likewise expected utilizing time arrangement of maximum immoderate and least temperature and precipitation. model is acquired from MLR situation and the coefficient of these relapses has been implemented to assess the destiny climate conditions. His version demonstrates that the assessed consequences are tasteful.

P. Hemalatha [11], carried out choice tree order plan to predicate the climate forecast for direction of supply making use of international Positioning device (GPS). GPS enables in spotting the area wherein the deliver is as of now

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Application of Fuzzy K-Means (FKM) Algorithms in Identifying Better Clusters of Few Drugs from Drugbank Database

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Abstract—The fuzzification of the cluster configuration is referred as Fuzzy K-Means (FKM) where the algorithm generates limited homogeneous clusters. The data points are assigned respective clusters in accordance to the membership degrees within interval [0,1]. Several variations of FKM algorithm were applied in identifying better clusters of few drugs data set derived from DrugBank database as possible GSK-3 beta inhibitors defined against diabetes. Better clusters were evaluated based on cluster balance and membership degree plots. With $k=3$, observation of cluster balance and membership degree plots revealed that FKM with entropy is the best method of choice with equal assignment of objects and no ambiguous assignments. The membership degree plot resulted in a good fuzzy clustering result where only 3 points appeared between membership degrees of 0.6 to 0.8

Keywords— fuzzy k-means, FKM, clustering, GSK-3 beta, cluster balance, membership degree

1. INTRODUCTION

Generalization of partition clustering is done by fuzzy clustering as it allows partial classification of an object into clusters > 1 [1]. In fuzzy clustering, the membership is spread among all clusters. Fuzzy k-means (FKM) clustering algorithm has received attention by several researchers [2] [3]. The FKM algorithm generates limited number of homogeneous clusters. Depending on the membership values which lay between the range (0 and 1) the objects are assigned to their respective clusters. This is referred as a fuzzification. The constraint for the memberships is that they should be non negative. The sum of membership values for an object should be one. Here, the constraints of memberships are same. These constraints appear as probabilities of objects to belong to particular group [4]. The fuzzy clustering has a merit of not forcing all objects into a specific cluster [5]. The most difficult tasks in cluster analysis is the selection of appropriate number of clusters. In fuzzy clustering, the coefficients are used along with silhouette scores. The fuzziness in a solution is measured by Dunn's partition coefficient which processes how close the fuzzy solution is to the corresponding hard solution. This is formed by classifying each object into the cluster which has the largest membership value [6].

The classical k-means algorithm is capable of discovering hard clusters where an observation belongs to only one cluster so that the objects of the same cluster are similar and different clusters are dissimilar, whereas the Fuzzy K-Means is more statistically inclined method which results in soft clusters where a particular observation has probability to appear in more than one cluster. The k-means algorithm is widely presented in many cluster dataset problems and gained more efficiency, however, a variety of modifications to classical k-means have been proposed and developed. Among them, FKM is more popular, originally proposed by Ruspini [7] and modified by Bezdek [8]. The k-means algorithm is an example for hard clustering, whereas FKM results in soft clustering.

In this paper, we report the several variations of FKM algorithm, were applied, in identifying better clusters of few drugs data set derived from DrugBank database as possible GSK-3 beta inhibitors defined against diabetes.

2. MATERIALS AND METHODS

2.1 DATASET

The top 13 drugs reported as better GSK-3 beta inhibitors in our previous study were selected as dataset.

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An Efficient Method for Segmentation of Noisy and Non-circular Iris Images Using Optimal Multilevel Thresholding

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Abstract - The richness and stability of the iris patterns make it a robust biometric attribute for recognition of individuals. Segmentation of the noisy and non-circular iris images is a challenging task now a day. In this paper, a new approach has been proposed to isolate iris from the unwanted portions of eye images. An evolutionary algorithm Improved Differential Search (IDS) based Otsu multilevel thresholding (OMT) has been introduced as a pre-segmentation process in the iris recognition framework. The resultant images are then segmented using Geodesic Active Contours (GAC) incorporated by a novel stopping function. The experimental results are validated by comparing the proposed method with the well existing methods. The proposed method has been tested on the databases that are available publicly such as CASIA v3 Interval, UBIRISv1, and MMU1.

Keywords: Integro-Differential Operator, Optimal multilevel thresholding, Differential search algorithm (DSA), iris segmentation, Circular Hough Transform.

1. Introduction

Segmentation is the crucial stage in any biometric authentication because the presence of noise such as specular reflections, occlusions of eyelid/eyelash, inhomogeneities in intensity levels and non-circular iris boundaries will affect the features of the iris patterns resulting in very poor segmentation accuracy. A significant number of authors have been proposed algorithms in the literature for segmentation of iris images captured under noisy environment[1]-[5]. Recently, the literature is focused on pre-segmentation of noisy iris images[6]-[12]

Authors in [3] proposed a robust and accurate pre-segmentation algorithm that combines hard clustering algorithm and an improved Hough transform for segmentation of very noisy images. A combination of integro-differential operator (IDO) and Random sample consensus (RANSAC) is then employed for detection of upper and lower eyelids. Authors in [2], proposed an algorithm for images captured under visible wavelength, which employs the K-means clustering algorithm as a pre-segmentation step, to estimate the iris boundaries circular Hough transform is then employed. Another method is due to Frucci et al.[10], which employ watershed transformation to partition grayscale images by employing region growing to a suitable set of seeds. The Taubin circle fitting algorithm is then applied on binarized watershed transform.

Multilevel thresholding of an image for segmentation process has recently emerged as a powerful tool. It is based on the fact that the objects in an image are expected to have a similar range of intensity values in the image histogram. One classification of thresholding techniques is bi-level (one threshold), in which image is segmented into two regions. In multilevel thresholding (more than one threshold) technique image is segmented into several distinct regions. Two popular histogram based thresholding methods are Otsu's and Kapur's methods[13]. In Otsu's method, thresholding of real images is chosen by maximizing the between-class separability. Whereas in Kapur's method, thresholding of real images is chosen by maximizing the entropy of the histogram.

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Image Forgery Detection by using Machine Learning

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Abstract—Dense local descriptors and AI have been utilized with achievement in a couple of employments, as classification of surfaces, steganalysis, and bowing zone. We build up a new image counterfeit marker creating unequivocal descriptors recently proposed in the steganalysis field reasonably joining some of such descriptors, and redesigning a SVM classifier on the available training set. The issue with the present making is that majority of them see certain highlights in pictures changed by a particular tampering method, (for example, duplicate move, joining, and so forth). This proposes the structure does not work always transversely over different evolving frameworks. Mix of no under two pictures to make a completely phony picture is known as Image structure. It winds up being difficult to disengage between certified picture and phony picture in light of the closeness of different astounding changing programming endeavors. In this paper, we propose a two phase imperative altering way to deal with oversee direct learn features in referencing to see changed pictures in various picture formats.

I. INTRODUCTION

In the modernized time, there are a tremendous volume of arranged pictures by techniques for online systems association media platforms such as Facebook or Flickr. The undertaking of controlled pictures can be shared very attainably and can be used to mislead watchers from this present reality. This may result in very serious results so the validness of cutting edge pictures is truly required. Image Forgery or modification of digital images is not a new concept. It is as old as Photography. But due to the fast development of technology, In Today's time we cannot imagine the exact usage of digital images every day for various purposes [1]. It is said that, —an image tells a thousand words. Images are used to explain tough concepts, and inspire us easily in each and every field. With the easily availability of internet, digital cameras and editing software's it is very easy to create a fake image without any training or extra knowledge. The trend of modification in digital images is increasing day by day. In various cases, where the images are used as evidences, the authenticity of images is important to prove in that cases then only the images can be used as a proof. Digital image forgery or we can say that tampering of digital images have become one of the major problems in crimes. There are many ways through which the image can be modified. Combining all those ways the three ways are image retouching forgery, Spliced picture corrupted, copy move duplicate [2]. Picture joining is one of the way of changing an image that copies to some degree an

outstanding picture and paste it onto another image to make a fake picture, and it is dominantly trailed by post directing structures, for instance, neighborhood/everything thought about obscuring, compression, and resizing [3]. It is generally called picture procedure. Composite picture is an image made by the combination of something near two than two pictures and is joined to shape a specific picture. There are in a general sense five sorts of picture criminological contraptions techniques. Pixel Based Techniques consists of that contraptions which helps in watching courses of action from the standard all around quantifiable that are to be appeared at the pixel level. Connection based Techniques join those contraptions which helps in acknowledgment the certain correlations introduced by a predefined lossy weight structure.

This social gathering has been filling in starting late on the forgery detection issue, focusing on systems subject to camera sensor battle, a.k.a. PRNU (photograph reaction non-uniformity) noise [1], [2], [3], [4] and on frameworks subject to thick local descriptors and AI [5]. As such, we decided to scan for after both these frameworks for locale, on two separate lines of advancement, with the brightening behind mixing choices at some later time of the structure. Indisputably, it is striking [6] that given the undeniable sorts of defilement experienced in practice, and the wide receptiveness of colossal photograph changing tools, several affirmation approaches ought to be utilized at the relative time and sensibly joined to get the best possible performance. In light of this thought, we in like course inspected for after a third line of improvement dealing with a structure for copy move forgery space which, yet material just to a fraction of the picture set, gives absolutely solid outcomes.

Joined picture creation solicitation ought to be conceivable through various ways. Among those ways, light assortments from the standard are useful for joining affirmation. Two systems for Illumination based fake Detection are Geometry based structures and shading based methods. Geometry based frameworks helps in watching eroticisms in zone of light source between Particular articles and contraptions. Shading based frameworks helps in watching abnormalities in the correspondence between article shading and light shading [2]. In this paper we used shading IL luminance for trickiness introduction. In each logic manual joint effort is must. Nowadays it is difficult to trust in pictures. A human eye can't separate between the genuine picture and fake picture. So we impact self-loader to duplicate structure for the space of joined pictures that makes utilization of AI classifiers where the decision is taken by classifier.

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SMART WOMEN TO BUILT SMART SOCIETY

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ABSTRACT

Today's children are tomorrow's nation builders. The society is progressing towards "SMART" like smart phone, smart ideas, and smart car and so on which results in creating a SMART generation. To mould these upcoming smart citizens, starting from childhood a smart mother is required because mother is the first teacher in everybody's life. A smart mother only can impart knowledge, life skills, managerial skills, culture, tradition, ethics what not everything. A smart women can perfectly perform her role of smart daughter, smart sister, smart wife, smart friend, smart guide, smart teacher, smart daughter-in-law to **create a smart society**. Smart women tend to be self confident, dynamic, prompt, emotionally strong, innovative, creative, independent, open-minded, clever, socially elegant, charistamatic. She has the scope to be a part of solution to many problems in our society like eve teasing, by teaching moral values to her son and brother. Problem of corruption can be solved by imparting ethics to family members. A smart mother can build social etiquette in individual by which social problems like breaking the traffic rules can be minimised. She plays a key role in maintaining a healthy environment at home as well as at workplace. Smart women can make the younger generation emotionally strong to handle the economic and social challenges. Smart women are successful in balancing her personal and professional life in turn creating a smart Society. In this paper we focus on how a smart woman can create a Smart Society.

Introduction:

The society is progressing towards "SMART" like smart phone, smart ideas, and smart car and so on which results in creating a SMART generation. To mould these upcoming smart citizens, starting from childhood a SMART MOTHER is required because mother is the first teacher in everybody's life. A smart mother only can impart knowledge, life skills, managerial skills, culture, tradition, ethics what not everything. A smart women can perfectly perform her role of smart daughter, smart sister, smart wife, smart friend, smart guide, smart teacher, smart daughter-in-law to **create a smart society**. Smart women tend to be self confident, dynamic, prompt, emotionally strong, innovative, creative, independent, open-minded, clever, socially elegant, charistamatic.

Women were the foremost dominant section of Indian population has currently become active participants in all walks of life. Till now, they were solely unit of the family organization. Now, ladies have become not solely a big unit of the society however conjointly influencing the course of social modification within the society. Women are an important element of our Society [1]. The modern society has started recognizing the individual identity of ladies. She is believed to possess her aspiration, talents and qualities as a person will have and it's additionally united that she ought to have the opportunities to develop her faculties and to precise them in step with her own alternative. A woman helps the society in different ways, engaged in social activities and builds a better society. They contribute for the improvement of level of sanitation and hygiene in the society by campaigning about maintenance of cleanliness. In times, many welfare organizations for the women have sprung up. Women are active members of those organizations and contribute their mite to the women's welfare [2-4]. Some of the welfare organizations have been formed at the national and state level and most of them are at local levels which contribute to the goodness of the society

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ABSTRACT

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Anisotropic Image Restoration Based on Image Inpainting with Diffusion Enhancement

Marlapalli Krishna, V Naga Bushanam, Bandlamudi S B P Rani, K Rakesh, V Pranav

Abstract— Reconstructing the damaged images and improving the quality of an image, results in image restoration. Here anisotropic diffusion based iterative inpainting developed to minimise the noise level in the colour images and enhancing the image boundaries, this approach observed on speckle, Gaussian and shot noise. To reduce noise and topological defects from images, 3D- anisotropic diffusion used to decompose the image into high frequencies and low frequencies and protects the image from losing the information, to enhance the image quality, image inpainting was used. In this process most of the high frequency decomposed sections got damaged with noise and appears as there is information available at those pixels, therefore the complete restoration process was done on all the high frequency decomposed components so this results in achieving better restored images in mean time. The two effects on images can be reduced by the mixed fusion algorithm i.e., noise reduction by using anisotropic diffusion and distance based neighbourhood image inpainting for restoring the damaged parts. So, this results in reconstructing the damaged image and enhancing the boundaries of the image.

Index Terms— Noise Enhancement, Image Restoration, Anisotropic Diffusion, Boundaries, Image Inpainting.

I. INTRODUCTION

Enhancing/ removing distortion/ reconstructing a degraded image were comes in the process of restoration. For this various process were approached namely homomorphed filters [12, 13], pseudo inverse filters, wiener filter and notch filters were used to reduce the image and reconstructing the degraded image [1].

The problem observed here is a blurry reconstructed image and loss of information [10-12]. Therefore to rectify these problems many iterative techniques were followed and these were also listed. Many of these were used to save the images which are noised [11,13,14] these results in blurring the image. So, to reduce the effect of blurring inverse of the transform or filtration approach needs to be more minimised [7]. This is only possible by diffusion approach, because in diffusion all the grouped values tuned to scatter. So here inpainting technique can be used to reduce the damage of the image, but for filtration we need to access 3D filtration technique.

Now, Image Inpainting is combination of mask image that was restricted to create a new image and now we are accessing texture based image Inpainting for restoration of colour images [9]. In a large part of the photo coping with [3] methods pics are sifted in a -dimensional flag through making use of widespread flag preparing strategies thereto. Picture making ready or Image Restoration [15, 18] now and then alludes to automatic photo coping with structures, anyway optical and easy photograph making ready likewise are potential. This record is with appreciate to fashionable techniques that follow to every considered one of them. The securing of snapshots (handing over the info photograph in the number one spot) expressed as imaging a few packages, for instance, restorative imaging, space technology and far off detecting located photos are typically debased by using bending [6, 7].

Twisting could emerge from climatically choppiness, relative motion between an object and moreover the digital camera and an out-of-centre digital camera. Reclamation of debased photographs is normally required for all of the greater handling or translation of the snapshots. Since barriers at the debasement and furthermore the primary photo shift with the equipment, numerous optional calculations exist to disentangle the issue. At times, the underlying photograph, this is formed as both a settled is obscured by using a celebrated carryout. Numerous option commonplace methodologies are created to make up for haze works after they're celebrated [2, 4].

II. PROPOSING SCHEME

More usually the blur perform isn't famed. In this case the model of the blur is commonly assumed, for example, a linear space- invariant filter. In some applications, many blurred versions of an equivalent original image return from completely different blurring channels, or several blurred pictures are accessible from however highly correlated original pictures and channels, as in short exposure image sequences, multispectral pictures and microwave radiometric pictures. Restoration of this image or pictures known as Image Restoration[5, 8, 15].

The equation (1) describes the formula for Gaussian mixture distribution.

$$f(x_i) = \sum_{i=1}^k p_i N(x_i | \mu_i, \sigma_i) \quad (1)$$

Where

$$N(x_i | \mu_i, \sigma_i) = \frac{1}{\sigma_i \sqrt{2\pi}} \exp\left[-\frac{1}{2\sigma_i^2} (x_i - \mu_i)^2\right]$$

Assume an image classified into C_i , $i = 1, 2, \dots, k$ class that the number of class's k is known.

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Performance Analysis of Impedance Source Converter in Different Load Conditions

RavillaMadhusudan, N. Ramanarayana, T. KrantiKiran, G. Ganesh, L. VamsiNarasimhaRao

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Index Terms: Impedance Source Converter, Voltage Source Converter, Battery Energy Impedance Source Converter Modified Sinusoidal Pulse Width Modulation.

I. INTRODUCTION

Many traditional power electronic converters have been used for converting DC-AC, and DC-DC. Most of the normal converters are of voltage source and current source converter types. The output voltage of the voltage source converter (VSC) is not more than the input DC voltage source. This is very much drawback of voltage source converter by considering renewable energy sources [1]. To overcome this drawback of VSC, impedance source converter and battery energy based impedance source converters are used. ISC is first proposed by Fang Zheng Peng [2]. This ISC has shoot through switching states that are not present in traditional VSC. The ISC utilizes the shoot through state either to boost or buck output voltage [3]. The existed Sinusoidal Pulse Width (SPWM) modulation technique [4] is not sufficient to generate the shoot through state. For this purpose, we modified the existed SPWM to produce the shoot through state and to reduce the voltage burden of the converter. The electrical load is a device which needs electrical energy to be delivered to it. Basing upon certain factors, electrical loads can be classified into various categories.

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- Basing upon the nature of the load, they are classified as resistive, inductive and capacitive loads. Mostly, however, in the real-time power system, we do not have pure forms of these kinds of loads, but they are present as combinations of them.
- Basing upon the importance of loads, they are classified as normal, essential and critical loads.
- Critical loads are the ones that need continuity of power supply. Such loads include hospitals, etc. So, to supply uninterrupted supply to the critical loads, impedance source converter (ISC) is helpful.

II. MODELING OF ISC AND BEISC

The main network and principle of Impedance Source Converter (ISC) and Battery Energy Impedance Source Converter (BEISC) are discussed in detail in this section [5].

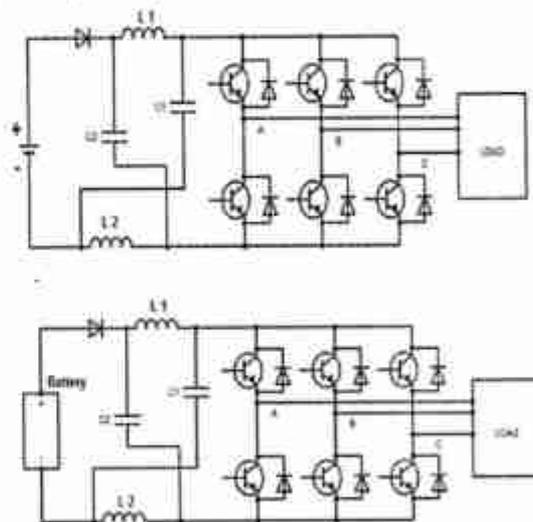


Fig.1. ISC and BEISC networks.

We assume that the inductors $L1$ and $L2$ and capacitors $C1$ and $C2$ are having equal values, i.e., $L1=L2=L$ and $C1=C2=C$. So, from this, we can say,

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And, V_{dc} - DC source voltage

V_d - the Voltage across diode and

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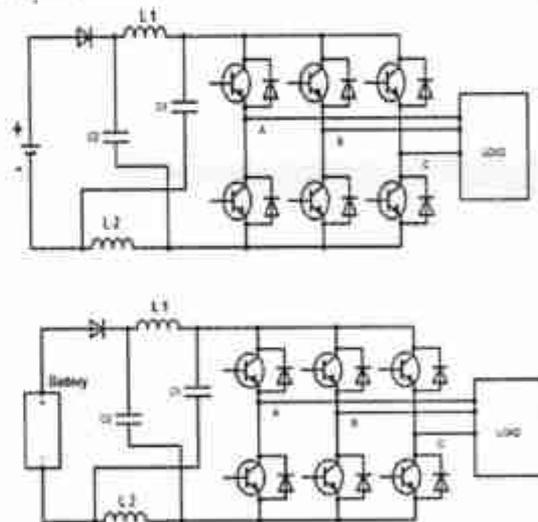


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IMPROVED GRID TIED INVERTER BASED MICROGRID CONTROL STRATEGIES WITH REDUCED THD

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Abstract

In response to the ever increasing energy demand, integrating distributed energy resource-based microgrid will be the most promising power system improvement in the near future. Microgrid system implementation provides significant advantages for both electric utility provider and end customer user. This paper performs a comprehensive literature review on the current key issues on control strategies of microgrid islanded mode operation. Brief descriptions are provided for typical microgrid control methods, PQ control, droop control, voltage/frequency control, and current control, which are associated with microgrid mode of operation. This review also covers microgrid control issues such as islanded mode, stability, and unbalanced voltages to provide adequate power quality. In addition, this paper discusses the challenges of microgrid islanded mode issues, such as load sharing, distributed generation losses, and non-linear /unbalanced load. Finally, research conclusions of the important microgrid control requirements for future development are also described.

