ICCSA -2018

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ICCSA-2018

16th March 2018

IRAJ

International Conference

on

Computational Science & its Applications

Organised By

Department of Computer Science

Sri S. Ramasamy Naidu Memorial College

Sattur, Virudhunagar District, Tamil Nadu, India

&

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ICCSA– 18

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Sattur, Tamil Nadu

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Organized By:
Department of Computer Science
Sri S. Ramasamy Naidu Memorial College
Sattur, Tamil Nadu

From Director's Desk ….

Rudra Bhanu Satpathy.,
Director,
Institute for Research and Academic Journal

On behalf of ***Institute for Research and Academic Journal (IRAJ)*** and in association with ***International Conference on Computational Science & its Applications,*** Sattur, Virudhunagar, Tamil Nadu. I am delighted to welcome all the delegates and participants around the globe to ***Sri S. Ramasamy Naidu Memorial College Sattur, Tamilnadu*** for the ***"International Conference on Computational Science & its Applications (ICCSA-2018)"*** Which will take place from ***16th March '18***

Transforming the importance of Engineering, the theme of this conference is ***"International Conference on Computational Science & its Applications (ICCSA-2018)"***

It will be a great pleasure to join with Engineers, Research Scholars, academicians and students all around the globe. You are invited to be stimulated and enriched by the latest in engineering research and development while delving into presentations surrounding transformative advances provided by a variety of disciplines.

I congratulate the reviewing committee, coordinator **(IRAJ & S.R.N.M)** and all the people involved for their efforts in organizing the event and successfully conducting the International Conference and wish all the delegates and participants a very pleasant stay at ***Sattur, Tamil Nadu.***

Sincerely,

Rudra Bhanu Satpathy

Preface

The ***International Conference on Computational Science & its Applications (ICCSA-2018)*** is being organized by ***Sri S. Ramasamy Naidu Memorial College Sattur, Virudhunagar District, Tamil Nadu, India*** in association with ***Institute for Research and Academic Journal (IRAJ).***

It is gratifying to know that ***ICCSA -2018*** was a notable event which brings academicians, researchers, engineers, industry experts and students together.

Covering broad range of topics in various domains the conference will be a perfect platform to share experience and foster collaborations across industry and academia to evaluate current and emerging trends across the globe.

The International Conference attracted over 93 submissions. Through rigorous peer reviews 68 high quality papers were recommended by the Committee. The Conference applied focus on the tools and techniques for the developments on current technology.

We are indebted to the efforts of all the reviewers who undoubtedly have raised the quality of the proceedings. We are earnestly thankful to all the authors who have contributed their research works to the conference. We thank our Management for their wholehearted support and encouragement. We thank our Principal for his continuous guidance. We thank all the members of our local organizing Committee, National and International Advisory Committees.

ICCSA - 2018

Department of Computer Science
Sri S.R.N.M.College, Sattur
&
Institute for Research and Academic Journals (IRAJ)

International Conference on Computational Science and its Applications (ICCSA-18)

Chief Parton's Message

"If four things are followed – having a great aim, acquiring knowledge, hard work, and perseverance – then anything can be achieved."

– Dr. A. P. J. Abdul Kalam

Dynamic and Rapid innovations are required in every sphere of industry to meet the growing demands of technological explorations. I am very happy to congratulate the Department of Computer Science for organizing an International Conference on "**Computational Science and its Applications**" –a knowledge platform, to elevate the computing applications era to a higher level. This is a milestone for the Department to promote the research and establish interaction among the academic experts from various parts of the world. I extend my best wishes to the organizing committee and I hope that this conference would surely induce modern ideas among the participants paving way for new inventions in the field of Science and Technology.

Dr.T.R. Dhinakaran
Secretary, SRNMC

Department of Computer Science
Sri S.R.N.M.College, Sattur
&
Institute for Research and Academic Journals (IRAJ)

International Conference on Computational Science and its Applications (ICCSA-18)

Patron's Message

"All Birds find shelter during a rain. But Eagle avoids rain by flying above the Clouds."

