



**3.3.1 NUMBER OF RESEARCH PAPERS PUBLISHED PER TEACHER IN THE JOURNALS NOTIFIED ON UGC CARE LIST
DURING THE CALENDAR YEAR 2019**

Title of paper	Name of the author/s	Department of the teacher	Name of journal	ISSN number	Link to website of the Journal	Link to article / paper / abstract of the article
Cluster-based health monitoring scheme in wireless sensor networks	Selvakanmani, S., Shanmathi, M., Sandhya, N.S.	CSE	EAI/Springer Innovations in Communication and Computing	25228595	https://link.springer.com/book/10.1007/978-3-030-02674-5	https://doi.org/10.1007/978-3-030-02674-5_7
An investigation on machine intelligent techniques to regularize incompetency in communiqué	Thirumal, S., Thangakumar, J., Venkata Subramanian, D.	CSE	Journal of Advanced Research in Dynamical and Control Systems	1943023X	https://jardcs.org/index.php	https://doi.org/10.5373/JARDCS/V11/20192604
Rough set theory-based feature selection and FGA-NN classifier for medical data classification	Balasubramanian, V., Rajendran, Sugumar.	CSE	International Journal of Business Intelligence and Data Mining	17438187	https://www.inderscience.com/index.php	https://doi.org/10.1504/IJBIDM.2019.098838
Privacy preserving data mining using hiding maximum utility item first algorithm by means of grey Wolf optimisation algorithm	Rajendran, Sugumar	CSE	International Journal of Business Intelligence and Data Mining	17438187	https://www.inderscienceonline.com/	https://doi.org/10.1504/IJBIDM.2019.098839
Building a distributed K-Means model for Weka using remote method invocation (RMI) feature of Java	Sudarsan, V., Sugumar, R.	CSE	Concurrency and Computation: Practice and Experience	15320626	https://onlinelibrary.wiley.com/journal/15320634	https://doi.org/10.1002/cpe.5313



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Novel entropy-based approach for cost-effective privacy preservation of intermediate datasets in cloud	SabinÂ Begum, R., Sugumar, R.	CSE	Cluster Computing	13867857	https://link.springer.com/journal/10586	https://doi.org/10.1007/s10586-017-1238-0
IPrivacy: LWE Enhanced image protection over cloud storage	Sankari, M., Ranjana, P., Subramanian, D.V.	CSE	Proceedings of the 3rd International Conference on I-SMAC IoT in Social, Mobile, Analytics and Cloud	978-1-7281-4365-1	https://ieeexplore.ieee.org/Xplore/home.jsp	https://doi.org/10.1109/I-SMAC47947.2019.9032452
Multi-objective sub-linear frequent mining-based information prediction in biomedical datasets using big data analytics	Elangovan, G., Kavya, G.	CSE	Applied Mathematics and Information Sciences	19350090	https://www.naturalspublishing.com/	http://dx.doi.org/10.18576/amis/130612
Socia media opinions aware adverse drug effect prediction and prevention system for the secured health care medical environment	Nalini, S., Balasubramanie, P.	CSE	Cluster Computing	1386-7857	https://link.springer.com/journal/10586	https://doi.org/10.1007/s10586-018-1764-4



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Hearing aid speech signal enhancement via N-parallel FIR-multiplying polynomials for Tamil language dialect syllable ripple and transition variation	Shanmugaraj, G.,	ECE	Cluster Computing	13867857	https://link.springer.com/	https://doi.org/10.1007/s10586-018-2476-5
Retinal vessel extraction framework using modified adaBoost extreme learning machine	Santhosh Krishna, B.V.,	ECE	Computers, Materials and Continua	15462218	https://www.techscience.com/	https://doi.org/10.32604/cmc.2019.07585
A Survey on Despeckling Filters for Speckle Noise Removal in Ultrasound Images	Karthikeyan, S., Manikandan, T., Nandalal, V., Mazher Iqbal, J.L., Babu, J.J.	ECE	Proceedings of the 3rd International Conference on Electronics and Communication and Aerospace Technology	978-1-7281-0167-5	https://ieeexplore.ieee.org/Xplore/home.jsp	https://doi.org/10.1109/ICECA.2019.8822052
Manifold scalable video conveyance for m-wellbeing crisis relevance	Balaji, L., Thyagarajan, K.K.	ECE	Cluster Computing	1386-7857	https://link.springer.com/	https://doi.org/10.1007/s10586-017-1168-x
Low cost computer vision based shape detection in textile industries with robotic arm	Jothichitra, R.	ECE	International Journal of Engineering and Advanced Technology	2249 – 8958	https://www.ijeat.org/	https://doi.org/10.35940/ijeat.A2963.109119



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SEP Analysis of DF Multi Relay Cooperative Network	Dayanidhy, M.,	ECE	Journal of Green Engineering	2245-4586	http://www.jgenng.com/	NA
A novel Neyman–Pearson criterion-based adaptive neuro-fuzzy inference system (NPC-ANFIS) model for security threats detection in cognitive radio networks	Dr. B. Sridevi	ECE	Soft Computing	1432-7643	https://link.springer.com/	https://doi.org/10.1007/s00500-019-04068-2
A novel linear SVM-based compressive collaborative spectrum sensing (CCSS) scheme for IoT cognitive 5G network	Dr. B. Sridevi	ECE	Soft Computing	1432-7643	https://link.springer.com/	https://doi.org/10.1007/s00500-019-04097-x
Real-Time Human Detection and Tracking Using PEI Representation in a Dynamic 3D Environment	Mahalakshmi, M	ECE	Proceedings of International Conference on Intelligent Computing and Applications. Advances in Intelligent Systems and Computing	978-981-13-2181-8	https://link.springer.com/book/10.1007/978-981-13-2182-5	https://doi.org/10.1007/978-981-13-2182-5_19



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Enhancing the thermal performance of a micro finned tube with TiO ₂ water nanofluids using twisted tape inserts	Mageshbabu, D., Madhu, B.	Mech	Heat Transfer Research	10642285	https://www.dl.begellhouse.com/journals/46784ef93dddf27.html	https://doi.org/10.1615/HeatTransRes.2018026222
Desalination using magnetron	Mothilal, T.,	Mech	International Journal of Mechanical and Production Engineering Research and Development	22496890	http://www.tjprc.org/journals/journal-of-mechanical-engineering	https://doi.org/10.24247/ijmperdjun2019106
Effect of mass flow rate on fresh water improvement from inclined pv panel basin solar still	Mageshbabu, D., Madhu, B.,	Mech	Materials Today: Proceedings	22147853	https://www.sciencedirect.com/journal/materials-today-proceedings	https://doi.org/10.1016/j.matpr.2020.02.051
Experimental investigation on pressure and heat release hcci engine operated with chicken fat oil/diesel-gasoline blends	Madhu, B., Mageshbabu, D.,	Mech	Materials Today: Proceedings	22147853	https://www.sciencedirect.com/journal/materials-today-proceedings	https://doi.org/10.1016/j.matpr.2020.02.128
Experimental investigation on the effect of photovoltaic panel partially and fully submerged in water	Mr.B. Madhu	Mech	Heat Transfer Asian Research	26884534	https://onlinelibrary.wiley.com/	https://doi.org/10.1002/htj.21453