Index Terms : Micro grid control, micro grid structure, micro grid issues.

INTRODUCTION

The main factors that make using distributed generation resources interesting are reducing the emissions of CO₂ and recent technological developments in micro generation domain [1]. Microgrid is the future of efficient and fast restoration of power systems. Microgrid allows the high penetration of distributed generation into the power systems. Several benefits of microgrids include facilitating distributed generation (DG) and allowing high penetration of renewable energy sources. Moreover, microgrids provide local voltage and frequency regulation support and improve reliability and power capacity of the grid [2]–[4]. Control strategies and issues closely related to microgrid operation have been explored in previous studies. The most popular among the control strategies based on droop characteristics has been controlled in [5]. In addition, a central controller is described in [6] within a hierarchical control scheme to optimize the operation of the microgrid during interconnected operation. In [7], an advanced sliding mode controller

A FUZZY BASED STATCOM-CONTROL SCHEME FOR GRID CONNECTED WIND ENERGY SYSTEM FOR POWER QUALITY IMPROVEMENT

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ABSTRACT— Infusion of the breeze power into an electric grid influences the power quality. The presentation of the breeze turbine and along these lines, power quality, are resolved based on estimations and the standards pursued by the guideline indicated in International Electro-specialized Commission standard, IEC-61400. The impact of the breeze turbine in the grid system concerning the power quality estimations are-the active power, reactive power, variety of voltage, flicker, harmonics and electrical conduct of switching operation and these are estimated by national/worldwide guidelines. The paper study shows the power quality issue because of the establishment of a wind turbine with the gr, id. In this proposed plan, Static Compensator (STATCOM) associated at a point of standard coupling with a battery energy storage system (BESS) to decrease the power quality issues. The battery energy storage is incorporated to support the natural power source under fluctuating breeze power. The STATCOM control plot for the grid associated wind energy generation system for power quality improvement is reenacted utilizing MATLAB/SIMULINK in power system square set. The viability of the proposed plan remembers the fundamental supply source from the reactive power request of the load and the enlistment generator.

The advancement of the grid co-appointment rule and the procedure for improvement in power quality standards according to IEC-standard on the network has been exhibit.

1 INTRODUCTION

TO have development and social advance it is essential to meet the energy need by using the sustainable power source assets like breeze, biomass, hydro, co-generation, and so forth In a flexible energy system, energy protection and the utilization of inexhaustible source are the critical worldviews. The need to incorporate the sustainable power source like breeze energy into the power system is to make it conceivable to limit the natural effect on

conventional plant [1]. The integration of wind energy into an existing power system introduces specialized difficulties, and that requires consideration of voltage regulation, soundness, power quality issues. The power quality is a primary client-centered measure and is enormously influenced by the operation of distribution and transmission arrange. The point of power quality is critical to the breeze turbine [2].

There has been a broad development and brisk improvement in the misuse of wind energy lately. The individual units can be of enormous limit up to 2 MW, nourishing into distribution arrange, especially with clients associated in nearness [3]. Today, more than 28000 breezes creating turbine are successfully working everywhere throughout the world. In the fixed-speed wind turbine operation, all the fluctuation in the breeze speed is transmission as variances in the mechanical torque, electrical power on the grid and prompts massive voltage changes. During the typical operation, the wind turbine creates a constant factor output power. These power varieties are chiefly brought about by the impact of chopiness, wind shear, and tower-shadow and a control system in the power system. Hence, the system needs to oversee for such fluctuations. The power quality issues can for the breeze generation, transmission and distribution arrange, for example, voltage sag, swells, flickers, harmonics, and so forth. Anyway, the breeze generator brings unsettling influences into the delivery organize. One of the primary methods of running a creating breeze system is to utilize the acceptance generator associated directly to the grid system. The enlistment generator has natural points of interest in cost adequacy and robustness. Be that as it may, enlistment generators require reactive power for polarization. At the point when the produced active power of an acceptance generator is chang because of wind, assimilated reactive power and the terminal voltage of an enlistment generator can altogether influence. A legitimate control conspires in wind energy generation system is required under the typical working condition to allow the appropriate

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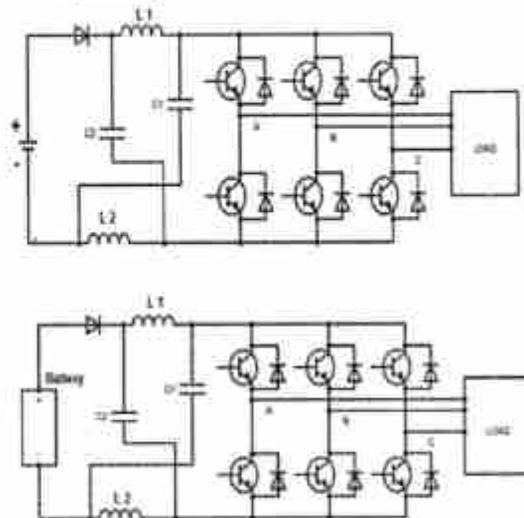


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Power Quality Improvement with Multilevel Inverter Based IPQC for Microgrid

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ABSTRACT

A micro grid is a hybrid power system consists of several distributed resources and local loads. Now a days with increasing on a day to day life micro grid plays a vital role in power generation using Renewable Energy Sources. Usage of power electronic devices in a micro grid results in harmonic generation and leads to various power quality issues. In order to overcome voltage fluctuations and over current a magnetic flux control based variable reactor is proposed. The performance of IPQC can be verified by using MATLAB/SIMULINK.

KEYWORDS: Power Quality Improvement, Microgrid, IPQC.

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1. INTRODUCTION

The strength is neither be created nor destroyed alternatively it are frequently regenerate from one sort to a different. The technology of AN energy is nothing then again the conversion of various one-of-a-kind sorts of energy into AN power. The electric powered energy is generated in bulk at the producing stations that are referred to as strength stations. The generated strength is demanded by means of the customers. This purpose due to the fact of electricity losses and strength quality troubles inside the transmission lines FACTS machine is added to cut lower back such issues. small grid ends up in positive distribution in geographic vicinity all distribution consists of tremendous electricity processor to control and display the facility trade between the grids [1-3]. once such processor get definitely exploited it ends up in high electricity great problems and strength

consumption with the aid of creating slender band verbal exchange and native administration system full small grid is exploited with marginal investment. A forty eight pulse structure electrical converter used to be developed by way of cascading many devices of 3 degree diode clamped shape electrical converter with the help of section moving electrical device. It ends up in high fee and prolonged delays this motive serious deficiency in power transmission capability whereas distribution [4]. Interline Power Flow Controller is one in each of the advanced controller in versatile AC equipment mechanism controller it completely compensates collection and manages strength waft inside the machine [5].

To at the equal time administration the facility flow 2 convertor model d-q orthogonal was once added inside the microgrid. By ability that of transmission attitude version collection voltage is inject within the administration vicinity and

A Scalable Method for Detection of Hate Speech by Collecting Hateful and Offensive Expressions

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Abstract: Hate speech is currently of broad and current interest in the domain of social media. The anonymity and flexibility afforded by the Internet has made it easy for users to communicate in an aggressive manner. And as the amount of online hate speech is increasing, methods that automatically detect hate speech is very much required. Moreover, these problems have also been attracting the Natural Language Processing and Machine Learning communities a lot. Therefore, the goal of this paper is to look at how Natural Language Processing applies in detecting hate speech. Furthermore, this paper also applies a current technique in this field on a dataset. As neural network approaches outperforms existing methods for text classification problems, a deep learning model has been introduced, namely the Convolutional Neural Network. Although most recent approaches target Twitter, we noticed there were few tools available that would address this social network platform or tweets in particular, considering their informal and specific syntax. Thus, our second goal was to develop a tokenizer able to split tweets into their corresponding tokens, taking into account all their particularities. We performed two binary hate identification experiments, having achieved the best F-score in one of them using our tokenizer. We perform comparative analysis of the models considering several values of n in n -grams and TFIDF normalization methods. After tuning the model giving the best results, we achieve 95.6% accuracy upon evaluating it on test data. The performance of this model has been tested using the accuracy, as well as looking at the precision, recall, and F-score. The final model resulted in an accuracy of 91%, precision of 91%, and recall of 90% and F-measure of 90%. However, when looking at each class separately, it should be noted that a lot of hate tweets have been misclassified. Therefore, it is recommended to further analyze the predictions and errors, such that more insight is gained on the misclassification.

Keywords: Hate Speech; Machine Learning; Offensive Language; Twitter

1. INTRODUCTION

In recent decades, information technology went through an explosive evolution, revolutionizing the way communication takes place, on the one hand enabling the rapid, easy and almost costless digital interaction, but, on the other, easing the adoption of more aggressive communication styles. It is crucial to regulate and attenuate these behaviors,

especially in the digital context, where these emerge at a fast and uncontrollable pace and often cause severe damage to the targets. Social networks and other entities tend to channel their efforts into minimizing hate speech, but the way each one handles the issue varies. Thus, in this thesis, we investigate the problem of hate speech detection in social networks, focusing directly on Twitter.

During our literature review, we collected the most common preprocessing, sentiment and vectorization features and extracted the ones we found suitable for Twitter in particular. We concluded that preprocessing the data is crucial to reduce its dimensionality, which is often a problem in small datasets. Additionally, the F-score also improved. Furthermore, analyzing the tweets' semantics and extracting their character n -grams were the tested features that better improved the detection of hate, enhancing the F-score by 1.5% and the hate recall by almost 5% on unseen testing data.

Thus, we investigated a set of features based on profiling Twitter users, focusing on several aspects, such as the gender of authors and mentioned users, their tendency towards hateful behaviors and other characteristics related to their accounts (e.g. number of friends and followers). For each user, we also generated an ego network, and computed graph-related statistics (e.g. centrality, homophily), achieving significant improvements - F-score and hate recall increased by 5.7% and 7%, respectively.

Research on safety and security in social media has grown substantially in the last decade, as people are using more and more social interactions on online social networks. This leads to an increase in number of hateful activities that exploit such infrastructure. The anonymity and mobility given by these social media allows people to protect themselves behind a screen and made the breeding and spread of hate speech effortless. Moreover, social media companies like Twitter, Facebook and YouTube are criticized for not doing enough to prevent hate speech on their sites and have come under pressure to take action against hate speech. As a matter of fact, the German government has threatened to fine the social networks up to 50 million Euros per year if they continue to fail to act on hateful postings (and posters) within a week. Due to the massive scale of the web, the need for scalable, automated methods of hate speech detections has grown substantially. These problems have been attracting the Natural Language Processing (NLP) and Machine Learning (ML) communities quite a lot in the last few years. Despite this large amount of

Enhanced Localization in WSN

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Abstract: Localization is one of the most important topics in Wireless Sensor Networks (WSN) to check the position and location of the node within the created network. These are widely divided into Range based and Range free. Various attacks are done on the WSN to disturb the network and damage the localization of the nodes within the network. Any attack will confuse the localization process and cause location estimation errors. The Range Based and Range-free localization methods are available for obtaining the location of the sensor nodes. In this paper, the Enhanced localization technique is introduced to check and prevent attacks done in the network. The results show the performance of the proposed system.

Keywords: Localization; WSN.

I. INTRODUCTION

It is a reality that much research exercises have been formed into remote sensor systems on the grounds that its significance. Sensors with the accompanying exhibition lists, for example, economical, low power utilization, little size, and multipurpose and little inclusion territory are immediate capacity of the progression in hardware and correspondences. Homes, urban areas and general ecological control have been feasible to the remote systems administration of a few sensors viewed as been keen and reasonable. In military applications the expansive range of remote sensors is conveyed with the end goal of observation, investigation and different applications. Data got through the observing of natural occasions, for example, farming accuracy, hedge burnings, examination and checking of water are not all that huge without the information of the information source area. Also, the capacity to evaluate an area upgrades the accompanying: observing of the street traffic, social insurance, interruption, stock administration, investigation and observation. In big business space, offices must be conveyed to places on need. Precise position of sensor is significant for the achievement of these applications. To evaluate the area of a sensor which isn't known before a restriction calculations use data, for example, separation and supreme places of different sensors. Grapples are sensors whose both area and data are known and can be overcome the utilization of worldwide situating framework (Gps) or by putting stays at focuses whose directions are known (Sensors that are generally are alluded to as non grapple nodes). Grapples decide the area of sensor arranges in worldwide organize framework and characterize

the nearby facilitate framework which sensors alluded to as area facilitate framework does the trick. The area of sensors stays obscure by the greater part of the sensors themselves; this is because of the restrictions made by cost, vitality utilization, sensor size and arrangement and the earth for usage. Sensor organize calculation appraises the directions of non-grapple hubs. As of late many secure restriction frameworks have been to built up to verify the situating of WSNs. The greater part of these strategies acquire the security utilizing cryptography by blocking and recognizing the data, performing measurable choices or separating this data as a strategy for position calculations. Additionally assailants can dispatch signal quality assaults on the range based strategies. By assaulting they present blunders in the restriction process². In this paper, we investigate the range based limitation techniques and the assaults on those strategies. We investigate the present security systems in the range based strategies against assailants. The point of this paper is recognizing the regions on further research on the safe range based limitation techniques.

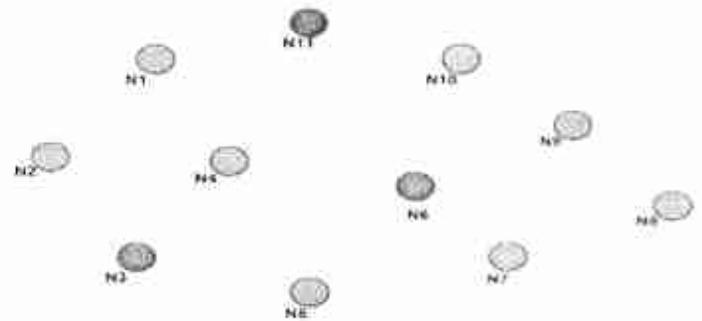


Figure 1 Network Setup the green nodes are normal nodes and red nodes are router nodes.

II. RELATED WORK

In WSN, sensors are often deployed without a priori knowledge of their positions or sensor node locations can change during the lifetime of a network. The location information of each sensor node is indispensable for many scenarios and services. This is because the collected data are meaningless if there is no information from where the data is obtained. For example, in a disaster relief operation using WSN to locate survivors in a collapsed building, it is important that sensors report monitoring information along

A NOVEL APPROACH FOR TRAVEL ROUTE RECOMMENDATION ALGORITHM USING SYSTEMATIC SPATIAL KEYWORD

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Abstract-With the popularity of social media (e.g., Facebook and Flickr), users can easily share their check-in records and photos during their trips. In view of the huge number of user historical mobility records in social media, we aim to discover travel experiences to facilitate trip planning. When planning a trip, users always have specific preferences regarding their trips. Instead of restricting users to limited query options such as locations, activities or time periods, we consider arbitrary text descriptions as keywords about personalized requirements. Moreover, a diverse and representative set of recommended travel routes is needed. Prior works have elaborated on mining and ranking existing routes from check-in data. To meet the need for automatic trip organization, we claim that more features of Places of Interest (POIs) should be extracted. Therefore, in this paper, we propose an efficient Keyword-aware Representative Travel Route framework that uses knowledge extraction from users' historical mobility records and social interactions. Explicitly, we have designed a keyword extraction module to classify the POI-related tags, for effective matching with query keywords. We have further designed a route reconstruction algorithm to construct route candidates that fulfill the requirements. To provide the fitting query results, we explore Representative Skyline concepts, that is, the Skyline routes which best describe the trade-offs among different POI features. To evaluate the effectiveness and efficiency of the proposed algorithms, we have conducted extensive experiments on real location-based social network datasets, and the experiment results show that our methods do indeed demonstrate good performance compared to state-of-the-art works.

Keywords-Location-based; spatial keyword; geo-tagged photo; Representative images; route reconstruction algorithm; social network; database; travel information.

I. INTRODUCTION

Generally, data mining (sometimes called data or knowledge discovery) is the process of analyzing data from different perspectives and summarizing it into useful information -

information that can be used to increase revenue, cuts costs, or both. Data mining software is one of a number of analytical tools for analyzing data. It allows users to analyze data from many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases. While large-scale information technology has been evolving separate transaction and analytical systems, data mining provides the link between the two. Data mining software analyzes relationships and patterns in stored transaction data based on open-ended user queries. Several types of analytical software are available: statistical, machine learning, and neural networks. We positioned our framework according to the general population audits who visited the course previously and consequently suggesting aftereffect of the considerable number of courses from source to goal lastly prescribing the best course. Topical Package Model strategy which naturally mines client travel enthusiasm from two sorts of online networking information, diverse client contributed photographs and travelogues. We build up a Keyword- mind full Representative Travel Route structure to recover a few prescribed courses where watchword implies the customized necessities that clients have for the excursion. The course dataset could be worked from the gathering of low-inspecting registration records. It is hard to quantify the comparability specifically among client and course, proposed framework fabricate a topical bundle model and afterward delineate client's and course's literary portrayals to the topical bundle model to get client topical bundle model and course bundle display utilizing topical bundle space. The fundamental purpose behind the progressions is , the work beforehand would give bunches of alike way to gets more noteworthy assorted variety on the same according to the highlights which are favored by the end clients, which is the principle point of the proposed work. Closest neighbor in light of another similitude measure, named weighted normal of record rating which join catchphrase rating, watchword seek and closest

Anisotropic Image Restoration Based on Image Inpainting with Diffusion Enhancement

Marlapalli Krishna, V Naga Bushanam, Bandlamudi S B P Rani, K Rakesh, V Pranav

Abstract— Reconstructing the damaged images and improving the quality of an image, results in image restoration. Here anisotropic diffusion based iterative inpainting developed to minimise the noise level in the colour images and enhancing the image boundaries, this approach observed on speckle, Gaussian and shot noise. To reduce noise and topological defects from images, 3D- anisotropic diffusion used to decompose the image into high frequencies and low frequencies and protects the image from losing the information, to enhance the image quality, image inpainting was used. In this process most of the high frequency decomposed sections got damaged with noise and appears as there is information available at those pixels, therefore the complete restoration process was done on all the high frequency decomposed components so this results in achieving better restored images in mean time. The two effects on images can be reduced by the mixed fusion algorithm i.e., noise reduction by using anisotropic diffusion and distance based neighbourhood image inpainting for restoring the damaged parts. So, this results in reconstructing the damaged image and enhancing the boundaries of the image.

Index Terms— Noise Enhancement, Image Restoration, Anisotropic Diffusion, Boundaries, Image Inpainting.

I. INTRODUCTION

Enhancing/removing distortion/reconstructing a degraded image were comes in the process of restoration. For this various process were approached namely homomorphed filters [12, 13], pseudo inverse filters, wiener filter and notch filters were used to reduce the image and reconstructing the degraded image [1]. The problem observed here is a blurry reconstructed image and loss of information [10-12]. Therefore to rectify these problems many iterative techniques were followed and these were also listed. Many of these were used to save the images which are noised [11,13,14] these results in blurring the image. So, to reduce the effect of blurring inverse of the transform or filtration approach needs to be more minimised [7]. This is only possible by diffusion approach, because in diffusion all the grouped values tuned to scatter. So here inpainting technique can be used to reduce the damage of the image, but for filtration we need to access 3D filtration technique.

Now, Image Inpainting is combination of mask image that was restricted to create a new image and now we are accessing texture based image Inpainting for restoration of colour images [9]. In a large part of the photo coping with [3] methods pics are sifted in a -dimensional flag through making use of widespread flag preparing strategies thereto. Picture making ready or Image Restoration [15, 18] now and then alludes to automatic photo coping with structures, anyway optical and easy photograph making ready likewise are potential. This record is with appreciate to fashionable techniques that follow to every considered one of them. The securing of snapshots (handing over the info photograph in the number one spot) expressed as imaging a few packages, for instance, restorative imaging, space technology and far off detecting located photos are typically debased by using bending [6, 7].