- A.P.J Abdul Kalam

I am very happy to congratulate the Department of Computer Science in organizing an **International Conference on Computational Science and its Applications**. ICCSA-18 is going to be one step ahead in endowing with a space for the research experts, industrialists, academicians in promoting their research findings in a new innovative direction. The passion and zeal of the organizing committee is praiseworthy. I am thankful to **Institute for Research and Academic Journals (IRAJ)** for agreeing to be the Technical Co-sponsor of this conference and publish the papers in UGC approved and Scopus indexed journals. I congratulate and extent my best wishes to the organizing committee and delegates for excellence in their endeavors.

Dr.S.Ganeshram
Principal, SRNMC

Department of Computer Science
Sri S.R.N.M.College, Sattur
&
Institute for Research and Academic Journals (IRAJ)

International Conference on Computational Science and its Applications (ICCSA-18)

Convener's Message

"Education makes a people easy to lead but difficult to drive: easy to govern, but impossible to enslave."

-Peter Brougham

It is immense pleasure to host an **International Conference on Computational Science and it Applications** which aims to bring together scientists, researchers and technocrats on a platform to discuss and deliberate on research issues confronting them. Computational Science is a main pillar of present research strategies and plays a unique role in exploiting Information and Communication Technologies as innovative technologies. I assure that ICCSA-18 will offer a real opportunity to discuss new issues, tackle complex problems and to nurture new trends in Computational Science.

It is my privilege to thank **Institute for Research and Academic Journals (IRAJ)** for their collaboration and support in executing this knowledge forum, launching the proceedings and publishing the research articles in peer reviewed journals. I heartily welcome all the distinguished speakers, scholars presenting papers and the participants to this international conference. I wholeheartedly appreciate all the sincere efforts of the entire team of ICCSA-18.

Dr. K.Krishnaveni
Convener, SRNMC

ICCSA –18

International Conference
On Computational Science & its Applications
(ICCSA-2018)

Keynote Speakers

Dr.K.Meena

Associate Professor/CSE, Veltech, Chennai.

Dear Delegates

It is my great pleasure and honor to welcome all the participants from various parts of the country to 2018 ***International Conference on Computational Science & its Applications (ICCSA-2018)***

I convey my warm greetings and felicitations and extend my best wishes for the success of the International Conference. This would serve as platform for several discussions and meaningful debates pertaining to emerging technology.

I wish the conference a grand success.

DR.K.MEENA

ICCSA -18

International Conference on Computational Science & its Applications

Sattur, Tamil Nadu, 16th March 2018

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International Conference on Computational Science & its Applications

Sattur , Tamil Nadu

16th March 2018

ABSTRACTS

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Design and Analysis of Low Noise Amplifier using Active Inductor in ADS

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Abstract:--

Low Noise Amplifier (LNA) found its significant application in wireless communication systems. LNA must be designed with high gain, low noise figure, low power, small area, low cost and good input and output matching to get higher performance. In this paper LNA is designed in three stages which are common gate amplifier, common drain amplifier and active inductor to achieve higher performance. Common drain and Common gate are used for input and output matching and to lower the noise whereas active inductor is used to obtain low power consumption and to reduce chip size. The results show that the proposed LNA is able to achieve the best performance with the simulated gain of 28.974dB, lower consumption of 0.7mW and noise figure of 5dB. This modified LNA is suitable for low voltage applications mainly in wireless communication systems

Keywords:--

Active inductor, ADS, High gain, Low power, LNA.

Identification of Haemorrhage in Brain Mri Using Segmentation Techniques

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Abstract:--

Image processing techniques helps in clearly identifying, segmenting and bringing out the possible outcome in the field of medical diagnosis. Haemorrhage in the brain prevailing due to mental stress and trauma is the most important cause for illness and death. Identifying the injured region from the normal-unaffected part of the brain has to be done such that there are no false predictions at the time of emergency situations. Segmentation is an approach to extract the features of haemorrhage from brain MRI images. Image Processing techniques; initially pre-processing steps, morphological operations and segmentation operations are being deployed to highlight the haemorrhage area. In this paper, in Pre-processing; median filter is used to preserve the edges, morphological operations such as erosion-dilation removes and adds pixels to the boundaries of objects in the image, segmentation technique like Otsu thresholding looks onto the region or area inside the segment that has to be brought out and Watershed Segmentation helps in marking foreground and background location of object in image. This concludes that segmentation of haemorrhage in brain can be done distinctly. Accuracy and Time taken to process the segmentation is compared to get the best suitable segmentation algorithm.