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Rejection and breaks in pharmaceutical call center	Balamurugan, B., Mullai, M.	S&H	International Journal of Pharmaceutical Research	9752366	http://ijpronline.com/	https://doi.org/10.31838/ijpr/2019.11.04.036
Optimization of friction welding process to eliminate forking in Engine valves	Kavitha K	S&H	Indian Journal of Engineering	2319-7765	https://discoveryjournals.org/engineering/index.htm	https://www.discoveryjournals.org/engineering/current_issue/2019/A29.pdf

Chapter 7

Cluster-Based Health Monitoring Scheme in Wireless Sensor Networks



S. Selvakanmani, M. Shanmathi, and N. S. Sandhya

7.1 Introduction

Sensor nodes are specifically used for monitoring and recording the environmental conditions such as temperature, humidity, water level, etc. It has a huge application in many fields like earth sensing, consumer and industrial applications, military, etc. These wireless sensor nodes form a network, namely, wireless sensor networks (WSN). In this type of network, information collected over the sensors is so valuable and is stored in a central location. Similar to ad hoc networks, these networks also rely on the wireless connectivity. However, the lifetime of sensors is limited, and at times, they might not be reachable physically once they are deployed (Thendral et al. 2016). A general WSN model is shown in Fig. 7.1. The components of WSN are sensor nodes, which are deployed at various locations in order to monitor the movement inside those locations. All the sensed information is sent to “sink” node (Akyildiz et al. 2002). All the sensed information is consolidated by this sink node, which is further available for end user through the Internet.

Some of the requirements of WSN are no fixed infrastructure, less power consumption, and opportunistic routing approach (Selvakanmani and Sumathi 2014) among all the sensors in order to send its data to the sink node. The lifetime of every sensor is limited, so each sensor might adopt on/off model whenever it is not in use.

In the recent past, WSN is found useful in medical applications, on incorporating ubiquitous computing for healthcare systems. It individually provides caring facility for the sick and old-age people anytime, anywhere. The emerging demographic change toward the aging population has introduced drastic changes into our society (Selvakanmani 2015). The aging community requires an authentic way for longevity

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EAI/Springer Innovations in Communication and Computing,
https://doi.org/10.1007/978-3-030-02674-5_7

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An Investigation on Machine Intelligent Techniques to Regularize Incompetency in Communiqué

 S. Thirumal, J. Thangakumar and  D. Venkata Subramanian

Abstract

The analytics of Big Data in the field of healthcare and medicine has enabled large datasets to be analysed from several patients thus identifying the correlation among datasets and their clusters resulting in the development of predictive models with techniques of data mining. Communication disability has been associated with issues and disability of learning. Almost 70% of those with a condition of communication disability seem to have a certain level of learning disability that is based on the IQ score of the individual and also their cognitive functioning levels. Another genomic birth related syndrome known as the Down syndrome is the result of either all or a portion of an extra copy of the chromosome 21 which continues during the entire lifetime of a person. In this work, a survey of works available in the literature that are based on Down syndrome and autism affected persons by employing techniques of Big data or Machine learning is reviewed.

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Rough set theory-based feature selection and FGA-NN classifier for medical data classification

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Abstract: The prediction of heart disease is a difficult task, which needs much experience and knowledge. In order to reduce the risk of heart disease prediction, in this paper we proposed a rough set theory-based feature selection and FGA-NN classifier. The overall process of the proposed system consists of two main steps, such as: 1) feature reduction; 2) heart disease prediction. At first, the kernel fuzzy c-means clustering with roughest theory (KFCMRS) algorithm is applied to the high dimensional data to reduce the dimension of the attribute. After that, the medical data classification is done through FGA-NN classifier. To improve the prediction performance, hybridisation of firefly and genetic algorithm (FGA) is utilised with NN for weight optimisation. At last, the experimentation is performed by means of Cleveland, Hungarian, and Switzerland datasets. The experimentation result proves that the FGA-NN classifier outperformed the existing approach by attaining the accuracy of 83%.

Keywords: heart disease; FGA-NN; KFCMRS; scaled conjugate gradient; SCG; prediction; feature reduction; optimisation.

Reference to this paper should be made as follows: Balasubramanian, V. and Rajendran, S. (2019) 'Rough set theory-based feature selection and FGA-NN classifier for medical data classification', *Int. J. Business Intelligence and Data Mining*, Vol. 14, No. 3, pp.322–358.

Biographical notes: Vijayalakshmi Balasubramanian received her Bachelor's degree in Computer Science from Manomaniam Sundaranar University, Tirunelveli. Then she obtained his Master's degree in Information Technology from Alagappa University of Karaikudi. Currently, she is working as an Assistant Professor in Department of Computer Science (Self Finance) in Sri Parasakthi College for Women at Courtallam. Her specialisations include distributed networking and data mining. Her current research interests are medical mining and neural networks.

Privacy preserving data mining using hiding maximum utility item first algorithm by means of grey wolf optimisation algorithm

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Abstract: In the privacy preserving data mining, the utility mining casts a very vital part. The objective of the suggested technique is performed by concealing the high sensitive item sets with the help of the hiding maximum utility item first (HMUIF) algorithm, which effectively evaluates the sensitive item sets by effectively exploiting the user defined utility threshold value. It successfully attempts to estimate the sensitive item sets by utilising optimal threshold value, by means of the grey wolf optimisation (GWO) algorithm. The optimised threshold value is then checked for its performance analysis by employing several constraints like the HF, MC and DIS. The novel technique is performed and the optimal threshold resultant item sets are assessed and contrasted with those of diverse optimisation approaches. The novel HMUIF considerably cuts down the calculation complication, thereby paving the way for the enhancement in hiding performance of the item sets.

Keywords: data mining; privacy preserving utility mining; sensitive item sets; optimal threshold; grey wolf optimisation; GWO.

Reference to this paper should be made as follows: Ketthari, M.T. and Rajendran, S. (2019) 'Privacy preserving data mining using hiding maximum utility item first algorithm by means of grey wolf optimisation algorithm', *Int. J. Business Intelligence and Data Mining*, Vol. 14, No. 3, pp.401–418.

Biographical notes: M.T. Ketthari received his BE degree from the Anna University, Chennai, India in 2010, MTech degree from the College of Engineering Guindy, Anna University, Chennai, India, in 2012, and is pursuing his PhD degree in the St. Peter's University, Avadi, Chennai, India, since 2014. His research interests include data mining and image processing. He has published research articles in various international journals and conference proceedings.

Building a distributed K-Means model for Weka using remote method invocation (RMI) feature of Java

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Summary

This work attempts to analyze the limits of Weka Data Miner in executing the Simple K-Means algorithm and makes an attempt to identify how much data is too much data for the Weka Data Miner to execute the algorithm. This work is further based on developing a distributed processing model to offer a better solution in handling large datasets. The required features are implemented using the RMI Call back Server. The Euclidean Distance measure is considered for calculating the distance.

KEYWORDS

distributed processing in K-Means, distributed processing in Weka, distributed processing of Euclidean distance, RMI call back server in Java

1 | INTRODUCTION

The foundation for this work was laid when we became curious to test the true potential of Weka in handling big data. We used the Simple K-Means clustering algorithm of Weka for testing purpose. The test was performed using Intel Atom D425 processor with 2 GB RAM processing a record size two lakh records. The Weka software did not succeed in executing the algorithm and reported the following error message (see Figure 1).

A true data mining application should be able to handle very large datasets. The limitation can possibly be enhanced with some fine tuning by increasing the heap size or by executing the same algorithm on a high-configuration computer. However, the catch here is that Weka has some limitation in executing the algorithm and it is not always possible to look for an upgraded hardware to execute a task. This made us to further explore alternate solutions to overcome the limitation, which laid the foundation for our work.