Twisting could emerge from climatically choppiness, relative motion between an object and moreover the digital camera and an out-of-centre digital camera. Reclamation of debased photographs is normally required for all of the greater handling or translation of the snapshots. Since barriers at the debasement and furthermore the primary photo shift with the equipment, numerous optional calculations exist to disentangle the issue. At times, the underlying photograph, this is formed as both a settled is obscured by using a celebrated carryout. Numerous option commonplace methodologies are created to make up for haze works after they're celebrated [2, 4].

II. PROPOSING SCHEME

More usually the blur perform isn't famed. In this case the model of the blur is commonly assumed, for example, a linear space- invariant filter. In some applications, many blurred versions of an equivalent original image return from completely different blurring channels, or several blurred pictures are accessible from however highly correlated original pictures and channels, as in short exposure image sequences, multispectral pictures and microwave radiometric pictures. Restoration of this image or pictures known as Image Restoration[5, 8, 15].

The equation (1) describes the formula for Gaussian mixture distribution.

$$f(x_i) = \sum_{i=1}^k p_i N(x_i | \mu_i, \sigma_i) \quad (1)$$

Where

$$N(x_i | \mu_i, \sigma_i) = \frac{1}{\sigma_i \sqrt{2\pi}} \exp\left[-\frac{1}{2\sigma_i^2}(x_i - \mu_i)^2\right]$$

Assume an image classified into C_i , $i = 1, 2, \dots, k$ class that the number of class's k is known.

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Intrusion Filtration System (IFS) - Implementation of Security Model



Marlapalli Krishna, V Shariff, Bandlamudi S B P Rani, S K Chaitanya Rudraraju, Soni Lanka

Abstract: Different algorithms of data mining used to filter the traffic data of network and to alert the intrusions. The proposed IFS shall be incorporated with antivirus and IDS to improve the filtration process. In previous paper we discussed the basic structure of Intrusion Filtration System. The IFS is an enhancement tool for computer system to protect the circulation of corrupted file in Network. The tool can be implemented in individual system to protect the system as well the network and internet communication. The tool will generate the Token Security Code (TSC) tokens and embed with the filtered file to tag them as safe to use. The filtration system experiment is done on DARPA dataset KDD99 (1999 DARPA). The coding part of Intrusion Filtration System (IFS) designed here will combine the algorithm of Binary Decision Tree (BDT) and Pattern Counting Algorithm (PCA). The TSC code will be checked every time the file is used whether it is opened work in system or to send through email or through using USB.

Keywords: PCA, IFS, Binary Data Tree, Token Security Code (TSC), Pattern Counting Algorithm, Network Security.

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Based upon basic structure of tagging filtered files for user, in this paper we proposed a network security technique using intrusion filtration system for reducing the risks caused to vulnerabilities in the network or single alone system. The main theme of the model is explained in two sub headings-

New model of Intrusion filtration System [12] - In this section the primitives on which the model is developed and the architecture introduction is explained.

TSC code generation and tagging filtered file for use[6] - Presents in depth explanation of how the model is being developed and explains the usage of a variety of components that are used in construction of the model.

Depending on type of data they filter and database versions available with them, the nature of systems will vary from system to system. Fig.1 depicts the General Process of IDS.

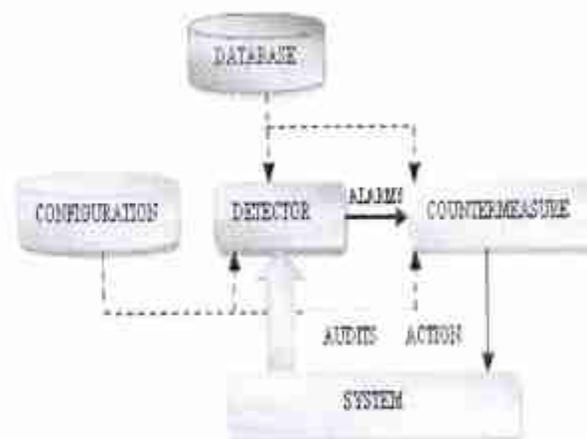


Fig.1 General Process of IDS

II. PROPOSED MODEL

III. PROPOSED MODEL OF IFS FOR NETWORK SECURITY

The proposed model "Intrusion Filtration System" for Computer files is being built upon these components and the basic information about the model is given below:

- > A low cost security model build by using existing security components in OS.
- > The Model has distinctive collection of a variety of security components to achieve a superior level of security on the Computer.
- > After scanning the various antivirus products generate log files which we will used for creating Token Security Code(TSC) to tag the files and generate TSC log file. The security model explained here can be used for any Operating System.

Intrusion Filtration Systems proposed here will filter the data and tag the file with TSC code. Fig.2 explains the working process of IFS.

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A Machine Learning Access for Selection of Influential Variables of Several ITK Inhibitors using Regression Research

Rama Devi Chalasani, Radhika Y

ABSTRACT— Introduction: Interleukin-2 inducible T-cell kinase (ITK) is a tyrosine kinase expressed in T-cells, NK cells and mast cells. Selective ITK inhibitors act as an immunosuppressive and anti-inflammatory agent reduces lung inflammation, eosinophil infiltration, and mucous production in response to induced allergic asthma. Methodology: A dataset of 142 ITK inhibitors as dependent variables with 32 properties of compounds as explanatory variables were studied for their multicollinearity prior multivariate regression analysis. After data normalization, an inter-correlation cutoff value of 0.75 resulted in 15 variables and regression analysis resulted in 0.641 r^2 and 0.598 adjusted r^2 with RMSE 0.634 respectively. As the statistical parameters are within the limits, outlying data was investigated. Results: The standardized residual analysis resulted in nine data points and a new regression model is attempted with $n=133$ and $p=15$ reported improves statistics. Further, stepwise and stepwise AIC regression followed by variance inflation factor analyzed on the dataset revealed only 7 variables as important in defining inhibitory activity of ITK. Permutation and combinations of 7 variables resulted in r^2 value >0.6 for 5, 6 and 7 variables. Hence, to select the best model, FIT criterion was employed where a 5-variable model was judged as best model. Conclusion: Finally, it has been emphasized that increase in HOMO, H-Bond Donors and shape index with a concomitant decrease in number of phenyl groups and LUMO parameter favors ITK inhibition.

Keywords —regression, multicollinearity, FIT Kubinyi function, outliers, ITK

I. INTRODUCTION

Linear regression is the well-known widely used algorithm in statistics and machine learning. This machine learning regression algorithm can be trained to predict real numbered outputs. Regression analysis on a dataset can be either linear, quadratic, polynomial, non-linear, etc. The regression hypothesis is a function based on relationship between response and explanatory variables to attain statistically significant parameters. Further, selection of appropriate variables in a regression paradigm is an important part of machine learning which refers to the process of reducing the inputs for processing to find the most meaningful, promising variables [1]. The selection reduces number of explanatory variables to describe a response variable [2]. The supervised machine learning process reduces overfitting because a model with all variables is difficult to interpret, especially when the dimensions of a dataset are large [3].

Based on the dataset, machine learning algorithms might be supervised [4], unsupervised [5] and semi-supervised [6].

In this paper, we provide analytical method to choose influential variables from a dataset of 160 ITK inhibitors with 32 variables that describe the associated properties of these inhibitors in binding to the ITK protein target. Interleukin-2 inducible T-cell kinase (ITK) is a tyrosine kinase that is expressed in T-cells, NK cells and mast cells. Studies suggest that selective ITK inhibitors should be useful as an immunosuppressive and/or anti-inflammatory agent and reduced lung inflammation, eosinophil infiltration, and mucous production in response to induced allergic asthma [7]. The Tec (tyrosine kinase expressed in hepatocellular carcinoma) family tyrosine kinases play significant roles in mediation of signaling intracellular regions of hematopoietic cells [8]. Due to the critical role of ITK in T cell development and differentiation, dysregulated ITK causes T cell related disorders. ITK knockout mice displayed condensed Th2 cells and Th2-type cytokines. These are thought to be important in the inflammatory pathogenic diseases such as allergic asthma and atopic dermatitis [9]. Patients with allergic asthma have increased Th2 cells and Th2 cytokines which lead to lung inflammation [10]. Human immunodeficiency virus (HIV) is a retrovirus causing acquired immunodeficiency syndrome (AIDS). ITK is an important factor in regulation, infection and replication of HIV [11]. *In vivo* experiments with ITK knockout mice suggest a role for ITK inhibitors in the treatment of asthma [12]. Several data from literature reported ITK inhibitors with a focus on achieving broad kinase selectivity as well as good levels of cellular activity [13].

II. MATERIALS AND METHODS

a. DATASET

A dataset of ITK inhibitors that are intended to interact and bind with specific protein target for asthma disease were extracted from literature [14, 15, 16, 17, 18 and 19]. Further, the bio activity data of 142 inhibitory compounds are treated as response (dependent) variable and nearly 32 properties of compounds comprising 2-dimensional and/or 3-dimensional features are considered as explanatory (independent) variables. These variables explain how the response variable is influenced by the change in property values. The

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Intrusion Filtration System (IFS) - Implementation of Security Model



Marlapalli Krishna, V Shariff, Bandlamudi S B P Rani, S K Chaitanya Rudraraju, Soni Lanka

Abstract: Different algorithms of data mining used to filter the traffic data of network and to alert the intrusions. The proposed IFS shall be incorporated with antivirus and IDS to improve the filtration process. In previous paper we discussed the basic structure of Intrusion Filtration System. The IFS is an enhancement tool for computer system to protect the circulation of corrupted file in Network. The tool can be implemented in individual system to protect the system as well the network and internet communication. The tool will generate the Token Security Code (TSC) tokens and embed with the filtered file to tag them as safe to use. The filtration system experiment is done on DARPA dataset KDD99 (1999 DARPA). The coding part of Intrusion Filtration System (IFS) designed here will combine the algorithm of Binary Decision Tree (BDT) and Pattern Counting Algorithm (PCA). The TSC code will be checked every time the file is used whether it is opened work in system or to send through email or through using USB.

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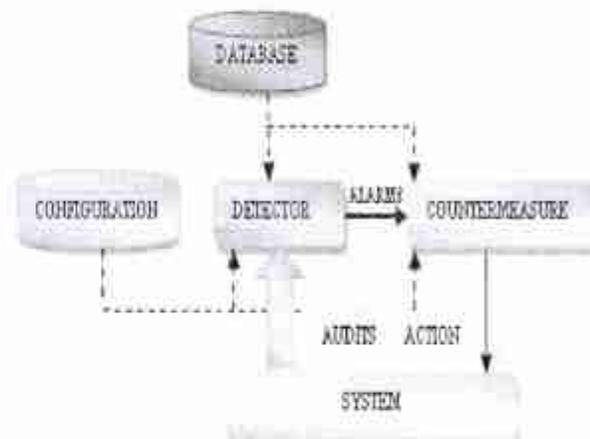


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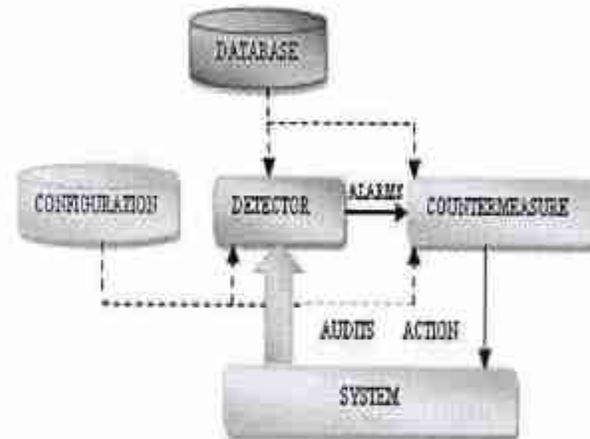


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CONTROLLING AND VOLTAGE BALANCING OF A NEW H-BRIDGE HYBRID MODULAR CONVERTER (HBHMC) FOR HVDC APPLICATION BY USING FUZZY LOGIC CONTROLLER

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Abstract: In this paper H-bridge hybrid modular converter (HBHMC) with fuzzy logic controller is proposed for HVDC applications. The operating modes of HBHMC, novel modulation strategies for voltage balancing of FBSMs, and control of HBHMC based HVDC system is presented in this paper. It uses a wave-shaping circuit (WSC) consisting of series-connected full-bridge sub-modules (FBSMs) at the output of the main H-bridge converter (MHBC). A detailed comparison between HBHMC and other hybrid topologies is performed on the basis of required number of switches and capacitors between PI and fuzzy controller. The efficacy of the HBHMC based HVDC system for three-phase balanced and unbalanced grid conditions and its fault tolerant capability are validated using PSCAD simulation studies. This paper shows the comparative analysis between PI and FUZZY controller. This paper was implemented in MATLAB/SIMULINK.

1.INTRODUCTION

Modular multilevel converter is fast becoming one of the most preferred topologies for VSC based HVDC transmission systems [1]-[4]. This is primarily due to its advantages like modularity, scalability, low conduction losses, low harmonic filter requirement, and low dv/dt, which allows the use of transformer with low insulation requirement. However, MMC has limitations such as, the requirement of a large number of devices and capacitors, inability to block/limit fault current in the event of a dc side fault without using a dc circuit breaker, and the presence of circulating currents in each phase-leg of the MMC [5]-[10]. The circulating current has a significant impact on the ratings of the converter components, capacitors voltage ripples and power losses. A circulating current control is necessary to reduce such impacts [11]-[13].

Moreover, during a dc side fault, a high fault current flows through freewheeling diodes connected across each IGBTs in the MMC [5]-[17]. One of the approaches to tackle this problem is to use a dc circuit breaker as recently proposed in [14]-[17]. In the second approach, instead of the HBSM, another SM with the capability to produce the opposite polarity voltage is used that blocks/limits the fault current magnitude in case of dc side fault [18]-[22]. In the third approach, the converter configuration itself is modified and by using the FBSMs, the fault current limitation is achieved. This family of converters is called as the HMCs [23]-[34]. HMCs consists of mainly two parts, a DS and a WSC. DSs are the series connection of semiconductor switches and WSC is formed by connecting stacks of FBSMs in series.

Among the HMCs, the HCMC has dc fault tolerant capability, lower number of SMs in WSC and quarter the number of SM capacitors to that in MMC, which leads to smaller footprint and lower losses [23]-[26], [30]. However, it has higher losses in the DSs because of hard switching and it requires low order harmonic filters to mitigate low energy spikes due to mis-synchronization of DSs and WSC [24]. Moreover, for balancing of SMs capacitor voltages either more number of SMs are required or the DSs are required to switch at higher frequency, which leads to higher losses [24], [25], [31]. The AAMMC, proposed in [27]-[29], has features like, dc fault tolerant capability, half the number of SMs to that in the MMC and lower losses. However, for the smooth current commutation between upper and lower arms and for the capacitor voltage balancing in WSC, a short duration overlap period is required [31]. It creates a high inrush current in the arms and a

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Moreover, during a dc side fault, a high fault current flows through freewheeling diodes connected across each IGBTs in the MMC [5]-[17]. One of the approaches to tackle this problem is to use a dc circuit breaker as recently proposed in [14]-[17]. In the second approach, instead of the HBSM, another SM with the capability to produce the opposite polarity voltage is used that blocks/limits the fault current magnitude in case of dc side fault [18]-[22]. In the third approach, the converter configuration itself is modified and by using the FBSMs, the fault current limitation is achieved. This family of converters is called as the HMCs [23]-[34]. HMCs consists of mainly two parts, a DS and a WSC. DSs are the series connection of semiconductor switches and WSC is formed by connecting stacks of FBSMs in series.

Among the HMCs, the HCMC has dc fault tolerant capability, lower number of SMs in WSC and quarter the number of SM capacitors to that in MMC, which leads to smaller footprint and lower losses [23]-[26], [30]. However, it has higher losses in the DSs because of hard switching and it requires low order harmonic filters to mitigate low energy spikes due to mis-synchronization of DSs and WSC [24]. Moreover, for balancing of SMs capacitor voltages either more number of SMs are required or the DSs are required to switch at higher frequency, which leads to higher losses [24], [25], [31]. The AAMMC, proposed in [27]-[29], has features like, dc fault tolerant capability, half the number of SMs to that in the MMC and lower losses. However, for the smooth current commutation between upper and lower arms and for the capacitor voltage balancing in WSC, a short duration overlap period is required [31]. It creates a high inrush current in the arms and a

Design of A NEMS Cantilever Sensor for Explosive Detection

P.V.T.Lokesh Kumar, P.H.S Tejomurthy, Dharmireddy Ajay Kumar



Abstract: The particular recognition of explosives in countering fear monger dangers and follow explosives has turned into an appallingly progressed and expensive exertion. This happens because of different impacts, similar to the extensive broad assortment of materials which will be used as explosives, the deficiency of basically perceivable marks, and the monstrous assortment of roads by these weapons might be sent and consequently there will be absence of shoddy sensors with high sensitivity and low vapor analyte property. High sensitivity and property joined with the power, to cut down the orchestrating cost of sensors. Misuse age is basic in winning the war an explosives based demonstration of psychological warfare. Nanosensors can possibly satisfy every one of the necessities of an effective stage for the follow identification explosives. Enhance the sensitivity and selectivity of NEMS cantilever for piezo resistive material in Humidity conditions and manufacture Rectangular Shape Omni directional NEMS cantilever cheap IC and Characteristic chip with Real time reenactment utilizing omniscant.

keywords: NEMS, High Sensitivity, low vapor analyte, selectivity.

I. INTRODUCTION

As the title of this task recommends, this examination centers around the two perspectives, i.e. the utilization of piezoresistive cantilevers in static and dynamic detecting. The displayed work expects to lift the execution of piezoresistive cantilevers in situations where the yield flag is either DC (e.g., strain measures) or an AC (e.g., thunderous sensors) signal[1]. The piezoresistive cantilever is a standout amongst the most prominent transducers, which interprets information from the mechanical space into the electrical area, e.g. the measure of power applied on the cantilever into an obstruction change to the cantilever into a reverberation recurrence change.

A. Explosive Follow Identifiers

As a rule, unstable based psychological warfare has developed greatly since dangerous based weapons are anything but difficult to deploy[4], basic and can cause huge harm identifying explosives. It is a testing errand on account of various issues, for example, the low huge weights out from ultimate detonator, visit

1. Gather waft as a consequence impure examples in distinction to over in other words resting on expressive speculated question;

2. Expressive unstable particles resting on a sorbet material are pre concentrated;

3. The particles discharged from the pre concentrator are adsorbed for location on a flag transduction sensor component;

4. Break down, describe, and report the information. Integral to location is substance acknowledgment utilizing a particular operator and flag transduction.

The most vital execution attributes of follow dangerous of sensors are including high affectability, selectivity, reversibility, and constant task.

II. DESIGN OF PIEZORESISTIVE CANTILEVER

NEMS cantilever sensor depends on redirection of the cantilever pillar. At the point when stack is connected on the cantilever, the focused on components are twisted. The NEMS cantilever will bend[3]. At the point when twisting happens, focuses on structure and shape uproot. At the free end or along the NEMS cantilever surface when it stacked the disfigurement happens. Ordinarily stacking is a power or mass that is appended to the NEMS cantilever which makes the NEMS cantilever twist. As the NEMS cantilever avoids, the came about twisting is named bowing. An outer connected load which causes twisting will result in responses at the free end, comprising of dislodging or redirection.

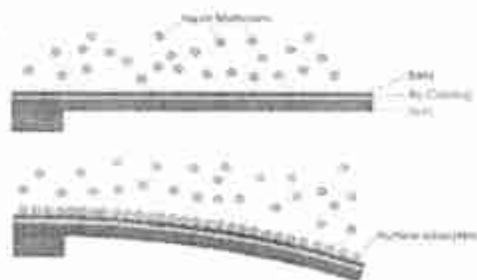


Fig.1.Outline demonstrating sub-atomic adsorption-prompted bowing of a cantilever shaft emerging from various adsorption.