Keywords:-

Brain Haemorrhage, Filtering, Morphological operations, Otsu Thresholding, Watershed Segmentation

A High Sensitive Approach for Gender Detection Based On Human IRIS

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Abstract:--

Now a day's iris patterns play a vital role in gender classification. Iris patterns are distinctive and cannot be changed until it becomes unnatural. This paper presents a new method for gender classification based on features of the iris texture selected by mutual information to improve gender classification of iris images. In this paper focus on gender has been detected using iris images. For determining the recognition performance of the system one database of digitized grayscale eye images were used. Traditional iris segmentation methods often involve an exhaustive search of a large parameter space, which is time-consuming and sensitive to noise. In the iris detection the segmentation is based on Hough transform used for automatic segmentation and able to localize the circular iris and pupil region. Edge points of iris boundaries are then detected with canny edges steps and the threshold values are matched with the hamming distance. The Hamming distance was employed for classification of iris images. This work comes to the conclusion that iris segmentation is an essential part of recognition system and the prediction is based on iris texture features. Performance of the systems can be enhanced if the system uses only the quality images and stop matching when a Generation of Iris close match is found. .

Keywords:--

Iris, Canny, Hough transform, Segmentation, Hamming distance, Gender detection.

IoT based Secure E-Health System in Blockchain Environment

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Abstract:--

E-Health is a contemporary healthcare practice which is supported by number of electronic process and communicative elements. Variety of patient data have been managed here that will be transformed to somewhere when it is needed. So that kind of data should be more secure. Block chain allows us to have a distributed peer-to-peer network where non-trusting members can interact with each other without a trusted intermediary, in a verifiable manner. We then move into the IoT domain, and describe how a blockchain-IoT combination: 1) facilitates the sharing of services and resources leading to the creation of a marketplace of services between devices and 2) allows us to automate in a cryptographically verifiable manner several existing, time-consuming workflows. This system proposed that how healthcare data are bind with the combination of blockchain-IoT. The advanced block chain process not only increasing the demands in healthcare growth but also gives the better interaction between users in secured manner.

Keywords:--

E-Health, Blockchain technology, IoT, peer to peer transmission

Realization of Filter Bank Multi Carrier Processing using FPGA

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Abstract:--

Filter Bank Multicarrier (FBMC) systems are a subclass of multicarrier (MC) systems. While its basic principle is dividing frequency spectrum into many narrow sub-channels. Filter Bank multicarrier aims to overcome the short comings that were encountered with the OFDM, Orthogonal Frequency Division Multiplexing. Field- Programmable Gate Arrays (FPGA's) are especially suited to fulfill these requirements. FPGA's are very powerful, relatively inexpensive, and adaptable since their configuration is specified in an abstract hardware description language. The aim of this work is to design a receiver side of FBMC in FFT and pipelined FFT structure with improved throughput, BER and bandwidth range using Verilog HDL and implement it on FPGA. Here the results are obtained using MATLAB and Verilog HDL implemented on Spartan-6 FPGA board.The result of FFT and the pipeline FFT with timing summary is computed and the performance of FBMC is improved by adding the FIR filter at the receiver side. Filters usually low pass filters are uniformly spaced and are higher in selectivity to achieve minimum crosstalk.

Keywords:--

Fast FourierTransform (FFT), Filter Bank Multicarrier (FBMC), Orthogonal Frequency Division Multiplexing (OFDM), Field Programmable Gate Array (FPGA).

Intelligent Vehicle Parking Lot Locator

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Abstract:--

Intelligent Vehicle Parking lot Locator (IVPL) is the smart parking lot locating system proposed using Image processing Technology in MATLAB. The system takes vehicle number plate information as input in the front end interface and shows the location of vehicle in the parking lot to help the driver to know the parked location. As a rising usage of smart parking system, cameras are installed in parking lots for surveillance and occupancy detection. Still images and streaming videos of the parked vehicles are taken as input. The number plate details of these taken car images are extracted by License Plate Recognition (LPR) technique. To identify the parking location of a particular car, the proposed IVPL will map the number plate details of that car given by the driver with the output of LPR. As a result it will display the required parked car image with the confirmation message to the driver so as he can reach his vehicle easily. The Key benefit of IVPL is to save the precious time-especially in airports, train station, shopping mall etc where the parking area is very large and to eliminate any stress and frustration caused when looking for the unknown parked location

Analysis Of Density Based Spatial Clustering In Data Mining.