When processes of this nature are handled, there is always a tradeoff between space complexity and time complexity. Space complexity deals with the amount of space required to execute a process, whereas time complexity deals with the time taken to execute a process. When the entire dataset is handled by one system, it results in increased space as well as time to execute the process as the entire file has to be loaded for processing.

The solution can be provided in a networked environment by exploiting the features of distributed and parallel processing techniques. A network is a collection of intelligent systems where the processing load can be shared by several systems on the network. Parallel and Distributed computing features have been addressed by a few Weka-related projects such as Weka Parallel (used to run the cross validation part in parallel),¹ Grid Weka (distribution of labeling, testing, and cross-validation functions),² and Weka4WS (runs as a web service which requires a web server).³ However, the distributed processing of an entire algorithm is still unexplored in Weka because of the complexity involved due to the variety of algorithms supported by Weka.

A distributed computing system is a system that uses different networked computers that communicate with each other for the purpose of load sharing. There are different techniques used in a distributed computing system such as Message Passing Interface (MPI in short), Remote Procedural Call (RPC in short), and Remote Method Invocation (RMI in short).

Remote Method Invocation is a client server architecture model which facilitates interaction with the methods of objects on remote machines. In RMI, the server object is referred as a Skeleton and the client object is referred as a Stub.

Novel entropy-based approach for cost-effective privacy preservation of intermediate datasets in cloud

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Abstract Cloud computing provides enormous storage capacity and huge computation power. Cloud enables users to deploy data-intensive applications without substructure investment. Intermediate data are generated under the cloud applications and stored again in cloud. An opponent may analyse multiple intermediate data sets to access the privacy sensitive information. The proposed technique to have good privacy and utility trade off, joint entropy with adaptive optimization process is used to maintain the privacy in cloud. Here optimal entropy value process using adaptive particle swarm optimization (APSO) process. After get the optimal entropy database difference model was processed, Entropy and database difference ratio is taken as the evaluation matrices and is tested using various datasets. The technique is also compared to the existing PSO optimization process on privacy preservation in cloud. An adaption feature of Particle swarm optimization show that APSO enhances privacy and preserving cost of intermediate data sets can be significantly saved.

Keywords Cloud computing · Privacy preservation · Intermediate datasets · Joint entropy · Adaptive approach · Entropy

1 Introduction

Cloud computing has been envisioned as the next generation paradigm in computation. In the cloud computing environment, both applications and resources are delivered on demand over the Internet as services [1]. However, numerous potential cloud customers are still hesitant to take advantage of cloud computing due to security and privacy concerns. Privacy protection is one of the concerned issues in this regard [2]. The safety aspect in any cloud computing infrastructure is the highly significantly element, in view of the fact that authorized access can only be accepted and safe behavior adequacy is highly essential [3]. The data amassed in the cloud have to be habitually revised by the users by means of insertion, deletion, alteration, appending, reordering and so on [4]. Taking the advantage of the cloud server to store the large volume of sensing data and process them for doctor's diagnosis [5], cloud assisted Wireless Body Area Networks (WBANs) become more robust and provide the desirable services for patients and users [6]. In particular, the participants from different trust domains may not want to disclose their private data sets, which may contain privacy or proprietary information, to anybody else [7]. In respect of the cloud computing, what he perceives is a fundamental infrastructure constructed over a potentially non-reliable physical hardware or functional scenarios [8, 9]. Moreover, they did not take into account privacy preserving, information leak, and hierarchical fine-grained secure access control [10]. Long with the privacy of data and efficient penetrating schemes, real privacy is obtained only if the user's identity remains hidden from the Cloud Service Provider (CSP) as well as the third party user on the cloud server [11]. Privacy preservation model of cloud uses the Encryption and Decryption algorithm on Database tables to protect data from unauthorized access and

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iPrivacy: LWE Enhanced image protection over cloud storage

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Abstract

Outsourcing image data to the cloud is the major challenge of cloud security that must be addressed, especially for maintaining privacy. Image consumes more space while compared to text. Hence the traditional techniques like AES, DES, RSA are well fitted to text data rather than image. The leakage of sensitive image is increased while outsourcing. In this paper, we design the framework for a novel light weight encryption(LWE) to outsource the encrypted image to the cloud without leaking the sensitive information on the cloud server and maintains the privacy. It also maintains the balance between security and computational overhead in client system to enhance privacy. Images cannot retrieve even by the untrusted cloud vendors. Extensive experiments are conducted to prove that the proposed work consumes execution time with standard AES to provide superior performance of client system. The proposed algorithm consumes energy more than 50% with standard AES. The proposed LWE work has demonstrated the encryption/decryption of collecting various images in the experimental results and performance analysis to satisfactory security.

Keywords: *iPrivacy; cloud storage; cloud computing; Privacy; AES*

I INTRODUCTION

Data privacy [1] is a privacy of personal data such as sensitive images, personal photos, medical files, medical images and other sensitive information. Cloud storage [2] is a storage area which is used to store, implement and retrieve the data in the cloud. We can access the stored data anywhere in the world. Hiding the image is important for the current field of IT industry because of many hackers can retrieve our data for their own profit. Encryption [3] is one of the best solution to hiding the message from unauthorised users. Traditional techniques of encryption are well suitable for text data than image data. As the longer execution of those algorithms, it maximizes the usage of resources, increased the time complexity and occupy much ore storage space. The survey paper [4] explained the techniques suitable to images and text. It measures the time costs of AES, DES, 3-DES and TWOFISH. It proved that the AES are

low execution time compared to others. The other encryption survey paper [5]deeply demonstrated the various format involved in the encryption i.e. XOR, rubik's, cubic squares, scrambling, permutation and chaos theory. It was concluded that the chaos technique would be better security performance of image. The paper explains the light weight method [6] to prevent the image privacy while outsourcing to the cloud. It proves that the strongest and simplest encryption to ensure security and better performance of execution time.

A novel light weight privacy scheme of paper [7]outsourced the data to the cloud using database to upload and download the encrypted image. It is used proxy server to store, create, update to the cloud and manage the key database also.

The DPM parallel data privacy method paper [8]assures the data privacy by using GPU(Graphic Processing Unit) for parallel processing. It is fast for executing the huge amount of data. The paper [9] demonstrates the energy saving of cloud computing by the data transmission. It consumes the execution time of the algorithm to improve the security and performance.

At early stage of cloud, client images are passed to the cloud directly without encryption. The overall control of the data[1] [10] is handled by third party cloud vendors/broker in the cloud. Client users have limited control to retrieve the image data. They have faced the lack of privacy issues on it. And untrusted cloud vendors may be possible to lose/share our sensitive data to others. Later, partial complex computation image data are uploaded to the cloud and remaining are encrypted in client system. It creates some complexity to ensure the privacy and difficult to select the complex task. Due to the lack of some privacy issues, image data are fully encrypted in the client system [10] before outsourced encrypted data to cloud. Holding some sensitive metadata in client system is for ensuring the image privacy by unauthorised user. Hence, increasing of computational overhead of client system, the proposed LWE scheme encrypt the image data by simple, efficient and light weight method to balance the privacy, security, resource and time management. It consumes time complexity as $O(1)$ and $O(n)$ for n chunks.