The cantilever bowing happens as the after effect of applying a point compel on the pillar free end is portrayed at a point along the cantilever length, the cantilever diversion on the cantilever tip, can be computed as[1]

$$\delta = \frac{3L^2(1-\nu)}{8t^2} (\sigma_1 - \sigma_2) \quad (1)$$

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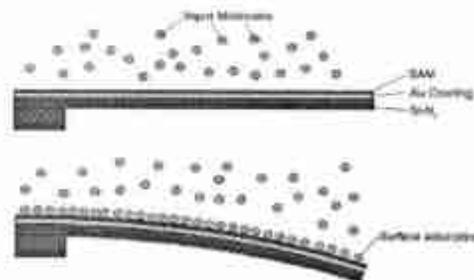


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Renewable Energy Hybrid Power System with Improvement of Power Quality in Grid by using DVSI

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Abstract - This paper presents a dual voltage source inverter (DVSI) scheme to enhance the power quality and reliability of the microgrid system. The proposed scheme is comprised of two inverters, which enables the microgrid to exchange power generated by the Renewable energy resources (RESs) and also to compensate the local unbalanced and nonlinear load. The control algorithms are developed based on instantaneous symmetrical component theory (ISCT) to operate DVSI in grid sharing and grid injecting modes. The proposed scheme has increased reliability, lower bandwidth requirement of the main inverter, lower cost due to reduction in filter size, and better utilization of microgrid power while using reduced dc-link voltage rating for the main inverter. These features make the DVSI scheme a promising option for microgrid supplying sensitive loads. The topology and control algorithm are validated through extensive simulation and experimental results.

Key Words: DISTRIBUTED GENERATOR (DG), Point of COMMON COUPLING (PCC), DUAL VOLTAGE SOURCE INVERTER (DVSI), MAIN VOLTAGE SOURCE INVERTER (MVS), WIND ENERGY SYSTEM (WES), INSTANTANEOUS SYMMETRICAL COMPONENT THEORY (ISCT).

1. INTRODUCTION

Technological progress and environmental concerns drive the power system to a paradigm shift with more renewable energy sources integrated to the network by means of distributed generation (DG). These DG units with coordinated control of local generation and storage facilities form a micro grid. In a micro grid, power from different renewable energy sources such as fuel cells, photovoltaic (PV) systems and wind energy systems are interfaced to grid and loads using power electronic converters. A grid interactive inverter [1] plays an important role in exchanging power from the micro grid to the grid and the connected load. This micro grid inverter can either work in a grid sharing mode while supplying a part of local load or in grid injecting mode, by injecting power to the main grid.

Maintaining power quality is another important aspect which has to be addressed while the micro grid system is connected to the main grid. The proliferation of power electronics devices and electrical loads with unbalanced nonlinear currents has degraded the power quality in the power distribution network. Moreover, if there is a

considerable amount of feeder impedance in the distribution systems, the propagation of these harmonic currents distorts the voltage at the point of common coupling (PCC). At the same instant, industry automation has reached to a very high level of sophistication, where plants like automobile manufacturing units, chemical factories, and semiconductor industries require clean power. For these applications, it is essential to compensate nonlinear and unbalanced load currents.

Load compensation and power injection using grid interactive inverters in micro grid [2]-[5] have been presented in the literature. A single inverter system with power quality enhancement is discussed in. The main focus of this work is to realize dual functionalities in an inverter that would provide the active power injection from a solar PV system [20] and also works as an active power filter, compensating unbalances and the reactive power required by other loads connected to the system [6]. In a voltage regulation and power flow control scheme for a wind energy system (WES) is proposed. A distribution static compensator (DSTATCOM) [8] is utilized for voltage regulation and also for active power injection [18].

This paper demonstrates a dual voltage source inverter (DVSI) scheme, in which the power generated by the micro grid is injected as real power by the main voltage source inverter (MVS) and the reactive, harmonic, and unbalanced load compensation is performed by auxiliary voltage source inverter (AVSI).

2. POWER QUALITY

Power quality disturbance shown in this paper organized into seven categories. They are

1. Transients.
2. Interruptions
3. Sag/Under Voltage
4. Swell/Over Voltage
5. Wave form distortion
6. Voltage fluctuation
7. Frequency variations

2.1. Solutions to Power Quality Problems

There are two approaches to the mitigation of power quality problems. The solution to the power quality can be done

Ancillary Service Management to Improve the Transient Stability in Deregulation Environment

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ABSTRACT

In a deregulated power system, the consumption of transmitted power with the unpredictable variable load tends the frequency and transferring power between the lines to fluctuate. Ancillary services regulate Load frequency, which synchronizes with the automatic generation control (AGC) to provide energy balance. In this paper, Thyristor Controlled Phase Shifter (TCPS) damp out the tie-line power oscillations, along with the coordination of Energy storage devices like Ultra Capacitor (UC), superconductor magnetic energy storage system (SMES), Capacitive Energy Storage (CES) and Redox Flow Batteries (RFB) to damp oscillations in frequencies of both areas. For effective coordination, the control scheme is tested on a two-area power system in the deregulated environment under the PoolCo transaction and bilateral transaction contract scenarios.

Keywords: Automatic Generation Control (AGC), Bilateral transactions, PoolCo transactions, Energy Storage Devices (ESD), Deregulation Environment, Load Frequency Control (LFC).

1. INTRODUCTION

Under deregulation, the generation, transmission, and distribution operate independently, unlike the vertically integrated utility [1]. Energy storage plays a prominent role in the deregulated scenario as the frequency stability and network stability are essential in power system operation. The generation of electricity is provided by the small unit in a large number [2]. In the restructured scenario, maintaining the Grid Integrity, Frequency and Voltage mean as Ancillary Services. These ancillary services are entrusted to the Independent System Operator (ISO), who has to secure these services from various Generating and Transmitting Activities under the monitoring control and guidance of Regulatory Consultants [3].

Load frequency control is one of the key problems in the power system, which synchronizes with automatic generation control. Inspecting the diverse factors that cause unbalance in the power system is necessary, and one of the essential factors random load [4, 5]. In an interconnected power system, the frequency of the system and the terminal voltages are to be maintained within the specified limits to guarantee the quality and reliability of the power generation [1-3].

The new opportunities are available due to the recent advancements in power electronics. FACTS devices are utilized to enhance power system operation & stability [6]. A Thyristor Controlled Phase Shifter (TCPS) is expected to be an efficient means for the management of the tie-line power of an interconnected power system. By modifying the phase angle [7-12], it injects a variable series voltage to affect the power flow. It modulates active power flow in the power system, and its high speed makes it suitable to be used for improving power system operation and control.

Absorption of the power fluctuations may be effectively achieved by incorporating the Energy storage

devices in the power system. Super Capacitor Energy Storage (SCES) unit. Super Capacitor / Ultra Capacitor (UC) store electrical energy during surplus generation and delivers power during peak load demand period within a short duration of time [17]. The power demand is always changing from time to time, which made it unpredictable, and fluctuating may lead to defective power supply [12]. Hence, to diminish this, energy storage devices (ESD) Capacitive Energy Storage (CES) [10], superconducting magnetic energy storage (SMES) [19], ultra-capacitors (UCs), [13, 14] and redox flow batteries (RFBs) [20, 21] can be incorporated so that uninterrupted power is supplied to the load, and concurrently, minimum system cost can be accomplished. SMES is studied for two area thermal systems [19].

If the renewable sources give surplus power over the load demand, it is stored by the energy storage for a short time, and later they discharge them to the grid. They also decrease fluctuations in the grid frequency, thereby improving the power quality. The above works of literature [13-21] have applied various ES devices in diverse fields. In this paper, the FACTS device, the TCPS is used in between the two control areas in series with the tie-line improves the power transfer between the control areas. TCPS in coordination with the various EDS, which diminishes the frequency fluctuations in the power system according to their storage and discharge capacities.

2. MODELING OF DEREGULATED POWER SYSTEM

In the vertically integrated structure of the traditional power system, the Generating Companies (GENCOs), Transmission companies (TRANSCO), and Distribution companies (DISCOMs) are integrated [5]. In this deregulated power system, these three entities are operated independently with the independent system operator, which has their operating data open access to all the entities in the market their goal is to

Enormous Information Examination using Big Data in a Distributed Environment with Profound Learning of Next Generation Interruption Identification Framework Enhancement

J.S.V.G.Krishna, M.Venkateswara Rao, Kattupalli Sudhakar

Abstract: With the developing utilization of data innovation in all life areas, hacking has turned out to be more contrarily powerful than any other time in recent memory. Additionally, with creating advances, assaults numbers are developing exponentially like clockwork and become progressively refined so conventional I.D.S ends up wasteful recognizing them. We accomplish those outcomes by utilizing Networking Chabot, a profound intermittent neural system: Long Short Term Memory (L.S.T.M) [2]over Apache Spark Framework that has a contribution of stream traffic and traffic conglomeration and the yield is a language of two words, typical or strange.

The new and proposed blending ideas of the language are preparing, relevant examination, circulated profound adapting, huge information, and oddity discovery of stream investigation. We propose a model that portrays the system dynamic typical conduct from an arrangement of a great many parcels inside their unique circumstance and examines them in close to constant to identify point, aggregate and relevant inconsistencies. The examination shows lower false positive, higher identification rate and better point abnormalities location. With respect to demonstrate of relevant and aggregate oddities identification, we talk about our case and the explanation for our speculation. Be that as it may, the investigation is done on arbitrary little subsets of the dataset as a result of equipment restrictions, so we offer examination and our future vision musings as we wish that full demonstrate will be done in future by other intrigued specialists who have preferable equipment foundation over our own.

Keywords: I.D.S, L.S.T.M, R.N.N, M.A.W.I, M.A.W.I.LAB, A.G.U.R.I.M.

I. INTRODUCTION

As of late, we have seen heaps of genuine instances of assaults' tremendous effects in various areas, for example, legislative issues and financial matters. Hacking has turned out to be more basic and riskier than any other time in recent memory. The quantity of hacking assaults is developing exponentially like clockwork. That implies signature-based

I.D.S aren't helpful any longer as we can't refresh it with new marks like clockwork. Likewise, with creating innovations assaults become increasingly complex, APT assaults are more typical than any time in recent memory. Customary I.D.S wind up wasteful. Different reasons why conventional I.D.S can't bolster long haul, huge scale examination as [1] said.

1. Holding huge amounts of information wasn't monetarily attainable previously.
2. Performing examination and complex questions on enormous, unstructured datasets with fragmented and uproarious highlights, was wasteful
3. The administration of huge information distribution centers has generally been costly, and their sending for the most part requires solid business cases. The Hardtop system and other enormous information devices are currently commoditizing the arrangement of huge scale, solid bunches and consequently are empowering new chances to process and break down information.

II. DESIGN PROCESS

A. I.D.S and its Types:

I.D.S as a rule has three essential sorts dependent on its area: have I.D.S, arrange I.D.S and mixture I.D.S, as indicated in Fig. 1. System I.D.S is the space of this analysis, so we will discuss in more subtleties. After profound research, we finish up N.I.D.S[4] Hierarchy appeared in Fig. 2. N.I.D.S has two fundamental sorts dependent on the information source that it is observing.

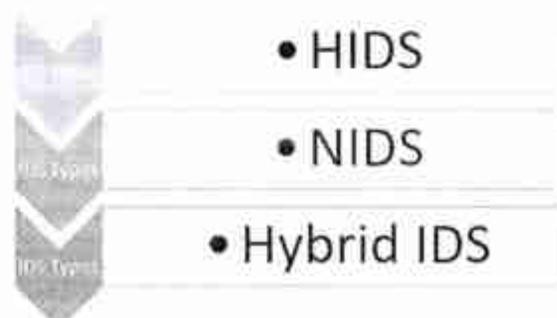


Figure 1: The Intrusion Detection System Categories

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A novel approach for identification of possible GSK-3 β inhibitors using computational virtual screening analysis of drugs

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Abstract: GSK-3 has a prominent role in glucose uptake and was investigated using more specific, ATP-competitive GSK-3 inhibitors. This multifunctional kinase apart from the ability to phosphorylate glycogen synthase and regulate glucose metabolism was subsequently found to be a critical component in numerous cellular functions including regulation of different cell signalling, cell division, differentiation, proliferation and growth as well as apoptosis. In this work, we report molecular docking analysis of 2035 approved drugs from DrugBank database based on their potential to bind against type-2 diabetes protein target, GSK-3 β . Molecular docking analysis revealed several new classes of drugs reported to exhibit inhibitory properties against GSK-3 β . Out of 13 best drugs resulted from the analysis, top three (Venetoclax, Cobicistat and Atorvastatin) were selected based on consensus scoring using six scoring schemes such as MolDock score of Molegro, macle, Pose&Rank, MTTAutoDock, DockThor and DSX respectively.

Keywords: virtual screening; molecular docking; DrugBank; type-2 diabetes; GSK-3 β .

Reference to this paper should be made as follows: Naga Madhavi Latha, K. and Rama Mohan Babu, G. (2019) 'A novel approach for identification of possible GSK-3 β inhibitors using computational virtual screening analysis of drugs', *Int. J. Computational Biology and Drug Design*, Vol. 12, No. 4, pp.312-331.

Biographical notes: Kakarla Naga Madhavi Latha is working as research scholar in the Department of Computer Science and Engineering in Acharya Nagarjuna University, India. She has 12 years of teaching experience in Computer Science and Engineering, and vast research experience. Her areas of research are bioinformatics and data mining.

Implementation of Minigrid with Hybrid Renewable Energy Sources for Urban Community Buildings

S. N. V. Bramareswara Rao, Kottala Padma, Y. V. Pavan Kumar

Abstract: The rapid day-by-day growth of urbanization significantly increases the burden on utility grid that leads to frequent grid failures. So, Renewable Energy Sources (RES) based local power supply systems, called microgrids, are evolved to augment the utility grid supply. However, these microgrids possess uncertain power generation capacity due to the dependency on variable and uncertain environmental conditions. Thus, the grid failures continued due to unreliable operation of the microgrids. So, as a solution to enhance the reliability of microgrids, this paper suggests an integration of multiple microgrids in an urban locality, which are built by different RES and form a local integrated grid, called "minigrid". This is further motivated by the present scenario of urban buildings, where most of the cases, the heterogeneous load natured buildings are grouped together in an urban neighborhood, thereby, facilitating resource sharing. This collective operation of multiple microgrids share the generators across all of their loads, thereby manages the power requirement in the locality itself instead of depending on the utility grid. With this view, this paper discusses the development of urban community minigrid, which is formed by integrating different categories of buildings, where each building is associated with its microgrid. This proposed minigrid scheme enhances the power supply reliability by enabling power-sharing among the buildings; as a consequence, it reduces the burden on utility grid. Further, this minigrid enables power import or export to the utility grid during deficit or excess local power generation conditions.

Keywords: Microgrids, Minigrid, Renewable Energy Sources, Urban buildings, Utility grid.

I. INTRODUCTION

In the developing and under-developed countries, it is a globally accepted reality that electricity is a typical component, which majorly impacts economic growth. Besides, this present century, where people keep on pursuing a high quality of life, demands more and more electrical energy. However, the rapid decrease of fuel required for conventional power plants pushes for searching for alternative sources of power generation. So, the focus has been shifted to the locally available renewable energy sources based power plants, called "microgrids". Fundamentally,

microgrids, the low-power and local generating stations are originated to feed the supply needs of the consumers located at remote areas, where, the process of installing conventional power generating plants or extension of transmission and distribution lines is very uneconomical [1]. But, because of the current globalization era, these rural/remote areas in the world are shifting towards urban communities and causing more burden on the utility grid [2]. Hence, the microgrids' design focus has been moving towards urban communities. This reduces the global depletion of conventional fossil fuel-based utility grid energy and thereby reduces the burden on the utility grid. But, the uncertain nature of microgrid energy leads to unreliable power generation. So, enhancing the reliability of microgrids is the primary challenge in microgrids' research. From the literature, it is seen that the interconnection of microgrids is identified as one of the potential solutions to enhance power reliability. Many methods, based on droop control logics, optimization, artificial intelligence, etc., have been developed to achieve the interconnection as mentioned follows.

Microgrids' interconnection possibilities were discussed in [3]-[5]. Hybrid ac/dc microgrid, which consists of both ac and dc networks connected together by multi-bidirectional converters was discussed in [3]. Later in [4], a new method based on bidirectional de-dc converter and dc cable was introduced for the interconnection of microgrids. In [5], a decentralized power-sharing method was used for the possible interconnection of two microgrids. Similarly, various microgrids' interconnection architectures were presented in [6]. After the successful integration of microgrids, the focus of research has been transformed to design and control of various critical operational parameters of multi-microgrids. The droop strategy has attracted great attention in microgrid operation because of its considerable advantages [7]-[12]. One such major advantage is that the droop control can be used for both island mode of operation and grid mode of operation. For a droop-controlled microgrid, it is very important to design the droop coefficients for the inverter controller, as they have a great impact on the operational characteristics of the system. Matrix perturbation theory for the coordinated optimization of the droop coefficients was presented in [7], and later, a secondary voltage control of microgrids based on the distributed cooperative control of multi-agent systems has been introduced in [8].

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Spammers Detection on Twitter by Automated Multi Level Detection system

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Abstract – Twitter is one of the most well known micro-blogging administrations, which is commonly used to share news and updates through short messages confined to 280 characters. In any case, its open nature and huge client base are every now and again misused via robotized spammers, content polluters, and other not well expected clients to carry out different cyber violations, for example, cyber bullying, trolling, rumor dissemination, and stalking. Likewise, various methodologies have been proposed by specialists to address these issues. Nonetheless, the majority of these methodologies depend on client portrayal and totally dismissing shared communications. In this examination, we present a hybrid methodology for recognizing mechanized spammers by amalgamating network based features with other feature classifications, to be specific metadata-, content-, and association based features. The curiosity of the proposed methodology lies in the portrayal of clients dependent on their communications with their supporters given that a client can dodge features that are identified with his/her very own exercises, yet sidestepping those dependent on the devotees is troublesome. Nineteen distinct features, including six recently characterized features and two re-imagined features, are distinguished for learning three classifiers, in particular, irregular woods, choice tree, Bayesian system, and example pre-handling on a genuine dataset that involves generous clients and spammers. The separation intensity of various feature classifications is additionally broke down, and cooperation and network based features are resolved to be the best for spam identification, though metadata-based features are demonstrated to be the least compelling.

Keywords: Social network analysis, Spammer detection, Spambot detection, Social network security.

1. Introduction

Twitter, a micro blogging administration, is viewed as a mainstream OSN's with a huge client base and is pulling in clients from various different backgrounds and age gatherings. OSNs empower clients to stay in contact with companions, family members, relatives, and individuals with comparative interests, calling, and targets. What's more, they enable clients to connect with each other and structure networks. A client can turn into an individual from an OSN by enlisting and giving subtleties, for example, name, birthday, sex, and other contact data. Albeit countless OSNs exist on the web, Facebook and Twitter are among the most famous OSNs and are remembered for the rundown of the best 10 websites around the world.

OSN and the Social Spam Problem

Twitter, which was established in 2006, enables its clients to post their perspectives, express their considerations, and offer news and other data as tweets that are confined to 280 characters. Twitter enables the clients to pursue their preferred lawmakers, competitors, big names, and news channels, and to buy in to their substance with no prevention. Through after movement, a supporter can get notices of bought in account. Despite the fact that Twitter and different OSNs are for the most part utilized for

different kindhearted purposes, their open nature, immense client base, and constant message multiplication have made them rewarding focuses for cyber crooks and social bots. OSNs have been demonstrated to be hatcheries for another type of mind boggling and complex assaults and dangers, for example, cyberbullying, falsehood dissemination, stalking, character trickery, radicalization, and other illegal exercises, notwithstanding traditional cyber assaults, for example, spamming, phishing, and drive by download [1], [2].

Throughout the years, old style assaults have developed into refined assaults to avoid identification instruments. A report² submitted to the US Securities and Exchange Commission in August 2014 demonstrates that around 14% of Twitter accounts are really spambots and roughly 9.3% of all tweets are spam. In informal communities, spambots are otherwise called socialbots that copy human conduct to pick up trust in a system and afterward abuse it for malignant exercises [3]. Such reports and discoveries exhibit the degree of cyber wrongdoings submitted by spambots and how OSNs are demonstrating to be a paradise for these bots. Despite the fact that spammers are not exactly kindhearted clients, they are fit for influencing system structure and trust for different unlawful purposes.

Performance Analysis of Double Gate Hetero Junction Tunnel Fet

Anjani Devi N, Ajaykumar Dharmireddy, Sreenivasa Rao Ijjada

Abstract: In this paper, a novel heterojunction tunnel field-effect transistor (HTFET) using Sentaurus technology computer-aided design (TCAD) simulations has been presented. The InAs/GaSb compound materials are used in both single gate heterojunction TFET (SG-HTFET) and Double gate heterojunction TFET (DG-HTFET) with SiO₂ gate oxide layer to increase performance of the device. The implemented SG-HTFET and DG-HTFET device are increase the TFET's cross-sectional tunnel area. This result develops the subthreshold swing (SS) by 2.45 times, drive current (I_{ON}) is close to 10⁸ A/μm, leakage current (I_{OFF}) is close to 10⁻¹⁷ A/μm and also diminish the ambipolarity of the device compared to the TFET.