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Abstract:--

Clustering analysis is broadly implemented and the result was analyzed in market research, pattern recognition, data analysis, and processing of data. Based on the recently described cluster models, there are a lot of clustering that can be applied to a data set in order to partition-ate the information. In the detailed study of clustering data mining, Hierarchical clustering and partitioning methods (K-means, PAM clustering) are suitable for finding spherical-shaped clusters or convex clusters. K-means algorithm has difficulties for identifying the clusters with arbitrary shapes. DBSCAN (Density-Based Spatial Clustering of Applications with Noise) is the most well-known density-based clustering algorithm. The aim is to identify dense regions, which can be measured by the number of objects nearest to a given point. Unlike K-Means, DBSCAN does not require the number of clusters as a parameter. Rather it infers the number of clusters on its data, and it can detect clusters of arbitrary shape. Two important parameters are required for DBSCAN: epsilon ("eps") and minimum points ("MinPts"). The parameter eps defines the radius of neighborhood around a point x. The parameter MinPts is the least number of neighbors within "eps" radius. For the DBSCAN, the cluster's each data object, who's Eps-Neighbor' objects must smaller than a Minpts. The algorithm defines these data objects as core objects, defines the maximum density of a collection of objects connected as cluster. DBSCAN looks for an object density which start with P about Eps and Minpts from the core object P which never visited form data set D, generate a cluster that contains p and its objects density arriving. The algorithm ends with unvisited objects in the data set D. Thus the visited points were accepted for the clustering under the class defined. As a result every matching neighborhood point clustered under the density region was set as threshold value. In this experiential approach, Density-based clustering algorithms tries to find clusters based on density of data points in a region. The results were analyzed and practically tested under MATLAB tools.

Keywords:

Data Mining, Density-based clustering algorithm (DBSCAN), Clustering, Spatial domain, Quality Mining and Multiple Scanning Object

An Analysis of Image Ehancement Based On Histogram Equalization Methods

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Abstract:--

Histogram Equalization is the most familiar method used in the analysis of contrast and brightness in images. The objective of image enhancement techniques is to process images based on Histogram Equalization so that the result is more suitable than the original image for a specific application. The choice of the technique depends upon the requirement. Histogram equalization method is powerful compared to other methods as it increases the global contrast of many images, especially when the usable data of the image is represented by close contrast values. Through histogram equalization, the intensities can be better spread on the histogram and this allows for areas of lower local contrast to improvement a higher contrast. Various methods have been proposed for limiting the levels of enhancement and most of the enhancement algorithms are based on Histogram Equalization. A comparative study is done on Brightness Preserving System with histogram equalization (BBHE) and Recursive Method of BBHE. Recursive Mean-Separate Histogram Equalization (RMSHE) is another improvement of BBHE. These algorithms clearly state that the Image enhancement using Histogram equalization significantly improve the visual appearance of the image.

Key words:--

Contrast Enhancement, Brightness Preserving Bi-Histogram Equalization(BBHE), Recursive Mean-Separate Histogram Equalization(RMSHE), Sub Image Histogram Equalization(SIHE), Recursive Sub Image Histogram Equalization(RSIHE), Recursive Separated Sub Image Histogram Equalization(RSSIHE).

Contingency Assversion and Tracking System for Night Drivers Utilizing IoT Predicated System

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Abstract:--

Fatal Road accidents can be facilely evaded by understanding the psychological state of drivers. Majority of road accidents occur during night driving due to lethargy state of conveyance drivers (Subject). This paper provides Ocular perceiver Blink Monitoring System (EBM) that alerts the subject during state of somnolence. An embedded system predicated on psychological state of Subject by monitoring ocular perceiver forms of kinetics and head forms of kinetics are utilizable in warning drivers during initial slumber cycle phase of lethargy. The physiological slumber state analysis of subject can be resolute by monitoring subject's ocular perceiver-blink rate utilizing an IR sensor and head kinetics utilizing an accelerometer. A mundane ocular perceiver blink rate has no effect on the output of the system. However, if subject is in extreme state of slumber-cycle, then IR sensor receives anomalous ocular perceiver blinking rate & an alarm is initiated to wake the subject. A Cyberspace of Things (IOT) enabled sensors are acclimated to transmit the entire data amassed by sensors over a keenly intellective grid network for expeditious replication team to take actions under emergency conditions.