Multi-Objective Sub-Linear Frequent Mining-Based Information Prediction in Biomedical Datasets using Big Data Analytics

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Abstract: Recently, big data applications have been rapidly expanded into various industries. Healthcare is one of the industries that are seeking to use big data platforms and mining. As a result, some large data analytics tools have been adopted in this field. Medical imaging, which is a pillar in diagnostic healthcare, involves a high volume of data collection and processing. The most challenging issue is common in sub-graph mining process to reduce the dimensionality of medical data set is minimized. In this paper, we propose a Multi-Objective Sub-Linear Frequent Mining (MOSLFM) to estimate the real values of outline processing in biomedical data, which is useful for computational complexity. This is repeated to find the minimum representation of the most frequent supplemental edges to be compatible with the sub-border margin. Sub-linear and sub-graph often use the mining process candidate generation model to find the biometric data set used to reduce the process. Projecting a high efficient progressing cluster partitioning method is used to determine the identified terms frequency in the biomedical dataset, so the process is simplified using lower complexity.

Keywords: Big Data, Data Mining, Map-Reduce, Frequent Pattern, Subgraph Mining

1 Introduction

In the big data of biomedical dataset, frequent sub-graph mining is essential to reduce the task of finding minimal dataset values, because the range of medical devices is vast and includes most healthcare document to specify the category of classes defined with supportive frequent data mining. Applying data mining systems to biomedical datasets helps to identify the patient information, which helps predict the time of process to conduct treatment. In high dimensional data process, the bio-medical industry has produced a lot of complex data about the patients, healing facilities assets, illnesses, analysis techniques, the patient's electronic records, etc. The map-reduce techniques can be used where the dimension and volume of data is higher. It has been used to identify the exact sub-group of data points which reduce the dimensionality, as well. The repeated information is classified as frequent information or outliers. Mining biomedical data can adopt frequency analysis. Various methodologies are devoted to frequent analysis and clustering the datasets. Every

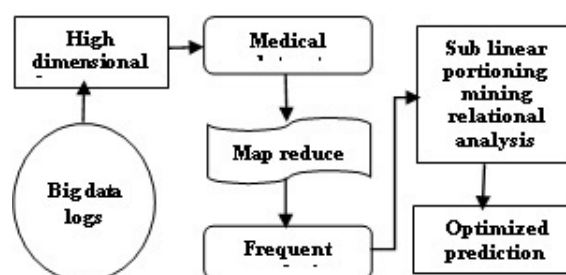


Fig. 1: The process of map-reduce in the biomedical dataset

calculation has its advantages and disadvantages. Similarly the dataset on which we apply these systems may comprise missing qualities because all essential qualities for each record related to construction may not be predicted. Subsequently, the unavailable feature results in time complexity.

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Socia media opinions aware adverse drug effect prediction and prevention system for the secured health care medical environment

S. Nalini¹ · P. Balasubramanie²

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Abstract

Predicting adverse drug effects is difficult which is focused in various research works that focus on predicting the adverse effects of drugs based user reviews gathered from the social media. However those research works cannot accurately predict the user opinions side effects. These problems are resolved in the proposed research work by introducing the framework called “adverse drug effect aware drug recommendation system”. This research work focus on the online reviews about the drug reaction which is gathered from the twitter social media website. These reviews are analyzed to find the reaction of users in terms of positive reaction or negative reaction based on adverse effects. In this work training is done on the tweet data corpus downloaded from online to learn the negative and positive impact words. Initially preprocessing is done on the retrieved data reviews to eliminate unwanted words and result with only required data contents without noises and repeated data by using successor variety stemmer’s algorithm. After preprocessing, optimal feature selection is done on the preprocessed terms to select the most optimal terms that represent the drug reactions by using hybrid generic particle swarm optimization algorithm. Finally classification is done by using improved transductive support vector machine algorithm. The entire proposed work is simulated and analyzed in the matlab simulation environment from which it can be proved that the proposed research work tends to increased performance than the existing research methodologies.

Keywords Adverse drug effects · Features reasonable for the drug effects · Optimal feature selection · Prediction of drug effects

1 Introduction

Adverse drug reaction (ADR) is defined as serious of effects happening on the human bodies due to irregular usage of drugs without doctor prescription [1]. ADR will affect the people from their day to day activities by generating more side effects [2]. So that secured environment for the patients can be ensured without any adverse effects while taking medications. There is various kind of ADR effects are happening on human bodies [3]. Those are categorized into two types in major namely category A reaction and category B reactions. Category A reactions happed due to over dosage consumed by the patients whereas category B reactions happen due to

allergic to the corresponding drug. Here category B reaction found to be more dangerous than the category A reactions [4]. These reactions would result in serious threat to the humans which might affects normal living life. Thus it is required to analyze and predict the adverse drug effects that happening during the improper consumption of medicines [5].

The drug effect identification is the more difficult process which is focused in this research method [6]. These drug information needs to be gathered from the living who are making use of those drugs [7]. However it is complex to gather information from the living things which needs to be processed in the efficient manner. Social media make this process simple by providing user friendly environment for researchers to gather the opinion information about the drugs from the lots of patients [8]. People tends to post their reviews about the corresponding drugs in online which can be gathered through social media, so that proper opinion decision about the drugs can be made out. In this research work, drugs reviews are gathered from the twitter social media website in the efficient manner [9].

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Hearing aid speech signal enhancement via N-parallel FIR-multiplying polynomials for Tamil language dialect syllable ripple and transition variation

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Abstract

FIR filters linear phase property eliminates the phase distortion for all frequencies and delays in the same amount of time. The FIR filter N tap will related to the delay that is based on an expression $(N - 1)/(2 * F_s)$ wherein the F_s denote the frequency of sampling and at the time of the increase in N there is also an increase in delay. Until now, the researcher's concentrate more on the silicon area and multiplier reduction. In this paper, the proposed pipelined FIR filter design with multiplying polynomials in even and odd length, reduces the number of multiplication and reduces the addition in sub filter block. Since, the proposed algorithm Parallel FIR—multiplying polynomials (PFIR-MP) performs with less multiplication while leads to area reduction in the FPGA processor. The 72-tap PFIR-MP reduces 18 multipliers when compared to the existing algorithms. The existing algorithms have 153 and 126 multipliers, whereas the proposed algorithm is with 108 multipliers. The overall performance of the various N- PFIR-MP evaluates through the enhancement of hearing aid signals. From the result, PFIR-MP shows the relation between the N taps and parallel structures in enhancing the hearing aid signals is acquired from dialect tamil language speaker, which shows the proportional variation in the ripple and transition due to syllable bandwidth and optimum N-tap obtained from various dialect syllable.

Keywords Digital signal processing · Symmetric coefficients · Parallel fast FIR algorithm · Linear symmetric convolution · Very large scale integration

1 Introduction

The digital signal processing classifies as the off-line and real-time signal processing. In off-line signal processing, the recorded signal such as seismic signal, ECG and EMG analyze the information. The real-time signal process, i.e. the live signal such as hearing aid, radar,

and telephone communication is processed for information. Furthermore, the algorithm that suits for off-line signal never performs for real time signals in real-time signal characteristics of signal change, according to environment and acquisition. The filter for real time signal needs to perform at different frequency levels. FIR filter perform well due to the property of linear phase and coefficient which are symmetrical. In addition, the problem in the real time signal processing is Hardware complexity.