Keywords : Ambipolarity, Heterojunction TFET (HTFET), Double gate heterojunction transistor (DG-HTFET), tunnelling field-effect transistor (TFET).

I. INTRODUCTION

One of the major challenge in the sub-30 nm regime's scaling of CMOS technology is power consumption[1]. A MOSFET's scaling under the 30-nm regime includes extreme supply voltage (VDD) scaling. Conversely, the subthreshold slope (SS) minimum fundamental limit on VDD scaling. To overcome this problem, energy filtering mechanisms-based devices such as TFETs are being more investigated to achieve the steep switching value below 60 mV/decade(at room temperature) [2]. Using materials such as Si, Ge, SiGe, and III-V materials several device structures have been implemented over the past decade to generate TFETs with high on current(I_{on}), low on/off current ratio (I_{on}/I_{off})[3]-[5]. Because the band gap energy of InAs / GaSb compound materials is less, these materials are competitive among other material systems.

Due to their complete process technology, HTFET's constructed using III-V materials with limited lattice imbalance such as InAs / GaSb are of great attention to the system research community[6]-[8]. Area-scaled TFET systems have been developed in the recent past to improve the cross-sectional area of the device tunnelling [9],[10].The use of area-scaled TFETs increases the device footprint area compared to existing TFETs for the same channel length[5]. Therefore, to remedy this situation, a nonplanar architecture is required [11]. Recently, a tunnel junction structure developed by Hetro junction TFET (HTFET) was proposed

to increase the drive current with a reduced device footprint area[12].

The work is structured as follows: in section II the device structure and also the simulation setup for device optimization is elaborated. In section III, the proposed device simulations are presented. Comparison parameters in TFET, SG-HTFET and DG-HTFET in Section IV. And finally, the paper is concluded in Section V.

II. DEVICE ARCHITECTURE AND SIMULATION SETUP

On the source side, an HTFET structure is doped with InAs material and GaSb material as a channel and drain side doped material.

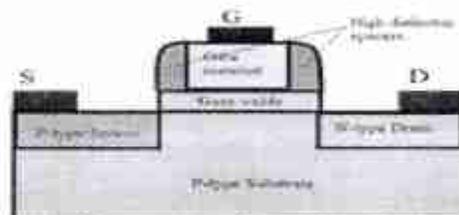
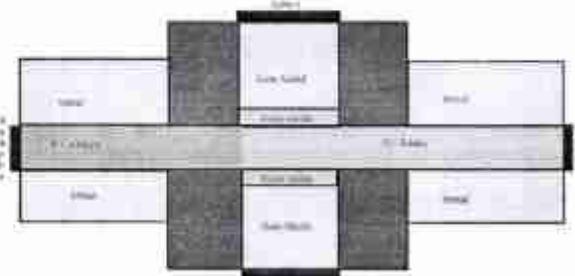


Fig. 1(a) single Gate HTFET.



(b)Double gate HTFET

The SG-HTFET and DG-HTFET device cross section is shown in Fig. 1(a) and (b) above. Throughout the simulation, a metal gate work function= 4.6 eV with a 3 nm gate oxide layer (SiO₂) (EOT=0.5 nm).The doping concentration of 5×10¹⁹ is fixed for source and 5×10¹⁸ for both drain and channel.

Table 1. Simulation setup of device parameters and values.

S.NO	Para meters	values
1	p-type doping (source)	5×10 ¹⁹ cm ⁻³
2	n-type doping (drain)	5×10 ¹⁸ cm ⁻³
3	n-type doping (channel)	1×10 ¹⁷ cm ⁻³
4	HfO ₂ material thick ness	10nm
5	SiO ₂ material thick ness	3nm
6	Gate metal/ thick ness	7nm
7	Gate workfunction	4.6 eV

The geometric setup of the hetero junction TFET as InAs material is used in source, channel and substrate.

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A Novel Hybrid Precoding Technique for Spectrum and Energy Efficient Relay's used in Millimeter Wave Massive MIMO Systems

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1. Sr. Asst. Prof., Dept. of ECE, Sir. C. R. Reddy College of Engg., 2. Prof., Dept. of ECE, ANITS Engg. College.

3. Prof., Dept. of ECE, AU College of Engg., 4. M.Tech, ECE Student of Sir. C. R. Reddy College of Engg

ABSTRACT: This paper describes the design of a novel hybrid precoding technique for spectrum and energy efficient relay's used in millimeter wave massive MIMO systems. A modified iterative successive approximation algorithm, i.e., phase shift iterative successive approximation hybrid precoding technique is used to minimize the interferences and to increase the spectrum and energy efficiency. The wireless transmission data traffic is increasing day by day, so there is a need to define high performance offering massive MIMO systems to increase the quality of the wireless data transmission. One of the most promising technologies for the next generation of wireless communication networks is the Massive multiple-input multiple-output (MIMO) because it has the capacity to produce Critical and having the potential to change the overall outcome in spectral efficiency (SE) and energy efficiency (EE). In this we have extended our analysis on the performance of Relay system with the number of antennas and user equipment. For 128 X 128 transmitter and receiver antennas the channel capacity achieved is 350 bps/Hz. Because of incorporation of phase shifting the inference problems are reduced and is proved with improvement in SNR.

INDEX TERMS MIMO, Millimeter wave Communication, Relay, Energy Efficiency, Base Station, User Equipment, Precoding.

I. INTRODUCTION

The future generation communication application demands the millimeter wave massive MIMO modules which are essential in the design of base stations. The millimeter wave frequency is in the range 3 GHz to 300 GHz, and the license free band is at 60 GHz (IEEE 802.11ad). Massive MIMO supports much large number of antennas. Scalability of precoding and detection, CSI estimation, and accurate synchronization are the research challenges of massive MIMO. Advantages of massive MIMO are, Improves the spectrum efficiency by orders of magnitude and Improves the energy efficiency by orders of magnitude. Key requirements of 5G are Spectrum Efficiency (SE) and Energy Efficiency (EE).

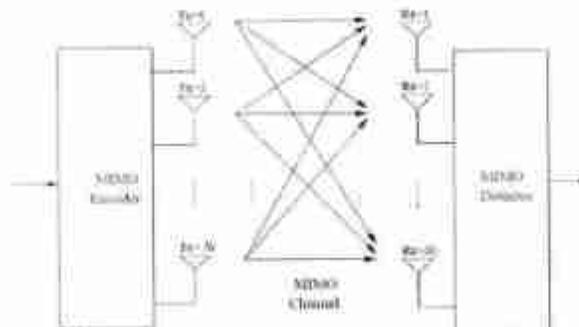


Fig. 1: Conventional MIMO M:2-8, K:1-4 (LTE-A).

TWR 3

Design of a Compact Sectorial MIMO Antenna for Base Station Systems

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Abstract—In the given paper, a MIMO antenna with three ports is presented which occupies a volume of $31 \times 27 \times 18 \text{ mm}^3$. The proposed antenna contains three individual antenna segments connected at the center and forms a Y-shaped structure with CPW fed flag-shaped radiating elements. The antenna attains the -10dB impedance bandwidth ranging from 5.93-16.36 GHz that covers the part of C-band and X-band respectively. The radiation performance of the antenna is also analyzed for various operating frequencies for single antenna and MIMO antenna to study the pattern and noticed bidirectional patterns in the azimuth plane. The simulation results prove that the antenna operates with a maximum peak realized gain of 5.96dB, 6.85dB, 6.52dB in MIMO mode in the operating band of the antenna.

Keywords—3-port, MIMO, BTS, Micro/Pico cell, pattern diversity

I. INTRODUCTION

Nowadays, the need for high data rates and high efficiency communication systems to assist quality communication and multi-application assistance is increasing rapidly. The MIMO systems are supposed to enhance the performance of the wireless link with increased capacity. Many wideband systems can be better operated by adopting this multiple-input-multiple-output (MIMO) technology. The MIMO antenna design with low mutual coupling between ports is a typical problem for engineers. There are many solutions proposed in the literature towards reducing this problem. Most of the MIMO antenna techniques for obtaining polarization diversity is by the orthogonal placement of radiating elements [1-2]. A self-decoupled structure is proposed in [3] for a Tri-port MIMO antenna. The corners of the ground plane are etched with four slots in [4] to obtain the mutual coupling reduction for MIMO antenna in WiFi/LTE wireless access point applications. The T-shaped decoupling structure is placed in between the radiating elements. An isolated metal strip is placed in between the staircase-shaped radiating elements which are connected back to back as discussed in [6]. In [7] a wideband neutralization line above the copper ground is incorporated as which can reduce mutual coupling between antenna elements. Few MIMO antennas with three-ports are also reported in literature which uses the dielectric resonator elements are presented in [8,9] and a unidirectional UWB antenna is presented for multi-service base station applications is proposed in [10-12].

The proposed design consist of a compact 3-port MIMO antenna with flag shaped radiators is proposed for base station or micro/picocell applications. The construction of antenna with iterations is explained in Section-II. The parametric variations in the design are discussed in Section-III and this is extended with results and discussions including the S-parameters and characteristics of radiation of the antenna are given in Section-IV then given conclusion of the entire design.

II. MIMO ANTENNA DESIGN

The proposed antenna geometry is as shown in Fig. 1. It consists of three antenna elements designed on FR4 substrate material whose relative permittivity is 4.4 and loss tangent is 0.02. The required antenna is designed by connecting three substrates at their common edge such that all antenna elements are separated at an angle of 120° each other. The geometry of each antenna used in the MIMO design are identical and the fundamental element consists of flag-shaped radiating element which is excited by a tapered coplanar waveguide feeding. The feedline is tapered to maintain the impedance matching over the wide operating band as shown in the Fig. 2(b). The flag shaped element is formed by adding the triangular segment to the left edge of rectangular patch which is shown in Fig. 2(a). The CPW ground that possesses asymmetric lengths shown in Fig. 2(a) is extended vertically for the single antenna structure in order to steer the radiation pattern towards boresight direction of the individual antenna element. The radiating patches are placed nearer to the edge of the substrate to decrease the mutual coupling effect between the antenna elements. The geometrical parameters used in the antenna design are listed in Table I.

TNR (3)

Design of a Compact Sectorial MIMO Antenna for Base Station Systems

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Analysis on soft fuzzy clustering methods to cluster drugs from virtual screening paradigm as probable GSK-3 beta inhibitors against diabetes

Naga Madhavi Latha Kakarla¹, G. Rama Mohan Babu²

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Abstract- Cluster analysis being *unsupervised knowledge* method where the objects are organized into groups based on their similarities. A hard partition induces the complete task of assigning data points to one cluster. Fuzzy clustering permits addition of continuing memberships of data to clusters. Fuzzy clustering simplifies partition based clustering approaches by permitting a discrete data point to be categorized into two or more clusters. Fuzzy C-Means (FCM) approach does clusters by repetitively probing for a set of fuzzy clusters. A fuzzy clustering approach was implemented to delineate nearly 13 drugs which are known to inhibit GSK-3 beta in a computational virtual screening study. Clusterability of the dataset was investigated by Hopkins statistic. Sum of possible clusters for the dataset was estimated by few statistical methods. Fanny and FCM methods and their respective validation procedures were carried out. Comparison of clusters from fanny and fuzzy c-means suggest that the FCM method is the best choice for the given dataset.

KeyWords: clustering, fuzzy, fuzzy c-means, fanny, validation

Introduction

Clustering is an algorithmic method which depends on several factors such as field of application, types of variables, size of the data set, and prior information about clusters. Clustering can be considered as *unsupervised learning* [1] where the objects are organized into groups based on their similarities. The general necessities of any cluster based grouping algorithm are [2]: scalability, different characteristics, finding bunches with subjective shape; capacity to manage noise and exceptions; high dimensionality; interpretability and ease of use. An essential part of cluster programs is the separation measure between datapoints. On the off chance that the segments of the information vectors are all in the equivalent physical units then it is conceivable that the straightforward Euclidean metric is adequate to effectively assemble comparable information cases [3]. Clustering is a strategy for arranging information, an instrument for finding recently concealed structure in the arrangement of unordered protests and utilized as a technique for information decrease [4].

These strategies can be recognized with respect to how they allocate information to groups, i.e., what kind of allotments they result. In established group investigation every datum must be represented to precisely one bunch. These traditional strategies yield thorough allotments of the model set into non-void and pairwise disjoint subsets. Such hard task of information to group can be lacking in nearness of information indicates that are similarly far off at least two bunches. Such exceptional information focuses can represent hybrid-type or mixture objects which are similarly like at least two sorts. A hard partition powers the full task of such information focuses to one of the groups, in spite of the fact that they ought to similarly have a place with every one of them [5].

Fuzzy group investigation along these lines permits progressive enrollments of information focuses to bunches in [0, 1]. This gives the adaptability to express that information directs have a place toward more than one bunch in the meantime. Moreover, these participation degrees offer an a lot better level of detail of the information demonstrate. Beside allocating an information point to groups in equivalent offers, participation degrees can likewise express how vaguely or certainly an information point ought to have a place with a bunch [6]. In fuzzy clustering the information focuses to bunches have been fuzzified to permit fine grained arrangement spaces as fuzzy allotments of the set [7].

Fuzzy methods attempt to locate a decent fuzzy division and group models utilizing global criteria for optimality in type of a goal work. The target function relies upon both the bunch models and the enrollments of information focuses to the



IMPLEMENTATION OF ARTIFICIAL NEURAL NETWORK

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Abstract: - This paper presents an emergence of an Artificial Neural Network (ANN) as a tool for analysis of different parameters of a system. An Artificial Neural Network (ANN) is an information-processing paradigm that is inspired by the way biological nervous systems such as brain, process information. ANN consists of multiple layers of simple processing elements called as neurons. The neuron performs two functions, namely, collection of inputs & generation of an output. Use of ANN provides overview of the theory, learning rules, and applications of the most important neural network models, definitions and style of Computation. The mathematical model of network throws the light on the concept of inputs, weights, summing function, activation function & outputs. Then ANN helps to decide the type of learning for adjustment of weights with change in parameters. Finally the analysis of a system is completed by ANN implementation & ANN training & prediction quality.

Keywords: Biological Inspiration, ANN Methodology, ANN Implementation and Prediction.

I. INTRODUCTION

Many tasks involving intelligence or pattern recognition are extremely difficult to automate, but appear to be performed very easily by humans. For instance, humans recognize various objects and make sense out of the large amount of visual information in their surroundings, apparently requiring very little effort. It stands to reason that computing systems that attempt similar tasks will profit enormously from understanding how humans perform these tasks, and simulating these processes to the extent allowed by physical limitations. This necessitates the study and simulation of Neural Networks. The neural network of an

human is part of its nervous system, containing a large number of interconnected neurons (nerve cells). "Neural" is an adjective for neuron, and "Network" denotes a graph like structure. Artificial Neural Network refers to computing systems whose central theme is borrowed from the analogy of biological neural networks. Artificial Neural Networks are also referred to as "Neural Nets", artificial neural systems "parallel distributed processing systems" and "connectionist systems". For a computing system to be called by these pretty names, it is necessary for the system to have a labeled directed graph structure



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2018								
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Fabrication And Optimization Of Wear Parameters On Al 2024-Gr- B4C Hybrid Mmes during Machining Process	Sri B.V. Subrahmanyam	Mechanical Engineering	International Journal of Applied Engineering Research Volume 13, Number 12 (2018)	2018	ISSN 0973-4562	https://www.ripublication.com	https://www.ripublication.com/ijaer18/ijaerv13n12_59.pdf	UGC
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Convolution Neural Based Deep Learning Systems For Detecting Objects,	G.Krishnaveni	Information Technology	International Journal of Innovative Technology and Exploring Engineering	2018	ISSN: 2581-4620	https://ijetms.in/	ijetms.in/vol-2-issue-2/Vol-2-Issue-2-4.PDF	UGC

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Properties Of Recycled Aggregate Used For Construction Of Roads	K.Dharani	Civil Engineering	International Journal of Research and Analytical Reviews (IJRAR)	2018	ISSN: 2348-1269	https://www.ijrar.org/	https://www.ijrar.org/papers/IJRAR1903216.pdf	UGC
Properties Of Recycled Aggregate Used For Construction Of Roads	Vanga Renuka	Civil Engineering	International Journal of Research and Analytical Reviews (IJRAR)	2018	ISSN: 2348-1269	https://www.ijrar.org/	https://www.ijrar.org/papers/IJRAR1903216.pdf	UGC
Performance evaluation of maximum power plant tracking approaches for PV array under PSC with differential converters	J.Ayyappa	EEE	International Journal of Engineering and Advanced Technology (IJEAT)	2018	ISSN: 2249 – 8958	https://www.ijeat.org/	International Journal of Soft Computing and Engineering (ijeat.org)	UGC

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Varying operating frequency of concentric circular ring patch antenna using high impedance surface	G. Srilatha	ECE	International Journal of Engineering & Technology	2018	ISSN: 2227-524X	https://www.sciencepubco.com/	https://doi.org/10.14419/ijet.v7i3.29.18461	SCOPUS
Evolutionary Programming Techniques for solving Non- Convex Economic load Dispatch Problem with Valve-Point Loading Effect	A Srinivasa Reddy	EEE	International Journal for Research in Applied Science and Engineering Technology	2018	ISSN: 321-9653	https://www.ijraset.com/	https://www.ijraset.com/fileserve.php?FID=18670	UGC
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A critical study and analysis of journal metric "CiteScore", cluster and regression analysis	Adimulam Yesubabu	CSE	International Journal of Engineering and Technology	2018	Vol 7, No 2.7 (2018)	https://www.academia.edu/88760747/A_critical_study_and_analysis_of_journal_metric_CiteScore_cluster_and_regression_analysis	SCOPUS
A critical study and analysis of journal metric "CiteScore", cluster and regression analysis	K. Varada Raj kumar	CSE	International Journal of Engineering and Technology	2018	Vol 7, No 2.7 (2018)	https://www.scienccpubco.com/index.php/ijet	SCOPUS
Software Defect Prediction using Adaptive Neuro Fuzzy Inference System	Dr A Yesubabu	CSE	International Journal of Applied Engineering Research I	2018	ISSN 0973-4562	https://www.ripublication.com/ijaer18/ijaerv13n1_53.pdf	UGC
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Fabrication And Optimization Of Wear Parameters On Al 2024-Gr- B4C Hybrid Mmcs during Machining Process	Sri K.Sunil Ratna Kumar	Mechanical Engineering	International Journal of Applied Engineering Research Volume 13, Number 12 (2018)	2018	ISSN 0973-4562	https://www.ripublication.com	https://www.ripublication.com/ijaer18/ijaer13n12_59.pdf	UGC
A Context Establishment Framework For Cloud Computing Information Security Risk Management Based On The STOPE View	P Rajendra Kumar	Information Technology	International Journal of Pure and Applied Mathematics	2018	ISSN: 1311-8080	https://www.ijpam.eu/	https://acadpubl.eu/ijp/2018-118-18/articles/18b/18.pdf	UGC

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Comparative Analysis of SPSO and PSO to Optimal Power Flow Solutions

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Abstract: In this paper two optimization techniques Particle Swarm Optimization (PSO) and Sliced Particle Swarm Optimization (SPSO) are used for solving Optimal Power Flow (OPF) problem for steady state analysis. The objectives that are taken in this paper are to minimize the total generation cost and active power loss of the power system. The effectiveness of the proposed methods was tested on the IEEE-30 bus system.

Keywords: Optimal Power Flow (OPF), Particle Swarm Optimization (PSO), Sliced-particle Swarm Optimization (SPSO).

I. INTRODUCTION

Optimal power flow considered to be the backbone tool in the complex power system. The expanding in demands lead to increasing in generation that requires increases the thermal capacity, for these reasons the problem of optimal power flow (OPF)[1-2] still under many studies in order to minimize the cost, losses, emission of harm gases, etc. The power flow or load flow analysis gives the voltages, phase angles, active and reactive power at each bus. Recently, the success of the appropriate by evolutionary algorithms for the solution of complex problems, and the improvement made in computation such as parallel computation have simulated the development of new algorithms like PSO [3-4] and SPSO [5] gives greater convergence characteristics and capability of determining global minima. The results are obtained for the IEEE-30 bus system [6].

II. OPTIMAL POWER FLOWS

OPF aims to optimize a certain objective, subject to the system power flow equations and equipment operating limits. The optimal condition is attained by adjusting the available controls to minimize an objective function subject to specified operating and security requirements [7]. The PSO and the SPSO are applied to minimize the fuel cost of generation and to improve the system performance by maintaining thermal and voltage constraints. Mathematically

A. The Objective Functions Are

Minimization of generation fuel cost

$$F = \sum_{i=1}^{ng} (a_i P_{Gi}^2 + b_i P_{Gi} + c_i) \dots\dots\dots (1)$$

The minimization of above objective function subjected to both equality and inequality constraints

B. Equality constraints

$$P_{Gi} - P_{Di} - \sum_{j=1}^n |V_i||V_j||Y_{ij}| \cos(\theta_{ij} - \delta_i + \delta_j) = 0 \dots\dots\dots (2)$$

$$Q_{Gi} - Q_{Di} + \sum_{j=1}^n |V_i||V_j||Y_{ij}| \sin(\theta_{ij} - \delta_i + \delta_j) = 0 \dots\dots\dots (3)$$

Where P_{Gi} and Q_{Gi} are the real and reactive power outputs injected at bus i respectively, the load demand at the same bus is represented by P_{Di} and Q_{Di} , and elements of the bus admittance matrix are represented by $|Y_{ij}|$ and θ_{ij} .

C. Inequality constraints are

1) Generators real and reactive power outputs

$$P_{Gi}^{min} \leq P_{Gi} \leq P_{Gi}^{max}, i = 1, \dots, N \dots\dots\dots (4)$$



Experimental Studies on a VCR Diesel Engine using Blends of Diesel Fuel with Karanja Bio-Diesel

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Abstract - Increasing fuel prices and depleting fossil fuel resources in recent years drawn attention towards the use of alternative fuels for diesel engines. The use of vegetable oil is popular, economic and implementable source among the various fuel alternatives. As the petroleum reserves are depleting at a faster rate due to the growth of population and more energy needs, leads to serious search for renewable alternative fuels. A single cylinder computerized variable compression ratio engine was operated successfully using karanja bio-diesel and its blends of karanja oil methyl ester. The following conclusions are made based on experimental results.

With the increase in load, mechanical efficiency of B20 increased in 17.5:1 compression ratio. With the increase in load, specific fuel consumption of B10 decreased in 17.5:1 compression ratio. With the increase in load, brake thermal efficiency of B10 increased in 17.5:1 compression ratio. With the increase in load, mechanical efficiency of B10 increased in 21:1 compression ratio. With the increase in load, break thermal efficiency of B20 increases in 21:1 compression ratio. With increase in load, specific fuel consumption of B10 decreases in 21:1 compression ratio. The blends B10 and B20 can be used as alternate substitutes for neat diesel. These blends sustain performance on par with neat diesel and also safe pollution levels.

Keywords - VCR engine, Emissions, Combustion, Karanja bio-diesel and Neat diesel.

I. INTRODUCTION

Fast depletion of the fossil fuels, increasing threat to the environment from exhaust emissions and global warming have generated intense interest in developing alternate fuels for engines all over the world. In the context of fast depletion of fossil fuels and increasing of diesel engine vehicle population, the use of renewable fuels like vegetable oils becomes more important. Among all petroleum based fuels, diesel oil used in a diesel engine that dominates the field of commercial transportation and agricultural machinery due to its ease of operation and higher efficiency. The consumption of diesel oil is several times higher than that of petrol. The increasing number of auto mobiles has lead to increase in demand of fossil fuels. The import bill is directly in proportionate with increasing cost of petroleum and hence a concern for developing countries. Energy security and environmental protection are important. Limited life of Fossil fuels and their ever increasing cost led to the search of renewable fuels for various sectors like transportation, agriculture and industries are using diesel fuel as a major source of power. With ever-in- creasing population, the usage of automobiles also increased, which leads to the

consumption of higher amount of fossil fuels. Bio-diesel is a cleaner burning replacement fuel for diesel available from natural sources such as virgin and used vegetable oil, algae and animal fats.

Bio-diesel emerges as one of the most energy-efficient environmentally friendly options in recent times to full fill the future energy needs. During the last 15 years, bio-diesel has progressed from the research stage to a large scale production in many developing countries. In Indian context, non-edible oils are emerging as a preferred feedstock and several field trials have also been made for the production of bio-diesel.

The present work studies the results of application of a Karanja bio- diesel on a practical heavy-duty VCR diesel engine, with the aim of knowing their impact on exhaust emissions and performance. The goal of this experimental study is to analyze the new fuel contributions to potential performance and efficiency loss. An attempt is made to assess the combustion and performance phenomenon of Karanja bio-diesel fuel. An investigation covering the performance, emissions is dealt with to evaluate the engine under various fuel blend implementations.



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Transient Stability Performance Analysis of Multimachine Power System using Facts Device

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Abstract

Modern power system transmission networks are becoming with increasing complexity due to growing demand. Losing stability is one of the major problems of such modern power system following a disturbance. Transient stability control plays a vital role in ensuring the stable operation of power system during the fault. FACTS technologies is an effective tool for better controllability and increase transfer capability. The main objective is the comparative performance analysis of STATCOM, SVC and UPFC for improve the transient stability of multi machine system to a simple SIMULINK is considered for this purpose.

Keywords - FACTS, power system stability, svc, statcom, upfc, IEEE 9bus system & IEEE 14bus system.

I. INTRODUCTION

A power system generally consists of three stages: generation, transmission, and distribution. Power systems are designed to provide continuous power supply that maintains voltage stability. However, due to undesired events, such as lightning, accidents short circuits may occur between phases to phase or phase to ground is known as fault. Due to this one or more generators may be severely disturbed causing an imbalance between generation and demand if the fault is not cleared in a pre-specified time; it may cause severe damage to the equipment. Protective equipment is installed to detect fault and clear/isolate [1]. FACTS technology is becoming more and more popular due to improvement in Power Electronics technology and reduction in costs. The term FACTS covers number of devices which may be working in isolation or in coordination with a few other devices. Several FACTS controllers for shunt, series or both shunt and series compensation are now operating in power systems around the world. By controlling impedance or phase angle or series injection of appropriate voltage a FACTS Controller can control the power flow as required. The FACTS facilitates power flow control, increased power transfer capability, and enhances the security and stability of power systems without expanding transmission and generation utilities. Excellent applications of FACTS controllers, such as the static var compensator (SVC),

the unified power flow controller (UPFC), and the Static Synchronous Compensator (STATCOM), have yielded successful results. It has been shown in recent case studies that FACTS can provide a more flexible stability margin to power systems and also improve power transfer limit in either shunt or series compensation [2]. Static Synchronous Compensator and Static Var Compensator are the shunt devices of the Flexible AC Transmission Systems (FACTS) family. When the system voltage is low, STATCOM generates reactive power and when the system voltage is high then it absorbs reactive power whereas SVC is also operates as same as the STATCOM. SVC provides the fast acting dynamic compensation in case of severe fault. The UPFC is more effective Flexible AC Transmission Systems (FACTS) device for controlling active and reactive power flow. FACTS technologies are found to be very effective in a power system transmission network for better controllability and increase power transfer capability without sacrificing the desired stability margin. This paper provides the comparative performance analysis of SVC, STATCOM and UPFC for improvement of transient stability of multi machine systems [1].

The paper is mainly organized into four sections the first section is introduction, the second one is a related work, the third one is research work in both two and three sections explain about the modeling. The fourth section is mat lab simulation and results of both 9-bus and 14-bus systems the fifth section is conclusion and followed by acknowledgment and references.

II. RELATED WORK

A. Multi Machine System Modeling

The popular western system coordinated council (WSCC) 3-machine 9-bus practical power system with loads assumed to be represented by constant impedance model has been considered as a test case. Fig.1 shows the WSCC 3-machine 9-bus system. The base MVA of the system is 100, and system frequency is 50HZ. Here, generator G1 is connected to slack bus 1, whereas generator G2 and G3 are connected to bus bars 2 and 3, respectively. Loads A, B, C are connected in bus bar 5, 6 and 8 respectively. The transient stability analysis has been

Fabrication and Optimization of Machining Parameters on Al 2024-Gr-B₄C Hybrid MMCS during Machining Process

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Abstract

In this experimental work, hybrid metal matrix composites by using Al2024 as a matrix and was reinforced with two types of materials in which one is fixed amount of Gr (3%) and the other is varying amount of B₄C (0.6 & 12%). The composites were fabricated by using powder metallurgy technique. The effect of cutting speed, feed depth of cut and % of composition on material removal rate (MRR) was investigated during turning operation on the fabricated Al/B₄C/Gr hybrid MMCs. MRR was calculated for the set of combinations such as cutting speeds (315, 400 and 500 RPM), feed rates (0.05, 0.10, 0.15 mm/rev) and depth of cut (0.1, 0.2, 0.3 mm), which were obtained from Taguchi optimization technique. Taguchi L27 orthogonal array was used for the experiment plan. Micro structural and FESEM analysis shows the presence and uniform distribution of reinforcement particles in aluminium matrix. ANOVA results show the percentage contribution of every parameter during the machining operation. These results revealed that The effect of machining process of Al-Gr-B₄C was cutting Speed (29.45%) followed by depth of cut (29.36%), feed rate (21.82%) and lastly % of composition (9.52%).

Keywords: Powder metallurgy, Speed, Feed, Depth of cut, Material removal rate, Taguchi, Anova, Microstructure, FESEM.

INTRODUCTION

The use and application of composites in every sector is goes on increasing due to their enhanced properties. The addition of reinforcing particles to the base material leads to the promising materials with better properties; hence these are used in many areas like Aerospace, Naval and Automobile etc. These properties vary with the method of fabrication and the type of matrix and reinforcing material. The mechanical, chemical and thermal properties are also being changed by the addition of different reinforcing materials. There is a limit for the enhancement of properties by the use of single reinforcements. Hence better properties can be achieved by adding more number of reinforcements to the base material and these are called as hybrid composites. Aluminum-matrix composites are consisting of a family of different materials for

the improvement in density, hardness, stiffness, toughness, thermal and electrical properties. Now a days, most of the researchers are using Al2024, Al6067, Al 7075 as matrix elements, these are reinforced with various metal and non metals like Sic, B₄C, Al₂O₃, Tic, Zr and Gr. In this work, Al2024-Gr-B₄C hybrid composites were fabricated by using Al 2024 as matrix and two types of reinforcements (B₄C and Gr) were added to the matrix alloy. The fabricated composites can be used in aerospace and automobile applications. Al2024 alloy is having highest hardness [1] among all the other Al alloys, hence it can be chosen for the fabrication composites. Boron carbide is the third hardest material and can be used as the better choice for the selection of reinforcement. Graphite particulates are also be used as a reinforcement, as their addition improves the machinability and wear resistance [2] of Al-SiC composites. The method of fabrication affects the properties of the final composite. The powder metallurgy technique is the simplest method for the fabrication of composites. Aluminium hybrid composites [2, 3, 7-12, 18] fabricated by many of the researchers by using Gr as additional reinforcement. SanjayYadav and Sanjay Kajal [11] conducted a test on optimization of different machining Parameters of En 354 alloy steel In CNC turning operation Using Taguchi Method .The experimental results show that the Taguchi parameter design is an effective way of determining the optimal cutting parameters for achieving low surface roughness. Soorya prakash Kumarasamy et al [12] investigated the mechanical and machinability behaviour of Al/Flyash cenosphere/Gr hybrid composites processed through compo-casting. based on the ANOVA results the cutting speed and % composition are the major parameters which effects the surface roughness. Vikasa et al [13] examined the effect and optimization of machine process Parameters on MRR for EN19 & EN41 materials using Taguchi, the optimal process parameters for maximum MRR for EN19 were current 24 amps, voltage 40 V, pulse ontime 400 μ s and pulse off time 2300 μ s whereas the same for EN41 are 24 amps, 40V, 400 μ s and 2100 μ s respectively. Hemant Jaina et al [14] explained about the Optimisation and evaluation of machining parameters for turning operation of Inconel-625, the experimental results demonstrate that the insert spindle speed and feed rate are the main parameters among the three controllable factors (spindle speed, feed rate and depth of cut) that influence the material removal rate in

Fabrication and Optimization of Machining Parameters on Al 2024-Gr-B₄C Hybrid MMCS during Machining Process

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Abstract

In this experimental work, hybrid metal matrix composites by using Al2024 as a matrix and was reinforced with two types of materials in which one is fixed amount of Gr (3%) and the other is varying amount of B₄C (0.6 & 12%). The composites were fabricated by using powder metallurgy technique. The effect of cutting speed, feed depth of cut and % of composition on material removal rate (MRR) was investigated during turning operation on the fabricated Al/B₄C/Gr hybrid MMCs. MRR was calculated for the set of combinations such as cutting speeds (315, 400 and 500 RPM), feed rates (0.05, 0.10, 0.15 mm/rev) and depth of cut (0.1, 0.2, 0.3 mm), which were obtained from Taguchi optimization technique. Taguchi L27 orthogonal array was used for the experiment plan. Micro structural and FESEM analysis shows the presence and uniform distribution of reinforcement particles in aluminium matrix. ANOVA results show the percentage contribution of every parameter during the machining operation. These results revealed that The effect of machining process of Al-Gr-B₄C was cutting Speed (29.45%) followed by depth of cut (29.36%), feed rate (21.82%) and lastly % of composition (9.52%).

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A New Resource Allocation Algorithm For Cloud Based On Available PMs And VMs

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Abstract— Cloud computing has turned into another age innovation that has enormous possibilities in ventures and markets. Mists can make it conceivable to get applications and related information from anyplace. Organizations can lease assets from cloud for capacity and other computational purposes, so their foundation cost can be diminished fundamentally. Enable they can create deployment of distributed access to applications, of pay-as-you-go method. Henceforth there is no requirement for getting licenses for singular items. Anyway one of the significant traps in distributed computing is identified with improving the resources being dispensed. In view of the uniqueness of the model, resource allocation is performed with the target of limiting the expenses related with it. Alternate difficulties of resource allocation are taking care of client requests and application prerequisites. In this paper we propose an algorithm for resource allocation based on the user required resource capabilities and assign the VMs.

Key words : cloud computing, Resource allocation, VMs, PMs, user

1. INTRODUCTION

Cloud computing rises as another registering worldview which expects to give dependable, tweaked and QoS (Quality of Service) ensured figuring dynamic conditions for end-clients. Distributed handling, parallel preparing and matrix registering together rose as cloud computing. The key rule of appropriated processing is that customer data isn't secured locally yet is secured in the server stockpiling of web. The associations which give disseminated processing organization could supervise and keep up the errand of these servers stockpiling. The customers can get to the set away data at whatever point by using Application Programming Interface (API) gave by cloud providers through any terminal equipment related with the web.

The capacity benefits as well as equipment and programming administrations are accessible to the overall population and business markets. The administrations gave by specialist co-ops can be everything, from the framework, stage or programming assets. Each such administration is separately called Infrastructure as a Service (IaaS), Platform as a Service (PaaS) or Software as a Service (SaaS) [45]. There are different positive conditions of conveyed processing, the most principal ones being lower costs, re-provisioning of advantages and remote accessibility. Dispersed processing cuts down cost by avoiding the capital use by the association in renting the physical establishment from an outcast provider. Due to the versatile thought of conveyed registering, we can quickly get to more resources from cloud providers when we need to expand our business. The remote receptiveness engages us to get to the cloud associations from wherever at whatever point. To get the most extreme level of the prior specified advantages, the organizations offered the extent that assets outsourcing to be dispensed in a perfect world to the applications running in the cloud. The going with fragment discusses the criticalness of benefit assignment

A. Significance of Resource Allocation

In circulated figuring, Resource Allocation (RA) is the route toward execution out open advantages for the required cloud applications over the web. Resource task starves organizations if the part isn't administered totally. Resource provisioning deals with that issue by empowering the authority to manage the advantages for each individual module.

Resource Allocation Strategy (RAS) is tied in with coordinating cloud provider practices for utilizing and allotting uncommon resources inside the outrageous purpose of cloud condition to address the issues of the cloud application. It requires the sort and measure of



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Keywords—Keyword Digital image, Copy move forgery, tampering detection, passive approach.

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gatherings. These are dynamic techniques and inactive strategies. The dynamic approach comprises of two sections watermarking and steganography. At the season of picture procurement these are executed. An exceptional equipment usage like advanced mark or coding the picture into various shape is expected to check the validation of the computerized picture. The watermarking technique is utilized to shroud a stamp or a message in a photo to ensure its copyright at the season of picture obtaining and to check the legitimacy of message is separated from the picture and confirmed with the first watermarks. Concealing the critical message so it isn't abused by any outsider is called steganography.



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The detached approach does not require any earlier data about the picture and it is reliant on the follows left on the picture by various handling ventures amid picture control. With the assistance of various picture falsification identification systems the manufactured zone, area and the measure of fraud can be recognized. It incorporates duplicate move fraud identification and picture joining and they likewise help to recognize the activities that happen, similar to revolution, scaling, obscuring etc. Here fig-1



Convolutional neural based deep learning systems for detecting objects

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Abstract:

Object detection is a major task due to the rise of autonomous vehicles, smart video surveillance, facial detection and various people counting applications, fast and accurate object detection systems are rising in demand. Automatic driving is a standout amongst the most critical research subjects in car territory. To maintain a calculated distance from crash with other movement members, mechanized vehicles need to comprehend the activity scene. Problem identification, as a major aspect of prospect understanding, remains a testing assignment for the most part because of the exceptionally factor protest appearance. In this work, we propose a mix of convolutional neural systems and setting data to enhance question identification. To achieve that, setting data and profound learning models, which are important for question location, are picked. Distinctive methodologies for coordinating setting data and convolutional neural systems are talked about. A gathering framework is proposed, prepared, and assessed on genuine activity information.

Key words: Object Detection, Convolutional Neural Networks, Context Information, Bayesian Models

1 Introduction

Mechanized driving is a standout amongst the most critical research subjects in car territory. As of late, numerous undertakings like PROMETHEUS, the DARPA

Grand/Urban test, and CityMobil and additionally extraordinary research gatherings and establishments have tended to this theme with promising outcomes. To design an impact free direction, mechanized driving vehicles must have the capacity to identify objects. Protest appearance can change as per impediment, clamor, variety in stance and enlightenment [1], and foundation mess. Convolutional Neural Networks (CNN) demonstrates the best arrangement comes about, yet have some order blunders since they are generally appearance-based classifiers. Setting data can be utilized to enhance question location [1]. In this paper we propose a question recognition framework, which utilizes the benefits of CNN and setting based classifiers. We talk about various methodologies for consolidating the two classifiers. The proposed framework is prepared and assessed on genuine movement information. The principle progresses in protest discovery were accomplished on account of enhancements in question portrayals and machine learning models. An unmistakable case of a best in class recognition framework is the Deformable Part-based Model (DPM) [9]. It expands on painstakingly outlined portrayals and kinematic ally motivated part deteriorations of articles, communicated as a graphical model. Utilizing discriminative learning of graphical models takes into consideration assembling high-exactness part-based models for assortment of protest classes. Physically built portrayals in conjunction with shallow discriminatively prepared



Generating an data mining learning base approach for non-master users

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Abstract. Non-master clients discover complex to increase more extravagant bits of knowledge into the undeniably measure of accessible heterogeneous information, the supposed huge information. Propelled information investigation procedures, for example, information mining, are hard to apply because of the way that (i) an awesome number of information mining calculations can be connected to take care of a similar issue, and (ii) accurately applying information mining methods dependably requires managing the natural highlights of the information source. Subsequently, we are going to a novel situation in which non-specialists can't exploit enormous information, while information mining specialists do: the huge information partition. Keeping in mind the end goal to connect this hole, we propose a way to deal with offer non-master mineworkers an instrument that just by transferring their informational collections, return them the more precise mining design without managing calculations or settings, because of the utilization of an information mining calculation recommender. We likewise consolidate a past undertaking to help non-master clients to indicate information mining prerequisites and a later errand in which clients are guided in deciphering information mining comes about. Moreover, we tentatively test the attainability of our approach, specifically, the strategy to manufacture recommenders in an instructive

setting, where educators of e-learning courses are non-master information diggers who need to find how their courses are utilized as a part of request to settle on educated choices to enhance them. Watchwords: information base, huge information, information mining, recommender, meta-learning, demonstrate driven Development

Key words: Data mining, non-master user, Knowledge, Data

1 Introduction

The expanding accessibility of information is an extraordinary open door for everybody to exploit their investigation. The "huge information guarantee" expresses that the more information you have, the more examination you can perform, and after that, the more educated choices you can make. Imperatively, information mining is a standout amongst the most conspicuous procedure to find certain learning designs, in this way increasing more extravagant bits of knowledge into information. In any case, non-master clients may discover complex to apply information mining systems to get helpful outcomes, because of the way that it is an inherently complex process [14, 20] in which (i) an awesome number of calculations can be connected to take care of a similar issue with various results, and (ii) effectively applying information mining methods dependably requires a great deal of manual exertion for setting up the datasets as per their highlights. Therefore, effectively applying information mining requires the



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Key words: Data mining, non-master user, Knowledge, Data

1 Introduction

The expanding accessibility of information is an extraordinary open door for everybody to exploit their investigation. The "huge information guarantee" expresses that the more information you have, the more examination you can perform, and after that, the more educated choices you can make. Imperatively, information mining is a standout amongst the most conspicuous procedure to find certain learning designs, in this way increasing more extravagant bits of knowledge into information. In any case, non-master clients may discover complex to apply information mining systems to get helpful outcomes, because of the way that it is an inherently complex process [14, 20] in which (I) an awesome number of calculations can be connected to take care of a similar issue with various results, and (ii) effectively applying information mining methods dependably requires a great deal of manual exertion for setting up the datasets as per their highlights. Therefore, effectively applying information mining requires the



Convolutional neural based deep learning systems for detecting objects

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Abstract:

Object detection is a major task due to the rise of autonomous vehicles, smart video surveillance, facial detection and various people counting applications, fast and accurate object detection systems are rising in demand. Automatic driving is a standout amongst the most critical research subjects in car territory. To maintain a calculated distance from crash with other movement members, mechanized vehicles need to comprehend the activity scene. Problem identification, as a major aspect of prospect understanding, remains a testing assignment for the most part because of the exceptionally factor protest appearance. In this work, we propose a mix of convolutional neural systems and setting data to enhance question identification. To achieve that, setting data and profound learning models, which are important for question location, are picked. Distinctive methodologies for coordinating setting data and convolutional neural systems are talked about. A gathering framework is proposed, prepared, and assessed on genuine activity information.