The growth of real-time signal processing hand held instruments demands for the high performance, low power, and area in Digital signal processing. Furthermore, FIR filter is widely applied in DSP system, wherein some applications such as Multiple-Input Multiple-Output (MIMO) and Single-Input and Single-Output (SISO) system (SISO) need high throughput with low power and other such as video and audio processing which is needed for

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Retinal Vessel Extraction Framework Using Modified Adaboost Extreme Learning Machine

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Abstract: An explicit extraction of the retinal vessel is a standout amongst the most significant errands in the field of medical imaging to analyze both the ophthalmological infections, for example, Glaucoma, Diabetic Retinopathy (DR), Retinopathy of Prematurity (ROP), Age-Related Macular Degeneration (AMD) as well as non retinal sickness such as stroke, hypertension and cardiovascular diseases. The state of the retinal vasculature is a significant indicative element in the field of ophthalmology. Retinal vessel extraction in fundus imaging is a difficult task because of varying size vessels, moderately low distinction, and presence of pathologies such as hemorrhages, microaneurysms etc. Manual vessel extraction is a challenging task due to the complicated nature of the retinal vessel structure, which also needs strong skill set and training. In this paper, a supervised technique for blood vessel extraction in retinal images using Modified Adaboost Extreme Learning Machine (MAD-ELM) is proposed. Firstly, the fundus image preprocessing is done for contrast enhancement and inhomogeneity correction. Then, a set of core features is extracted, and the best features are selected using “minimal Redundancy-maximum Relevance (mRmR).” Later, using MAD-ELM method vessels and non vessels are classified. DRIVE and DR-HAGIS datasets are used for the evaluation of the proposed method. The algorithm’s performance is assessed based on accuracy, sensitivity and specificity. The proposed technique attains accuracy of 0.9619 on the DRIVE database and 0.9519 on DR-HAGIS database, which contains pathological images. Our results show that, in addition to healthy retinal images, the proposed method performs well in extracting blood vessels from pathological images and is therefore comparable with state of the art methods.

Keywords: Extreme learning machine, ophthalmology, segmentation, adaboost, feature extraction, supervised, contrast enhancement.

1 Introduction

Typically, retinal vessels are an exclusive part of an individual’s blood circulation system that can be seen instantly without invasion [Resnikoff, Pascolini and Etyaale (2004)]. The retinal vasculature examination can diagnose numerous primary pathologies, such as diabetes, hypertension, AMD, and cardiovascular disease. Furthermore, the characteristics

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A Survey on Despeckling Filters for Speckle Noise Removal in Ultrasound Images

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Abstract— In ultrasound images, speckle noise emerges as the major cause, which has the tendency to limit the contrast resolution. This affects the detection of low contrast and small lesions. To improve clinical diagnosis, speckle reduction filters are designed to enhance the visual quality as well as preserve important features in ultrasound images. Ultrasound imaging is mainly utilized for the detection of thyroid diseases. Several despeckling filters have been proposed for the reduction of speckle noise in ultrasound images. Despeckling filters are based on statistics filtering, transform domain filtering, fuzzy logic filtering and partial differential equation based filtering. This paper presents an exhaustive search in literature on the existing methods for speckle reduction in ultrasound images.

Keywords: *Speckle noise, Ultrasound, Despeckling filter, transform domain*

I. INTRODUCTION

Speckle noise is a dominating noise which is observed in ultrasound images and it need to be minimized without losing significant image features. The backscattered echo signals in ultrasound images leads for poor image quality called as speckle. Speckle is a noise like variation and degrades the contrast of an ultrasound image. It is due to the backscattered ultrasound wave's variations in strength from body tissue. Speckle noise has a granular pattern and is modelled as a multiplicative noise. The presence of speckle noise makes challenge for the sonolist to analyse the ultrasound images. Therefore, speckle noise should be minimized in ultrasound images for better diagnosis.

II. EASE OF USE

A. RELATED WORKS ON LOCAL STATISTICS FILTER

In spatial domain filtering techniques, filters based on local statistics, fuzzy logic and Partial differential equation are studied. Local statistics filter are based on average and variance of the observed image. A spatial mask or kernel is

convolved with input noisy image to get the denoised image. This section presents several existing spatial domain filters which makes use of local statistics techniques.

Pai-Chi Li et al [1] implemented a strain compounding technique for speckle noise reduction. This technique makes use of decorrelation of images in different strain conditions and tissues movements. Speckle pattern is different from each other, when the same object is scanned in different conditions. Speckle noise has been suppressed by averaging the successive frames. If the correlation is small between two frames, then speckle noise reduction will be strong. Motion estimation is the main limitation of this method.

Yan Chen et al [2] demonstrated an speckle reduction adaptive filter for ultrasound images based on aggressive region growing technique. Each region is classified on homogeneity value. The homogenous regions are processed by arithmetic mean filter and the pixels in edge defined class are filtered by a median filter. The main drawback is that the computational time is more due to finding different class of regions by using region growing method.

Yang et al [3] developed a speckle noise reduction filter based on directional derivatives. This filter is based on searching minimum local directional derivative on each directional sub mask. The performance of filter is better when the statistical variation along direction is minimum. The main disadvantage of this filter is weak in despeckling sharp corners of images and takes more computational time.

Zhang et al [4] presented a speckle reduction filter based on 2-D least mean square for ultrasound images. In this method based on local speckle formation the weighted local dynamics is defined. The performance of the filter is controlled by the error difference between ideal local dynamics and weighted local dynamics. Using this filter, fine details are preserved with good speckle reduction.

Budas et al [5] developed a new denoising algorithm based on non local means. It is an weighted average Gaussian filter. Filtering operation has been done based on the higher degree of similarity in an image. This filters does the region comparison of pixels. This filter

Manifold scalable video conveyance for m-wellbeing crisis relevance

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Abstract M-wellbeing utilities are possible to be more and more significant in managing crisis relevance's which allows backing in real-time through distant health specialists. During such circumstance, a manifold wellbeing-associated streams of video is transmitted from the emergency vehicle to distant clinic will enhance the effectiveness of tele-discussion utility, however, needs a wide bandwidth to support preferred peak signal-noise-ratio (PSNR), no more constantly assured by wireless communication. So as to convey a manifold stream of videos in a solitary bandwidth-constrained wireless medium, a framework proposed in this paper which allows categorizing the existing videos, choose dynamically and adjust accordingly, so that finest video streams are transmitted. The camera grading technique mutually functions along with inter-layer adjustment system intended for manifold scalable video to attain various targets as well as tradeoffs concerns to the amount and target PSNR of videos being conveyed. The goal is to adaptively alter the completely conveyed throughput to support the existing bandwidth, whilst offering high PSNR to investigative videos and low PSNR to less significant environment videos. Considering a sensible crisis situation, simulations performed in long term evolution advanced communication demonstrate that the proposed content and environment-sensitive result can choose the finest

video source from a visual perspective and to attain ideal end-to-end PSNR both for investigative and environment videos.

Keywords Camera grading technique · m-wellbeing · Content and environment-sensitive · Scalable video coding (SVC) · Video adjustment

1 Introduction

Currently e-wellbeing is prominent amongst the most capable relevance's of rising information and communication techniques [1]. Specifically, tele-pharmaceutical utilities will strongly gain as of the contemporary progression provided via cellular communication [2], are at present set to encourage an extensive variety of universal medical relevance's, for instance, ongoing checking of fundamental parameters [3], distant treatment of sufferers [4], and tele-diagnosis [5]. In tele-medication, the conveyance of mixed wellbeing-associated data is more and more utilized for distant sufferer observing and syndrome supervision. In such approach, a visual sensor network (VSN) is utilized for distant observing utility in which information about the video is helpful for managing and overseeing at specific occasions [6]. In crisis situations, the deliverance of video information to a distant doctor's facility enables the clinical staff to support and deal with the first-help operations, in particular when the quantity of operators is inadequate in the environment. Additionally, the experts may be permitted to undergo preparatory diagnostic investigation and to set up adequate hospitalization. The existence of a fourth generation wireless network, like LTE-A, would be used to set up communication [7,8] via crisis zone.

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Low Cost Computer Vision based Shape Detection in Textile Industries with Robotic Arm

R. JothiChitra

Abstract: This paper presents low cost automation system for textile industries where colour and shape are detected along with pick and place robotic arm. Edge detection techniques and Contour approximation algorithm are used for pattern detection. The main goal is to count the number of samples of each pattern or shapes. This system makes use of raspberry pi with a PI camera. The PI cam is used for capturing the image of the textiles being moved on a conveyor belt. The system is programmed using open CV platform. The simulation results using OpenCV environment coded with Python are presented.

Keywords : Automation, Pattern Identification, Robotic arm, segmentation.

I. INTRODUCTION

Automation received great attention in recent years of its manifold application and its ability to overcome human assistance. Vision will be useful to scale automation to the next level for large scale production with less investment. Digital image processing where it allows much range of algorithm to be applied to input data and can avoid problem such as noise and distortion during processing. A low cost computer vision based colour and pattern identification is the midlevel process whose input is image and output is attributes for example object recognition and segmentation. Currently PLC based automation systems are being employed in the textile industries for such processes which require high installation and maintenance costs. Image processing is a rapidly growing technology and has a wide range of application in engineering disciplines. It is the method used to perform certain operations on an image. The image is imported for analysis and manipulation. The output can either be an altered image or a report concluded based on the analysis. Digital image processing has several advantages compared to analog image processing. It allows the use of many complex algorithms and mathematical operations, and offers more sophisticated performance. Colour and pattern are two powerful descriptors that helps in object identification and extraction from an image. Manufacturers from different industries such as paint, textile, medicine, cosmetics and food will attest to the importance of having the correct colour, texture and pattern. The use of vision systems in automation and control applications has several real-time constraints on image processing. Inspection of the pattern and nature of the material used in textile industries using the conventional manual method are not feasible owing to the design of the

fabrics in textile industries. Computer vision involves the extraction, analysis and understanding of useful information from either a single image or a sequence of images. It is similar to imparting human intelligence and instincts to a computer. The aim of computer vision is not only to process but also provide useful results based on the observation. Our project aims to build a low cost colour and pattern identification system for textile industry. A approach for [1] automatic recognition of 2D shapes in low noise environment was presented. Further, in[2], a method for detecting object using geometric features and select cluster of image that matched the shape from large database was presented. In [3], rectangular shape using Edge detection was identified. In this work only rectangular shape only identified. Subsequently, in [4], articulated robotic arm which can shadow the movement of a human arm by using low cost sensors was designed and fabricated. In this work, servo motors are used as actuators for building the robotic arm. A robotic arm [5], which is made from low cost fabric and flexible plastics for industries, was presented. In this work, automation system for textile industries where colour and pattern are detected along with pick and place robotic arm.

The rest of the paper is organized as follows: Section II presents the proposed methodology for colour and shape detection. Pattern and Colour detection algorithm are discussed in Section III. Result and Discussion of prototype work are presented in Section IV. Section V describes the conclusion.

II. PROPOSED SYSTEM

This paper proposes automation system for textile Industries where colour and pattern are detected along with pick and place robotic arm. RGB colour model is used for the colour detection since it is additive and no transformation is required to display information on the screen. The main goal is to count the number of samples of each colour. The PI camera is used to monitor the conveyor belt and record images. The pictures are sent to the raspberry pi where it is processed using OpenCV for colour detection. Edge detection technology is widely used in forestry, engineering, fault diagnosis and more. In the proposed system, the shape detection is carried out using edge detection technology. A regular geometric features like square, Triangle and rectangle is important in practicing

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SEP analysis of DF multi-relay cooperative network with M-Ary QAM

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Abstract

A Multihop relay network consist of, a source node (O), multiple intermediate nodes (I_i) and a destination node (F). To obtain better performance existing selection combining technique is modified. To select an appropriate diversity in the network, a novel decision rule is adopted in the intermediate nodes and destination node. With the use of partial channel state information (CSI) of the channel, we modified the selection combining scheme (SC). An end to end symbol error probability (SEP) is derived with MQAM over a flat Rayleigh fading model with decode and forward protocol. SEP is delivered in two phases, first phase – source to destination node link and second phase – source to intermediate node and to the destination node link are assumed to be an independent and identically distributed. By analyzed results shows that proposed SC scheme performance better than the conventional SC scheme. Using Monte-Carlo simulations the computation results are verified. © 2019 the Author(s). All rights reserved.

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A novel Neyman–Pearson criterion-based adaptive neuro-fuzzy inference system (NPC-ANFIS) model for security threats detection in cognitive radio networks

R. Neelaveni¹ · B. Sridevi²

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Abstract

The development of new technologies in wireless domain provides better service to the users. The demand in wireless network services increases every day, and this leads to spectrum scarcity. Cognitive radio network is a solution for ideal spectrum sensing process. As the user and service increase, also the difficulties and security threats increase. The nature of a cognitive radio network provides better service with security, and this nature becomes vulnerable to the security threats. Resolving such vulnerabilities based on the analysis of CR network basic layers provides a secure network for better communication. This proposed research model is defined for obtaining secure CR network model using Neyman–Pearson criterion and an adaptive neuro-fuzzy inference system for detecting the attacks in the network. Experimental results highlight that proposed model is better in detection efficiency than artificial neural network-based detection models.

Keywords Cognitive radio networks (CRN) · Neyman–Pearson criterion · Adaptive neuro-fuzzy inference system (ANFIS)

1 Introduction

The development of wireless devices and the modern people's dependency on them have proved the necessity of radio spectrum. In general, the licensed spectrum is allocated to the primary users and others are considered as secondary users or unlicensed users. The secondary users exploit the spectrum when primary users utilize the spectrum, leading to spectrum insufficiency for primary users. Spectrum scarcity problem will arise in this situation for primary users, and also some of the spectrum couldn't be used, leading to spectrum underutilization. Cognitive radio network has been introduced to eliminate the spectrum scarcity problem. CR model is used to achieve efficient spectrum allocation to satisfy the high data rate demand. Cognitive radio is considered as an intelligent network since it detects the authorized user and unauthorized user

without interrupting the primary user operation. It harnesses the underutilized spectrum by sensing the spectrum based on parameters where it operates. A portion of frequency band which is not used by primary user in a particular time is considered as spectrum hole, and it is depicted in Fig. 1.

The four functions of cognitive radio cycle are described, namely spectrum sensing, spectrum mobility, spectrum decision and spectrum sharing. Spectrum sensing identifies the available spectrum and detects the primary user in the network for accessing the resource. Spectrum mobility describes about the release of channel to primary user when it is required. The spectrum sharing coordinates the PUs and SUs using threshold value to maintain the interference level. Spectrum decision process selects the suitable frequency based on QoS characteristics. Once the suitable frequency is identified, it makes sure to identify the white spaces in cognitive radio so that a suitable decision was suggested to the user to decide which frequency spectrum is the best to use. Figure 2 depicts the cognitive radio cycle.