Key words: Object Detection, Convolutional Neural Networks, Context Information, Bayesian Models.

1 Introduction

Mechanized driving is a standout amongst the most critical research subjects in car territory. As of late, numerous undertakings like PROMETHEUS, the DARPA

Grand/Urban test, and CityMobil and additionally extraordinary research gatherings and establishments have tended to this theme with promising outcomes. To design an impact free direction, mechanized driving vehicles must have the capacity to identify objects. Protest appearance can change as per impediment, clamor, variety in stance and enlightenment [1], and foundation mess. Convolutional Neural Networks (CNN) demonstrates the best arrangement comes about, yet have some order blunders since they are generally appearance-based classifiers. Setting data can be utilized to enhance question location [1]. In this paper we propose a question recognition framework, which utilizes the benefits of CNN and setting based classifiers. We talk about various methodologies for consolidating the two classifiers. The proposed framework is prepared and assessed on genuine movement information. The principle progresses in protest discovery were accomplished on account of enhancements in question portrayals and machine learning models. An unmistakable case of a best in class recognition framework is the Deformable Part-based Model (DPM) [9]. It expands on painstakingly outlined portrayals and kinematic ally motivated part deteriorations of articles, communicated as a graphical model. Utilizing discriminative learning of graphical models takes into consideration assembling high-exactness part-based models for assortment of protest classes. Physically built portrayals in conjunction with shallow discriminatively prepared

Properties of Recycled Aggregate (Soft Aggregate) used for Construction of Roads

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Abstract : Construction activities have increased in a remarkable way for the past two decades. We are falling short of the construction materials, especially aggregates with increase in construction activities. So, finding an alternate resource is the need of our research. Recycled aggregate proves to be a good alternative here. Demolition and construction activities always take every other day. The aggregate waste resulting from these demolitions can be of great use if used effectively. It can either be reused directly by giving proper dressings or it can be combined with fresh aggregate in certain proportions and used for different construction activities especially in pavement constructions. This paper deals with physical properties of recycled aggregate and fresh (normal) aggregates with more emphasis on recycled aggregate wherein we study the physical properties and compare with those properties shown by fresh (normal) aggregate and scrap aggregate, so that we can come to a conclusion about their performances. Tests was conducted on different combinations of recycled aggregate and normal aggregate.

Keywords – Recycled Aggregate, Scrap Aggregate, Fresh Aggregate.

1. INTRODUCTION

1.1 GENERAL.

Construction aggregates make up more than 80 percent of the total aggregate market, and are used mainly for building constructions and pavements. With the construction activities increasing tremendously, and we falling short of construction aggregates it has become necessary to find an alternate source for the material. Projections for building material requirement of the housing sector indicate a shortage of aggregates to the extent of about 55,000 million cu.m. An additional 750 million cu.m aggregates would be required for achieving the targets of the road sector. At this stage the concept of using recycled aggregate has proved to be a good alternative. When structures made of concrete are demolished or renovated, concrete recycling is an increasingly common method of utilizing the rubble. Concrete was once routinely trucked to landfills for disposal, but recycling has a number of benefits that have made it a more attractive option in this age of greater environmental awareness, more environmental laws, and the desire to keep construction costs down.

Concrete aggregate collected from demolition sites is put through a crushing machine. Crushing facilities accept only

uncontaminated concrete, which must be free of trash, wood, paper and other such materials. Metals such as rebar are accepted, since they can be removed with magnets and other sorting devices and melted down for recycling elsewhere. The remaining aggregate chunks are sorted by size. Larger chunks may go through the crusher again. After crushing has taken place, other particulates are filtered out through a variety of methods including hand-picking and water flotation. Crushing at the actual construction site using portable crushers reduces construction costs and the pollution generated when compared with transporting material to and from a quarry. Large road-portable plants can crush concrete and asphalt rubble at up to 600 tons per hour or more. These systems normally consist of a rubble crusher, side discharge conveyor, screening plant, and a return conveyor from the screen to the crusher inlet for reprocessing oversize materials. Compact, self-contained mini-crushers are also available that can handle up to 150 tons per hour and fit into tighter areas. With the advent of crusher attachments - those connected to various construction equipment, such as excavators - the trend towards recycling on-site with smaller volumes of material is growing rapidly. These attachments encompass volumes of 100 tons/hour and less.

1.2 RECYCLED AGGREGATE

Recycled aggregate is produced by crushing concrete, and sometimes asphalt, to reclaim the aggregate. Recycled aggregate can be used for many purposes. The primary market is road base. For information on recycling asphalt pavement into new asphalt pavement. Recycling of concrete is a relatively simple process. It involves breaking, removing, and crushing existing concrete into a material with a specified size and quality. See ACI 555 (2001) for more information on processing old concrete into recycled concrete aggregates. The quality of concrete with RCA is very dependent on the quality of the recycled material used. Reinforcing steel and other embedded items, if any, must be removed, and care must be taken to prevent contamination by other materials that can be troublesome, such as asphalt, soil and clay balls, chlorides, glass, gypsum board, sealants, paper, plaster, wood, and roofing materials. Demolition by-product of old concrete structures such as:

- Roadways
- Foundations
- Retaining Walls
- Concrete Pipes
- Roadway Medians etc properly processed so that it can be used as a substitute aggregate material OR Hardened

Properties of Recycled Aggregate (Soft Aggregate) used for Construction of Roads

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Performance Evaluation of Maximum Power Point Tracking Approaches for PV Array under PSC with Differential Converters

K. Mounika, M. Sunil Kumar, J. Ayyappa

Abstract: One of the most important issue in the operation of a photovoltaic (PV) system is extracting maximum power from the PV array, especially in the partial shading condition(PSC).In this paper a PV array mathematical model with different MPPT techniques in a standalone model is validated. The characteristics of PV array are highly non-linear as they depend on temperature and irradiation. Therefore it is important to extract the optimum possible power from PV panels with control algorithms. The reduction of total efficiency of PV generation conversion is due to partial shading. PV array along with boost converter and MPPT controller are simulated in MATLAB/Simulink environment. When there are changes in climatic conditions, the parameters of capacitance and inductance of the DC-DC converter will change to attain optimal efficiency. This paper presents different MPPT techniques like Perturb & observe, Incremental conductance, fuzzy logic methods to extract the optimum power from the PV panel. This paper proposes a differential power converter to overcome the PV partial shading problem along with INC control algorithm and fuzzy logic controller.

Index Terms: Maximum Power Point Tracking (MPPT), Perturb & Observe (P&O), Incremental Conductance (INC), Fuzzy Logic Controller, Partial Shading, Differential Power Converter.

Nomenclature:

- I_{ph}, I = photo voltaic & output current,
- I₀, I_{0ref} = saturation & nominal saturation current,
- V_t = thermal voltage,
- a = emissivity factor,
- R_s = series resistance,
- R_{sh} = shunt resistance,
- G, G_{ref} = irradiance & nominal irradiance,
- T, T_{ref} = actual and nominal temperature of the cell,
- q = change of electron,
- k = Boltzmann's constant,
- E_g = Energy Band Gap,
- I_d, I_{sh} = Diode current & current in the shunt resistance

1. INTRODUCTION

In recent years there has been increasing interest in a

renewable energy source spatially in photovoltaic (PV) systems. PV Systems can be operated as grid-connected or stand-alone structures. PV array is the main element in a PV system and it is a set of PV modules connected in series and parallel. In a PV array, voltage and current have a nonlinear relation, maximum power is generated only in one operating Voltage. Therefore, our main target is to extracting maximum power from a PV system in all operating conditions. Some of the numerous maximum power point tracking (MPPT) techniques has been presented and implemented. In that, some of the important ones are perturbe and observe (P&O), incremental conductance (IC), and short-circuit current, and open-circuit voltage. Some techniques are also presented based on artificial intelligence, such as fuzzy logic and neural network, but have more computation load [1].

Partial shading condition (PSC) occurs in which the entire modules of an array do not receive the same solar irradiance. PSCs occur especially in solar systems installed in urban areas and in areas where low moving clouds are common [2]. Solar PV systems need to produce reliable, affordable and sustainable energy over the life of the system when it reaches to grid parity [4]. To control the energy obtained from a PV panel power electronic equipment is used which increases the balance of system costs]. The utilization of solar photovoltaic system as residential and Street lighting, electric vehicles, water pumping, military and space applications, refrigeration etc. all in either stand-alone (or) grid-connected configurations. A PV array has a nonlinear power voltage characteristics and VI characteristic under uniform irradiance condition like shown in figure 1(a). The characteristics and efficiencies depend on insulation levels, temperature and load conditions. To eliminate these unfavorable conditions we have an MPP on the solar characteristic curves. Shading occurs when PV panels are connected in series. The total efficiency of PV generation conversion ratio is reduced due to partial shading. This kind of energy waste could bring very serious economic problems considering the high cost of PV investment.

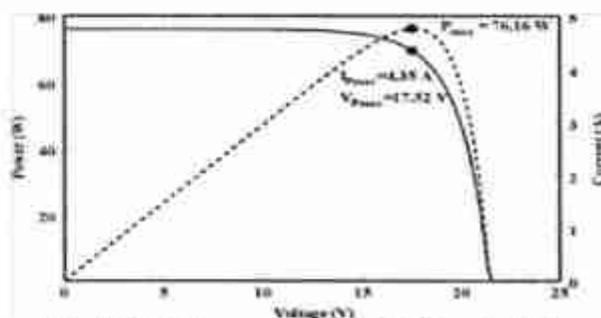


Fig 1 (a): PV Array I-V and P-V Characteristics

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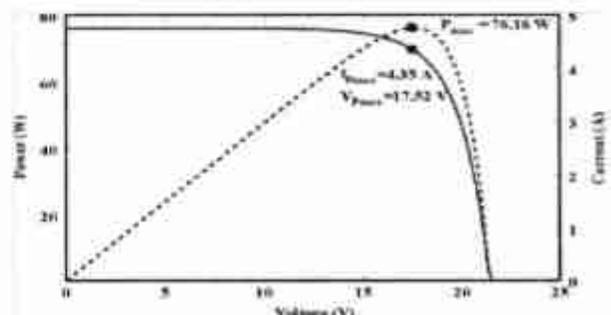


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Varying operating frequency of concentric circular ring patch antenna using high impedance surface

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Abstract

In this paper, we design a concentric circular patch antenna excited by microstrip feed and operates at 5.4269 GHz and 6.9419 GHz. After designing the antenna, we would like to tune the frequency without changing antenna size. For that purpose, we use high impedance surface structure to tune the antenna at two different frequencies. A simple mushroom like structure is used as high impedance surface. We will analyze antenna parameters like return loss, gain, directivity, radiation patterns, efficiency, proposed antenna with and without high impedance surfaces and compare the results.

Keywords: Met Surfaces; Tuning; Concentric Circular Ring Patch; Strip Feed.

1. Introduction

In the past few decades the patch antennas proved to be very useful in many applications and development in modern communication systems to reach different specifications and needs different kinds of patch antennas were developed. Patch antennas are compact in size easy to fabricate and low production cost and can be integrated to the communication systems easily. In general they were developed with certain shapes like square, rectangular, circular, elliptical, etc[4], but in the past few years so many different kinds of shapes were implemented and developed according certain applications, the patch antennas are also used in creating array antennas as a basic radiating element and the arrays will give even higher gain than the single radiating patch and also the fractal antennas were introduced further to reduce the array size and to obtain the same results as that of the array antennas. In the microstrip patch antennas concentric circular patch antennas are used for broadband [6], UWB [7], reconfigurable polarization [8] and many wireless communication applications.

High impedance surfaces also called as Metamaterials are initially implemented to suppress the surface wave propagation [1]. Because it does not allow certain waves to propagate, in other words it will mitigate the radiation passing through the antenna itself. It is also used to reflect the waves [5] with no phase shift so that the radiation energy will be added in constructive way so that the overall gain can be enhanced [2]. In general, these structures are constructed by placing metallic patches on metallic pin via and this periodic arrangement of such are placed on a metal base. Here the two adjacent patches and via together acts like a tuning circuit i.e the gap between the two metal plates will have fringing field and so that it acts like a capacitor C and the current pass through the pins will acts like an inductor L[3]. Together this LC combination will form a means to tune the design to different band of frequencies.

2. Designing of proposed antenna and met surface

a) Antenna Design

The proposed antenna design is shown in the following figure [1] the inner disc have a hallow space inside it of a radius of $R1=0.4\text{cm}$ and disc arm $R2=0.5\text{cm}$. Another disc with a space of $R3=0.4\text{cm}$ and the disc arm $R4=1\text{cm}$. A dielectric substrate Rogers RT/duroid 5880(tm) having dielectric constant 2.2 and having lost tangents 0.0009 is considered and with dimensions of $9.1\text{cm}\times 9.1\text{cm}\times 62\text{mil}$ in XYZ directions respectively. The ground is $9.1\text{cm}\times 9.1\text{cm}$ in XY directions respectively. The proposed antenna is excited by microstrip feed. Here the strip line feed dimension $0.1\text{cm}\times 2.15\text{cm}$ in XY directions respectively. The feed connector dimensions $0.2\text{cm}\times 0.2\text{cm}$ in XY directions. The port is constructed in ZX plane with dimensions $0.2\text{cm}\times 62\text{mil}$ in X and Z directions respectively. Here the port is normalized at 50ohms impedance



Evolutionary Programming Techniques for Solving Non-Convex Economic Load Dispatch Problem with Valve-Point Loading Effect

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Abstract: This paper presents three heuristic optimization techniques algorithms like Particle Swarm Optimization (PSO), Teaching-learning Based Optimization (TLBO) and Differential evolution (DE) for solving economic load dispatch (ELD) problem with non-convex/linear fuel cost curves by considering power balance condition, capacity constraints, and valve-point loading effect. These algorithms are used for finding the optimal solution with minimum fuel cost. In this paper, a methodology is used for solving the economic load dispatch that is a combinational unit of three different test systems cases such as 16, 43, and 56 generating units respectively. The three algorithms are presented and described in detailed in this paper. The optimization has been done considering total fuel cost as the fitness function. The results of the Evolutionary programming techniques were compared in terms of fuel cost. The convergence characteristics for all the cases are analyzed and presented in this paper.

Keywords: Economic Load Dispatch (ELD), Particle Swamp Optimization (PSO), Teaching-Learning Based Optimization (TLBO), and Differential evolution (DE)

I. INTRODUCTION

Economic load dispatch (ELD) problem is one of the basic issues in power system operation due to the improvement of the social and industrial sector. So now a day the electrical power market becomes more competitive. Generally, there are so many sources to generate electric power such as thermal power plant, hydroelectric power plant, nuclear power plant, and renewable energy sources. Thermal power plant takes the main role to satisfy the peak load demand. In the case of thermal power plant the generation cost depends on the fuel cost. In order to overcome the all those problems, the optimal power generation is required which minimize the fuel cost [1]. The primary objective of the ELD is to minimize the total fuel cost of generation while satisfying the operational constraints. In the traditional ELD problem, the cost function for each generator has been presented by a quadratic function and solved using mathematical programming based optimization techniques such as lambda iteration method [2] base point and participation and gradient-based method, dynamic programming methods. But in reality the input-output characteristics of modern generators non-linear and highly constraints because of valve point effect, generating unit ramp rate limits and prohibited zones [3-5].

To overcome all limitation of the traditional methods recently, heuristic optimization techniques are used such as genetic algorithm (GA), evolutionary programming (EP), particle swarm optimization (PSO), [7] differential evolution (DE), [8] simulated annealing (SA), ant colony optimization (ACO) and artificial bee colony (ABC), Teaching-Learning Based Optimization [4] (TLBO), and Differential evolution (DE) have been employed to optimize the ELD problem for better global search abilities against numerical optimization methods [10].

In this paper, have presented the three bio-inspired algorithms such as Particle Swamp Optimization (PSO) Teaching-Learning Based Optimization (TLBO) and Differential evolution (DE) algorithms and to solve ELD problems for three different systems, one consisting of 16 generating units and the others consisting of 43, 56 test system which are generated from 3, 13, and 40 standard test systems respectively for a load demand.

II. PROBLEM FORMULATION

Generally, non-convex ELD problems should consider different operational constraints such as valve-point effects, prohibited zones, ramp rates and multi-fuel options, and power balance constraints. The following objective and constraints are taken into account in the formulation of the ELD problem.

New Control Strategy for Inverter Based Micro Grid

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Abstract: Micro grids frameworks are little scale power supply arranges that have neighbourhood power era. Micro grids network got to be one of the key spot in examination on dispersed vitality frameworks. Micro grids are fit for both creating their own electric force with little scale conveyed era (miniaturized scale sources) and receiving/sending out energy to the fundamental utility lattice. In this undertaking a control system for inverter based MG which can guarantee soundness and appropriate force sharing among the inverters, in islanded mode, is proposed. A MG can be worked in two modes, matrix associated and islanded mode. Every mode has its own control methodology. Small scale lattices (MG), for the most part inverter based, are increasing more significance as they can oblige different sorts of DGs viably and for their unrivaled force quality. The general control logic inside of a miniaturized scale matrix is that sources must depend just on nearby data, yet must participate with different sources. To perform that objective, the proposed controller uses hang attributes for dynamic force/recurrence and responsive force/voltage. The proposed control procedure depends on the utilization of a stage bolted circle to quantify the miniaturized scale framework recurrence at the inverter terminals, and to encourage regulation of the inverter stage in respect to the Micro grids network. This control system permits miniaturized scale lattices to flawlessly transition between matrix associated and self-sufficient operation, and the other way around. The controller has been actualized in a real Micro grids network that joined different sources.

Keywords— Micro grid, islanded operation

I. INTRODUCTION

At the present time, Micro grids framework can be viewed as a controlled cell of a power framework. Illustration gratia, the cell may well be controlled as a solitary dispatch capable burden, which can respond in little time to give the requests of the transmission framework. On the client side miniaturized scale frameworks can be developed to address interesting issues. They help the neighbourhood dependability, decrease feeder misfortune, bolster nearby voltages, convey prevalent adequacy through castoff waste warmth, voltage list rectification and giving uninterruptible influence supply works. Nowadays conveyed era is bringing more acknowledgment in a de-controlled environment. Joining of circulated era and absorption of controllers has led to customary force system to work as a dynamic force system. Under this interruption the force system parts into part generators and burdens. The heap interest can be tallied with the supply force of an island. If there should be an occurrence of business and mechanical touchy burdens the need of prevalent force quality and unwavering quality is awesome. A Micro grids network can be a DC framework, an AC framework or even a high recurrence AC lattice framework. A Micro network framework is sorted out as an island. The issue of disposing of harmonics in disposing inverters has been the center of examination for a long time. The present pattern of tweak control for multilevel inverters is to yield top notch power with high productivity. Therefore, well known conventional PWM balance routines are not the best answer for multilevel inverter control because of their high exchanging recurrence. The particular consonant disposal strategy has developed as a promising tweak control technique for multilevel inverters. The

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Software Defect Prediction using Adaptive Neuro Fuzzy Inference System

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Abstract

Software Defect Prediction is a major challenge in Software Development process, to reduce the cost of software implementation. Predicting Defective prone modules in software industry greatly reduces the software development cost. Most of the researchers applied various data mining techniques like Adaboost, Neural networks, Random Forest and support vector machines for software defect prediction datasets downloaded from NASA repositories. These datasets are imbalanced in nature. In this paper software defects are predicted using Adaptive Neuro Fuzzy Inference System (ANFIS). Initial Fuzzy Inference System (FIS) was derived using Subtractive Clustering method and then FIS was trained using hybrid learning rule. The performance of the classifier is measured in terms of AuC values for these imbalanced datasets. We compared the results of ANFIS with cost sensitive neural networks. The Receiver operating characteristics (ROC) curves are generated and presented in Result section. The ROC values of ANFIS are found satisfactory compared to cost sensitive Neural networks.