Research towards allocation of resources to secondary users focuses on spectrum utilization by identifying the spectrum holes in the network. Based on cognitive radio network cycle, the entire network is classified into three

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A novel linear SVM-based compressive collaborative spectrum sensing (CCSS) scheme for IoT cognitive 5G network

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Abstract

The cognitive 5G network plays a vital role in enhancing the performance of IoT systems by providing broad services on dynamic situations. Cognitive radio is an emerging trend for supporting multiuser and hybrid communications. New radio technologies and architectures have undergone connectivity issues due to spectrum allocation and utilization. Resource utilization based on cognitive radio technology develops an efficient and reliable system architecture for IoT models. Cognitive radio resolves the collision and excessive contention in heavy traffic IoT networks. Suitable spectrum sensing model is essential in cognitive radio networks and also it supports the IoT networks. To address all these challenges, this proposed research model provides linear support vector machine-based compressive collaborative spectrum sensing scheme in IoT cognitive 5G network that significantly reduces the energy consumption and increases the spectrum utilization.

Keywords Cognitive 5G network · Internet of things (IoT) · Compressive collaborative spectrum sensing (CCSS) · Support vector machine (SVM)

1 Introduction

The emerging trend in sharing network resources increases every day due to the increasing number of users and utilization of apps that simplify the traditional hard works. In the same manner, the interest in IoT and its sensor-based applications involved in smart cities (Mishra et al. 2018), smart energy management and other healthcare and monitoring applications increase the research thrust as the demand in the utilization of spectrum increases effectively. By interrelating the IoT and spectrum sharing concepts, it

becomes applicable for real-time cognitive radio applications as it remains more suitable for various dynamic environment. Figure 1 depicts an illustration of the IoT network (Gupta and Jha 2015) that has both the centralized and distributed heterogeneous models. The spectrum allocation policy in CR tends to enhance the utilization of the entire spectrum and also shares the spectrum to almost all the users present in the network. Deploying CR in Internet of Things (Li et al. 2018) environment reduces the overall energy consumption and provides efficient transmission by transmitting data over different channels for both the primary and secondary users. Generally, spectrum sensing is an important process in cognitive radio and it is mainly classified into two categories, namely cooperative sensing and non-cooperative sensing.

The cooperative sensing handles the sensing process by considering the secondary users in the network, and it is further classified into centralized and distributed sensing process. The decision in the sensing process is further handled by the secondary users in the network by means of observation. Non-cooperative sensing process selects the spectrum based on the availability without considering the secondary users present in the network. Due to its non-communication nature with SUs, it lags in the performance

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Real-Time Human Detection and Tracking Using PEI Representation in a Dynamic 3D Environment



M. Mahalakshmi, R. Kanthavel and N. Hemavathy

Abstract In this paper, we present an improved methodology for detecting and tracking the various posture and movement of people in a crowded and dynamic environment with the help of a single RGB-D camera. The RGB-D cameras are also called as low depth cameras or ranging cameras. The depth camera provides depth information for each pixel. The indigenous RGB-D pixels are transformed into a new point ensemble image (PEI) and human detection and tracking in a 3D space can be accomplished in a more effective and accurate manner. PEI representation, unlike height map representation, projects all the points in the cell into the grid. First, the detector locates the human physically from the probable candidates who are then carefully filtered in a supervised learning and classification second stage. The statistics of color and height are then computed for associating data to generate the 3D orientation of the tracked individuals. We use classifiers such as JHCH and HOHD. The statistics of color and height are then computed for associating data to generate the 3D orientation of the tracked individuals. In tracking, we try to estimate the similarity criteria in order to compare the current frame and the detected response. We have used RANSAC matching algorithm in the tracking stage. The qualitative and quantitative experiments are performed using the different datasets that show a promising improvement by improving the accuracy of the system to 97%. We have concentrated on the false positives and miss rates in the detecting stage and track lost error and ID switch error in the tracking stage. We have produced significant improvements by reducing these errors and even works well in a highly occluded environment. As we concentrate only on the upper part of the

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Enhancing the thermal performance of a micro finned tube with TiO₂-water nanofluids using twisted tape inserts

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DESALINATION USING MAGNETRON

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ABSTRACT

This project is about suggesting a microwave excitation for and separating salts by means of distillation. To meet the requirements of individuals, water has been a basic need. This project will serve the people who face water crises. Magnetron is used as a major source for separating salt from desalinated water, where magnetron acts as a heating source providing microwaves of the frequency of 2.4 GHz, splitting water molecules to produce heat as a result, of intermolecular vibration of water molecules.

KEYWORDS: Magnetron, Saline Water, Intermolecular Vibration, Microwaves & Distillation

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INTRODUCTION

Interest for fresh water is expanding because of industrialization, life standard and consumption of characteristic sicknesses and so on. As indicated by United Nation Organization that by 2025, right around 1800 million individuals will experience the ill effects of water shortage. In contrast to other desalination techniques, this paper centers around desalination utilizing the microwave. Microwaves are broadly utilized in correspondence purposes, remote detecting, route, sustenance preparing, and so forth. Of late, traditional research center warming is, being supplanted by microwave household warming. The focal points that pulled in the consideration of scientists to microwave warming are, 1) higher warming rates in less time, 2) no immediate contact between, the reactants and vitality source. Likewise, non-warm utilizations of microwaves incorporate estimating the dielectric properties of an extensive assortment of substances, for example, elastic, wood, paper, glass. Microwave vitality can be, changed over into warmth when dielectric material, having incited dipoles is presented to microwave radiation of certain band of recurrence. The saltiness or the salt substance in lakes seas and groundwater fluctuates extra amounts of time because of expanded surface spillovers. To assess the saltiness, a recurrence score of 0.5 to 4.0 GHz is required. NaCl is the foremost substance in salt water. Ho and Hall estimated the dielectric properties of seawater tests gathered over the world's seas, just as those of 0.3 N to 0.7 N. over a temperature scope of 5.5-240C at 2.653 GHz. The primary goal of this technique is to give a superior nature of fresh water.

LITERATURE

D H Gadani¹, V A Rana, S P Bhatnagar, A N Prajapati & A D Vyas recommended that the fundamental point was to check the emissivity of saline water at fixed frequencies of 0.5, 0.9 and 1.4 GHz. The variety of complex permittivity of water with saltiness and recurrence is determined, utilizing Stogryn condition just as Klein and Swift. It is seen that, from the test, dielectric consistent of water diminishes gradually with increment in salinity. The ionic conductivity of electrolyte arrangement diminishes at high recurrence,



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Effect of mass flow rate on fresh water improvement from inclined PV panel basin solar still

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ABSTRACT

This article conveys the effect of rate of flow by water (m_f) over an inclined PV panel basin solar still (IPVPBSS) for improving the distilled water production. In this study, the PV panel is used as a basin of Inclined Solar Still (ISS) and the consequence of flow rate by sea water on yield and power production is experimentally analyzed. Three different flow rates were analyzed for the present study (4.68, 7.56 and 10.08 kg/hr). Results showed that on increasing the rate of flow the distillate output produced from the IPVPBSS decreases, whereas, the power production increases as the panel temperature is an influential parameter. Similarly, the daily thermal efficiency of the IPVPBSS decreases with increasing the flow rate. The daily yield from the IPVPBSS decreases by 27 and 57% for the flow rates of 7.56 and 10.08 kg/hr respectively as compared to that of flow rate of 4.56 kg/hr. Also, from the economic analysis the cost of distilled water and payback period of the IPVPBSS decreases with minimum flow rate of water.