Keywords: Adaptive Neuro Fuzzy Inference System, Receiver operating characteristics, Software Defect Prediction, Subtractive Clustering, hybrid learning

INTRODUCTION

In the process of software development, predicting software defects plays a major role. Predicting a software defect in advance reduces the cost of software development and improves the quality of software product. There are various approaches for software defect prediction

1. Simple metric and defect estimation model: According to Akiyama, Number of defects depends on software metric, lines of code (LOC). He derived an equation $No. \text{ of defects}(N) = 4.86 + 0.018 * LOC$. But LOC is not enough to capture software complexity.
2. Complexity metrics and fitting models: In 1976, McCabe found cyclometric metrics for determining software complexity. Cyclometric complexity of a

program $V(G) = E - V + 2$, here E is number of edges, V is number of vertices. In 1977, Halsted introduced Halsted complexity measures, which reflects implementation of algorithms in different languages. He observed that the number of defects depends on effort, which in turn depends on difficulty and volume. $Defects(D) = E^{2.0} / 3000$. But the limitation of this model is it just fit the known data but not validated for new entries.

3. Regression model: Shen et al.'s empirical study showed that Linear regression model can be validated on actual new modules. He found Mean magnitude of relative error (MRE) between actual and predicted number of defects as 0.48. Munson et al. Applied Discriminative analysis using Logistic regression with Halsted and cyclometric complexity metrics and obtained accuracy of 92%.
4. Just in time Prediction model: A large scale empirical study of just in time quality assures 68% accuracy, 64% recall on 11 open source and commercial projects. The limitation of JIT model is practical validation difficult.
5. Practical Models: Chidamber & Kemerer introduced CK metrics which are Object oriented for software defect prediction. The metrics are weighted methods per class (WMC), Depth of inheritance tree (DIT), Number of children (NOC), Coupling between objects (CBO) and Response for a class (RFC)
6. History metrics prediction models: History metrics do not extract particular program characteristics such as developer social network, Component network and anti pattern. It is not applicable for new projects and projects lacking in historical data.
7. Cross Project defect prediction: These models are applicable for new projects lacking in historical data.

The remainder of this paper is organized as follows. Section 2 discuss about Related work. Section 3 discuss methodology. In section 4 we discuss results and comparisons.

Application of SSPSO and SPSO to Optimal Power Flow Solutions along with SSC Device

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Abstract

Objectives: In this study, optimization techniques SSPSO and SPSO are used to minimize the total generation cost and active power loss. **Methods/Analysis:** The power flow analysis gives the information of magnitude of voltages, phase angles and complex power flow at each bus. Optimal Power Flow (OPF) solutions with Static Series Compensator (SSC) FACTS device in the power system to increase the total power transfer; Fast Relative Electrical Distance (F-RED) method based on Simple-Voltage Stability Index (H-index) is used to find the maximum generation supplied to the load. **Findings:** Comparison was made on SSPSO and SPSO methods and SPSO with SSC gives better results. The H-index is used to judge the power system is stable or unstable. F-RED gives the information, the amount of generators contribution to satisfy the loads. **Novelty/ Improvement:** SSPSO gives better solution results than SPSO, the methods are applied on IEEE-30 bus system, H-INDEX and F-RED are calculated for the IEEE-5 bus system.

Keywords: OPF, SPSO, SSC, SSPSO

1. Introduction

Optimal power flow is considered as backbone tool in the power systems. With the increase in demand leads to increase in generation that requires increase in the thermal capacity. For this reason, the problem of Optimal Power Flow (OPF)¹ is yet to be studied by minimizing the cost, losses and has become the source of concern to secure operation of the power system. The voltage stability limits^{2,3} is also considered for secure operation of the system.

The F-RED⁴ concept is used to know how much amount of generation is generated from each generator to satisfy the load. FACTS are used in power system for controlling power and to increase the transmission capacity near to their thermal limits. FACTS also improve the system stability and security, reduce the reactive power flow, thereby permitting greater active power flow⁵. Different types of FACTS controllers are: a) Series, b) Shunt, c) combination of Series and Shunt.

Nowadays, the new algorithms have evolved as a solution for complex problems. Along with conventional methods intelligent methods like SSPSO and SPSO gives greater convergence characteristics and gives the best global minimum solution.

With the addition of SSC device on the power system forenhancement of voltage stability index by SPSO based power flow solutions was examined in this paper. The proposed SPSO with SSC device was tested on IEEE-30 bus⁶. The results are observed by considering SSC cost also. Comparison analysis was done on the total generation cost and active power losses by optimization methods SPSO and SSPSO for IEEE-30 Bus.

2. Simple-voltage Stability Index (H-index)

The stability of the power system is represented in terms of voltage stability studies. This can be represented with the help of voltage stability index. The scalar magnitude of this

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HDM: Decrease the Convolution of Mounting BigData Programs and Applications in Cloud

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Abstract— In the course of the most recent years, systems which incorporate MapReduce and Spark have been conveyed to facilitate the test of creating huge records applications and bundles. Nonetheless, the employments in these structures are generally depicted and bundled as executable containers with none usefulness being uncovered or characterized. This implies conveyed employments aren't locally compostable and reusable for resulting change. Additionally, it likewise hampers the capacity for applying advancements on the records float of occupation groupings and pipelines. In this record, we speak to the progressively Distributed Data Matrix (HDM) which is a sensible specifically certainties show for composing Composable colossal actualities application. Alongside HDM, a runtime structure is given to help the execution, mix and administration of HDM applications on circulated foundations. In view of the deliberate information reliance diagram of HDM, two or three enhancements are actualized to enhance the execution of executing HDM employments. The trial impacts show that our improvements can pick up overhauls among 10% to 40% of the Job-Completion-Time for one of kind sorts of projects while in examination with the forefront nation of fine art, Apache Spark.

I. INTRODUCTION

In current years, numerous frameworks (e.g. Spark, Flink, Pregel, Storm) had been offered to tackle the ever large datasets on using dispensed clusters of commodity machines. These frameworks appreciably reduce the complexity of growing huge facts applications and applications. However, in fact, many actual-international eventualities require pipelining and integration of multiple huge information jobs. There are greater challenges when making use of big statistics era in exercise. It allows programmers to think in a facts-centric style wherein they could attention on making use of ameliorations to units of information statistics whilst the info of allotted execution and fault tolerance are transparently controlled by way of the framework. However, in current years, with the growing programs' requirements in the statistics analytics area, diverse barriers of the Hadoop framework have been diagnosed and as a consequence we have witnessed an remarkable interest to address those challenges with new answers which constituted a new wave of normally domain-unique, optimized big statistics processing structures. Furthermore, as the pipeline turn out to be increasingly more complicated, it is

Power Control in CDMA Using MOTDPC Algorithm

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Abstract—In wireless communication systems with multiple users, the near-far effect and the co-channel interferences decrease the spectral efficiency and system performance. An efficient known method to combat these destructive effects is to properly adjust the transmit powers. A practical and efficient way for power control (PC) in cellular communication systems is the distributive power control (DPC). The aim of power control is to assign each user such transmitter power level that all users satisfy their QoS (Quality of Service) requirements by mitigating near-far effect and co-channel interference. The distributed power control algorithms has been studied and evaluated in this work. These algorithms include Distributed Power control algorithm (DPC), Fully Distributed Power Control algorithm (FDPC), Distributed Constrained Power Control algorithm (DCPC), Constrained Second Order Power Control algorithm (CSOPC), Fixed Step Distributed Power Control algorithm (FSDPC), and Multi Objective Totally Distributed Power Control Algorithm (MOTDPC). The performance of the algorithms will be observed based on the rate of convergence to the target signal-to-interference ratio, the rate of convergence of the power, and the rate of convergence of utilities. Multi Objective Totally Distributed Power Control Algorithm (MOTDPC) has been proposed as an enhancement to one of the studied algorithms based on the concept of distributed Power control algorithm. It can be observed that MOTDPC has better convergence properties than FDPC algorithm.

Keywords— DPC, FDPC, DCPC, CSOPC, FSDPC, MOTDPC

I. INTRODUCTION

In mobile communication system the Code Division Multiple Access (CDMA) plays vital role with other present techniques such as Frequency Division Multiple Access (FDMA) and Time Division Multiple Access (TDMA). The main features of CDMA system for mobile communication applications are the widespread one-cell frequency reuse, intrinsic multipath diversity, and soft capacity limit. To efficiently apply the advantage of CDMA, it is necessary to understand effect of power control on the near-far problem, slow shadow fading and multipath fading [1]-[4]. In Frequency Division Multiple Access strategies, the focus is on the frequency dimension. Here, the total bandwidth (B) is divided into N narrowband frequency slices. So several users are allowed to communicate simultaneously by assigning the narrowband frequency slices to the users, where the Narrowband frequencies are assigned to a designated user at all time. Since the total bandwidth (B) is subdivided into N frequency slices or channels, only N users may be supported simultaneously. In TDMA all users use the whole bandwidth but in different time slots.

The CDMA is based on spread spectrum technology which makes the optimal use of available bandwidth. It allows each user to transmit over the entire frequency spectrum all the time. On the other hand GSM operates on the wedge spectrum called a carrier. This carrier is divided into a number of time slots and each user is assigned a different time slot so that until the ongoing call is finished, no other subscriber can have access to this. GSM uses both Time Division Multiple Access and

Frequency Division Multiple Access for user and cell separation. More security is provided in CDMA technology as a unique code is provided to every user and all the conversation between two users are encoded ensuring a greater level of security for CDMA users.

II. SYSTEM STRUCTURE

Designing a perfect radio channel in mobile communications would be practically an impossible task since the channel is stochastic in nature as the mobile terminals keep moving almost all the time with different speeds and the channel fades are unpredictable. The signals in a radio channel undergo different propagation effects like reflection, refraction, scattering and shadowing. A smooth surface reflects the signals. But, when the signals encounter sharp edges of buildings, they are refracted, while a rough surface scatters them. When these signals are obstructed by big buildings, they pass through them causing the shadowing effect. All these effects cause the channel to be lognormal, Rayleigh and Rician distributed [5]. Fig-1 shows how the signals travel in different paths from transmitter to receiver. So, the receiver receives multiple copies of the same signal with variation in time and phase.

These signals are either added constructively or destructively depending on the phase of the signals. The signals in the radio channel also undergo a path loss which depends on the distance between the transmitter and the receiver. The fading of signals is categorized as fast or multipath fading and slow or shadow fading. The fast fading of signals is due to the rapid change of the signal amplitude and phase due to the multi-path arrival of the signal. Similarly, the slow fading of the signals is due to the shadowing effects caused by the buildings, mountains, boardings etc.

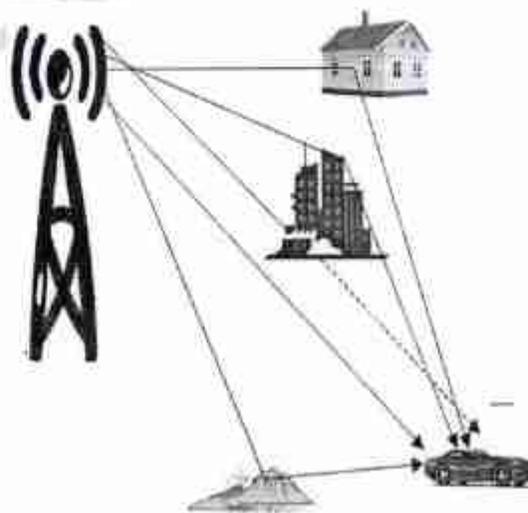


Fig.1 Multipath Propagation

Fabrication and Optimization of Machining Parameters on Al 2024-Gr-B₄C Hybrid MMCS during Machining Process

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Abstract

In this experimental work, hybrid metal matrix composites by using Al2024 as a matrix and was reinforced with two types of materials in which one is fixed amount of Gr (3%) and the other is varying amount of B₄C (0.6 & 12%). The composites were fabricated by using powder metallurgy technique. The effect of cutting speed, feed depth of cut and % of composition on material removal rate (MRR) was investigated during turning operation on the fabricated Al/B₄C/Gr hybrid MMCs. MRR was calculated for the set of combinations such as cutting speeds (315, 400 and 500 RPM), feed rates (0.05, 0.10, 0.15 mm/rev) and depth of cut (0.1, 0.2, 0.3 mm), which were obtained from Taguchi optimization technique. Taguchi L27 orthogonal array was used for the experiment plan. Micro structural and FESEM analysis shows the presence and uniform distribution of reinforcement particles in aluminium matrix. ANOVA results show the percentage contribution of every parameter during the machining operation. These results revealed that The effect of machining process of Al-Gr-B₄C was cutting Speed (29.45%) followed by depth of cut (29.36%), feed rate (21.82%) and lastly % of composition (9.52%).

Keywords: Powder metallurgy, Speed, Feed, Depth of cut, Material removal rate, Taguchi, Anova, Microstructure, FESEM.

INTRODUCTION

The use and application of composites in every sector is goes on increasing due to their enhanced properties. The addition of reinforcing particles to the base material leads to the promising materials with better properties; hence these are used in many areas like Aerospace, Naval and Automobile etc. These properties vary with the method of fabrication and the type of matrix and reinforcing material. The mechanical, chemical and thermal properties are also being changed by the addition of different reinforcing materials. There is a limit for the enhancement of properties by the use of single reinforcements. Hence better properties can be achieved by adding more number of reinforcements to the base material and these are called as hybrid composites. Aluminum-matrix composites are consisting of a family of different materials for

the improvement in density, hardness, stiffness, toughness, thermal and electrical properties. Now a days, most of the researchers are using Al2024, Al6067, Al 7075 as matrix elements, these are reinforced with various metal and non metals like Sic, B₄C, Al₂O₃, Tic, Zr and Gr. In this work, Al2024-Gr-B₄C hybrid composites were fabricated by using Al 2024 as matrix and two types of reinforcements (B₄C and Gr) were added to the matrix alloy. The fabricated composites can be used in aerospace and automobile applications. Al2024 alloy is having highest hardness [1] among all the other Al alloys, hence it can be chosen for the fabrication composites. Boron carbide is the third hardest material and can be used as the better choice for the selection of reinforcement. Graphite particulates are also be used as a reinforcement, as their addition improves the machinability and wear resistance [2] of Al-SiC composites. The method of fabrication affects the properties of the final composite. The powder metallurgy technique is the simplest method for the fabrication of composites. Aluminium hybrid composites [2, 3, 7-12, 18] fabricated by many of the researchers by using Gr as additional reinforcement. SanjayYadav and Sanjay Kajal [11] conducted a test on optimization of different machining Parameters of En 354 alloy steel In CNC turning operation Using Taguchi Method .The experimental results show that the Taguchi parameter design is an effective way of determining the optimal cutting parameters for achieving low surface roughness. Soorya prakash Kumarasamy et al [12] investigated the mechanical and machinability behaviour of Al/Flyash cenosphere/Gr hybrid composites processed through compo-casting, based on the ANOVA results the cutting speed and % composition are the major parameters which effects the surface roughness. Vikasa et al [13] examined the effect and optimization of machine process Parameters on MRR for EN19 & EN41 materials using Taguchi, the optimal process parameters for maximum MRR for EN19 were current 24 amps, voltage 40 V, pulse ontime 400 µs and pulse off time 2300 µs whereas the same for EN41 are 24 amps, 40V, 400 µs and 2100 µs respectively. Hemant Jaina et al [14] explained about the Optimisation and evaluation of machining parameters for turning operation of Inconel-625, the experimental results demonstrate that the insert spindle speed and feed rate are the main parameters among the three controllable factors (spindle speed, feed rate and depth of cut) that influence the material removal rate in

A Context Establishment Framework for Cloud Computing Information Security Risk Management Based on the STOPE View

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Abstract

A basic need for cloud computing services is to provide them with sound "Information Security Risk Management (ISRM)" solutions. The initial essential step toward providing such solutions is to identify a context that determines all security issues. This paper introduces a management framework that targets modularity and comprehensiveness. The framework is based on the structured wide-scope view of Strategy, Technology, Organization, People and Environment (STOPE); and on recent publications related to ISRM by standards, published research work. The outcome of the work would provide a useful context establishment management tool for the future development of ISRM for cloud computing.

Key Words: Cloud computing, information security, risk management, structured views.



Implementation of bi-directional blue-fi gateway in IoT environment

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Abstract

In the world of possibilities, IoT is playing a crucial role in development and automation of things which is making life easier, comfortable and most importantly reliable. This paper implements a new IoT Gateway, BLUE-FI designed to allow interconnection between Bluetooth and Wi-Fi protocols. This gateway gives us significant advantages. It enables us to transfer data between Bluetooth and Wi-Fi devices by renovating the protocols making it more simple and reliable, which obtains information from various sensors and convert them into a uniform format. With the huge possibilities in IoT, this paper implements an application of Blue-Fi gateway through Smart health monitoring system (SHMS). Here in SHMS we use different components to help us determine the health of a patient which is updated real time. This information, i.e., Bio-metric data is transferred to concerned Doctor and is also saved in cloud for future references in diagnosis. Our proof of notion demonstrates the performance and ability of the Bi-Directional Blue-Fi through smart health monitoring system (SHMS).

Keywords: Arduino; Bluetooth; Gateway; Interconnection; Internet of Things; Raspberry Pi; Wi-Fi.

1. Introduction

Internet of Things (IoT) has become the trend of Technologies [1] and it is growing rapidly to integrate many communication solutions and technologies. IoT is enabled by the fundamentals of wireless sensor network which integrates a large no of autonomous sensors into a network and passes the data through wirelessly through several hundreds or thousands of nodes commonly called Ubiquitous sensor network (USN) when it is integrated to IoT. [2] Continuous medical monitoring, controlling the appliances, emergency communication of the patient can be sent to the care take and doctor through the wireless networks. IoT plays a revolutionary role in all the health care systems by monitoring the appliances, individuals, medicine etc. and managing them continuously. [3][4]. In the present era the health care is provided from hospital centered, this will have transferred to hospital-home-balanced by 2020, and by 2030 it will be home centered. [5] When the patients are confined to mobility and location in a smart home or smart hospital then the data is facilitated by the gateways which key role for transferring the data to a remote location. The gateway acts as a hub between LAN, PAN, etc. The gate is power of many different protocols for communication with several different devices and node to receive and transmit the data, it can be added with some intelligence to its functionalities. Basing on these technology small devices are connected to from a remarkable network of things. According to the survey some These Small devices are used to sense, monitor and control objects around us [6]. Object may be living thing or non-living thing, using this technology we can get information to any corner of the world. Information is passed from physical objects [7] and are communicated using modules like Bluetooth [8], Wi-Fi, ZigBee and other traditional communication protocols. These devices have their own protocols

to follow. We use these devices depending upon the factors like bandwidth, distance between devices, speed of transmission, cost, power [9] etc.

While supervising patient, a doctor primarily checks the heartbeat, pulse, blood pressure and temperature [10]. Basing on these conditions, room environment is to be controlled. For example, if patient is suffering with fever, best results of recovering can happen when patient is placed in correct temperature. This is how controlling plays a role in health monitoring. It is not only handy to doctor but also to patients as well. Patients can control electrical appliances near them.

To make this easy and affordable, we have designed patient monitoring systems based on Bluetooth and Wi-Fi gateway using Raspberry Pi through MQTT protocol to avoid the interoperability of different communication protocols.

In this paper we design a g Blue-Fi gateway for smart health monitoring systems using the Bluetooth and Wi-Fi, to present the concept of health care applications with performance, reliability, interoperability. The proof of gateway implementation is demonstrated by smart health monitoring and controlling system.

The rest of the paper is organized as the section 2 discuss the related existing work, section 3 describes about the proposed architecture section 4 describes about the implementation of the hardware, results are discussed in section 5 and conclusion.

2. Literature of existing work

Many protocols are interconnected through IoT which many wired or wireless but they don't understand each other. Based upon the several applications many gateways are proposed are knocking with many efforts. A frame work for WSN -IP network interconnection is for a generic gateway is proposed in [11]. A gateway