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1. Introduction

Water has become one of the mainly vital factors for individual to survive. Even though distillation process such as flash desalination and reverse osmosis techniques were used to produce large amount of fresh water in mass production, the initial cost is higher. Similarly, the rejection of brine water is higher while using these techniques and it cannot be used for any industrial and domestic applications [1–12]. The viable production of fresh water using similar technique has been developed by several researchers. The deficiency in getting fresh water is higher only in rural and coastal regions. One of the important sources for desalination is with the use of renewable energy as it is cheaper, eco-friendly and freely available in nature. Among various renewable energy sources, Con-

ventional Solar Still (CSS) desalination is concentrated for producing potable drinking water as the cost of initial investment is lesser. Sathyamurthy et al. [7] surveyed the effect of integrating solar still with collector-based system. The review reveals that the solar still performance working under active condition depends on operating parameters such as flow rate of fluid medium in collector-based system and depth of water maintained in the solar still. It was also concluded that the payback period of the CSS is higher in the case of integration, while the efficiency of the CSS is increased at optimized parameters of collector-based system.

Sathyamurthy et al. [13] theoretically optimized the flow rate of water in an ISS with baffles. Their study revealed that on increased flow rate of water in a baffled system reduced the yield of fresh water produced from solar still. A similar study on inclined baffle solar still was carried out experimentally by Nagarajan et al. [14]. Results from the baffled solar still that kept inclined showed that the at higher flow rates of sea water inside the rectangular enclosure, the potable water produced is reduced. Kumar et al. [15,16] carried out a numerical and experimental study on the effect of integrating pyramidal solar still with the ISS for improving the

Abbreviations: IPVPBSS, inclined PV panel basin solar still; ISS, Inclined Solar Still; CSS, Conventional Solar Still.

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Experimental investigation on pressure and heat release HCCI engine operated with chicken fat oil/diesel-gasoline blends

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ABSTRACT

Low-temperature combustion is the individuality of Homogenous charge compression ignition (HCCI) engines where the combustion is achieved at the temperature lower than the temperature at which NOx is formed. By achieving this type of combustion in the engine it is possible to reduce the formation of Thermal NOx and PM. But on the other hand, the performance. In this current study, the combustion parameters of the engine are studied by varying the input parameters of the engine that has been modified to run in HCCI mode. The engine is fuelled with the blends of chicken fat oil biodiesel (CFOB) and gasoline. In the present work, the engine is tested for combustion properties such as in-cylinder pressure, heat release rate and the rate of pressure rise for different blend ratios. The ignition delay has persistently elevated for an increase in the gasoline concentration in blends. Also, the knock is consistently seen at higher engine loads with the blends of gasoline and diesel as well as gasoline with biodiesel. Diesel fuel exhibited lower peak pressure whereas, pure biodiesel exhibits higher peak pressure and the peak cylinder pressure within the engine at higher load varies from 40 to 75 bar. On comparing the heat release rate, the diesel fuel exhibit lower heat release as compared to fuel blended with chicken fat oil. Due to the delay in the start of low-temperature reactions the peaks on the rate of heat release is reduced. During higher engine load conditions, the engine seizes to operate in HCCI mode instead it operates in a conventional pattern which is clearly proved by the heat release curves obtained for the indicated pressure and crank angle data of the particular operating mode of the engine.

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1. Introduction

Mobility has played a major role in the development of the civilization by leading a pathway to explore the lands, spread the culture and establish commerce. Prior to 17th-century mankind was mainly dependent on carts driven by horse and bulls. Further, the development of steam-powered automobile by Nicolas Cugnot in 1796 has opened the path to development of reciprocating engines. Further, in 1832, Robert Davison developed the electrically powered locomotive. These vehicles cannot sustain too long because of its heavy weight, slow speed and expensive. Also, they frequently stop due to lack of charge and overheating of the motor.

Abbreviations: HCCI, Homogenous Charge Compression Ignition; CFOB, Chicken Fat Oil Biodiesel; LTC, Low Temperature Combustion; EGR, Exhaust Gas Recirculation; CO, Carbon Monoxide; ECU, Electronic Control Unit; HC, Hydro Carbon; PM, Particulate Matter; GCI, Gasoline Compression Ignition; TDC, Top Dead Center; BDC, Bottom Dead Center; CNT, Carbon Nano Tubes; SFO, Sun Flower Oil; WCO, Waste Chicken Oil; FFA, Free Fatty Acid; DAS, Data Acquisition System; DI, Direct Injection; CI, Compression Ignition; BG, BioDiesel- Gasoline; DG, Diesel- Gasoline.

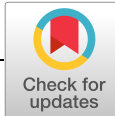
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Experimental investigation on the effect of photovoltaic panel partially and fully submerged in water

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Abstract

This study presents an experimental analysis of improving the thermal, electrical efficiency, and yield of a conventional solar still (CSS). The photovoltaic (PV) efficiency decreases with increase in water depth inside the basin while the still efficiency is higher in the case of fully submerged condition. The maximum water production was about 8 kg/m²/day with PV under fully submerged condition; and during off-shine hours the still efficiency was higher when compared with the partially submerged condition. Similarly, with a decrease in water temperature the panel efficiency is increases. The maximum hourly water production with and without the PV was found to be 1.3 and 0.45 kg/m², respectively. The main outcome of this study is that this mechanism can be used in isolated locations where there is a scarcity of current and distilled water.

KEYWORDS

efficiency, electrical, photovoltaic panel, solar still, water depth, yield



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Rejection and breaks in pharmaceutical call center

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Abstract

We are examining an individual queue in a Pharmaceutical call center having necessary Poisson arrivals, multiple levels of non-homogeneous service having various service distributions relative to unexpected breakdowns and mandatory abandonment in a Pharmaceutical call center with average abandonment durations. After the initial service, the Pharmaceutical call center usually provides the next level utility. After the procedure of each level of utility, the Pharmaceutical call center will mostly take mandatory periods of abandonment. A server might have a breakdown at few service distributions at an exponential level randomly. This work also aims to completely make the negative customers vanish and this is not an immediate move whereas it takes a certain amount of time to do this process. The probability generating functions that mostly depend on time would usually be received in a non-implicit manner and the results obtained in such a way are also steady. We can also calculate the mean number of consumers that are waiting and the time of waiting. © Advanced Scientific Research. All rights reserved.

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Optimization of friction welding process to eliminate forking in Engine valves

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ABSTRACT

Optimization of friction welding process to eliminate valve forking which is resulting in valve breakage in bend test followed by friction welding process and in engine as well. In Engine valve austenitic material and martensitic stainless steel material will be welded through friction welding process to reduce cost and improve temperature gradient. Friction welding defects includes forking will result in valve breakage in the application. Experiments are conducted using Taguchi method to eliminate forking and arrive at empirical relationship between upset force and friction force the parameters of friction welding process.

Keywords: Friction welding, process optimization, forking, bend test

1. INTRODUCTION

Requirement of friction welding process

Rotary friction welding is one; in which one component is rotated against the others. It is the most commonly used of the processes for engine valve manufacturing. It is used to join dissimilar material. In the process, heat is generated by conversion of mechanical