Keywords:-

Internet Of Things (IOT), RFID, Eye Blink Monitoring System (EBM) , M2M- machine to machine communication, IPv6, URL- universal resource locator, URN- universal resource name, sensors, drowsiness, accident prevention system.

Diagnosis of ADHD using Statistical Measures

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Abstract:--

Attention Deficit Hyperactivity Disorder (ADHD) is a chronic mental disorder which causes various hyperactive and disruptive behaviors. The ADHD may be caused by different factors like age, gender, brain damage, etc. In this research work, the diagnosis of ADHD using Statistical measures is proposed in which only two factors namely age and gender are taken to find the goodness of fit for the data collected and to examine that whether these parameters have any significance for the cause of ADHD. Initially an ADHD data set with 105 samples based on different ages ranging from 6 to 9 and gender (Male & Female) is collected and classified into noADHD, moderateADHD and highADHD by using statistical parameters like mean and standard deviation. The Tests of Independence between the selected variables are carried out by Chi-Square Test and the results are discussed and analyzed. From this test it has been concluded that age has no significance for the cause of ADHD but Gender has significance ie, AGE and ADHD are independent but Gender and ADHD are dependent variables.

Keywords:-

ADHD, Mean, Standard Deviation, Chi-Square Test.

Design and Analysis of Low Power High Gain Operational Amplifier

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Abstract:--

Operational amplifiers are used to achieve low power and high gain. Because low power and high gain are the major requirements for monitoring and recording bio-potential signals. In this paper a two-stage amplifier is designed, with the first stage being a simple differential stage and the second stage is a common source stage, having a compensation capacitor. In between the first and the second stage a current mirror topology is used that works as a sink for the current. The current mirror sums the differential current of first stage, feeding it to the second stage by the current mirror action. The proposed Op-Amp operates at 1V supply voltage and consumes a total power of 4μW with the gain ≥ 98dB. The proposed design has been implemented using Advanced Design System (ADS) for 80nm CMOS technology.

Keywords:-

ADHD, Mean, Standard Deviation, Chi-Square Test.

Realization of Spectrum Sensing Controller using FPGA

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Abstract:--

Spectrum sensing is a pivotal part of any Cognitive Radio Networks (CRN's) that resolves the problem of inefficient spectrum utilization by enabling secondary user to opportunistically utilize the unused licensed bands. The prime functionality of cognitive radio is spectrum sensing in which presence of the primary users is accurately detected. Opportunistic unlicensed access to the (temporarily) unused frequency bands across the licensed radio spectrum is currently being investigated as a means to increase the efficiency of spectrum usage. Such opportunistic access calls for implementation of safeguards so that ongoing licensed operations are not compromised. The control part of the spectrum sensing algorithm is defined using Finite State Machine (FSM) for energy based single and co-operative spectrum sensing. The implementation was done in Spartan 6 FPGA board (XC6SLX16) and the hardware results have been validated.

Keywords:-

Component; Cognitive radio; Decision Fusion;Data Fusion;Finite State Machine (FSM); EGC rule..

Facial Emotion Recognition Based on the Features of Mouth Regions

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Abstract:--

Emotion is a mental state which involves lot of behaviors, actions, thoughts and feelings. The human face plays a phenomenal role for automatic detection of emotion in the field of identification of human emotion and the interaction between human and computer for some real applications like driver state surveillance, personalized learning, health monitoring etc. Different types of facial expressions Joy, Sadness, Fear, Disgust, Surprise, and Anger are generally exhibited by the eyes and mouth (lip) movements. A novel technique to recognize the facial emotion from the features of the mouth region is proposed in this research paper. The facial images with different emotions are captured, preprocessed and mouth regions are detected by viola Jones algorithm and extracted by means of Bounding Box method. Then Edge detection, region filling and morphological algorithms are proposed to extract the lip region which is used to find the area of the filled mouth region. Then Data mining Decision Tree Classifier is applied to classify the emotions based on the area values. The input images of various expressions are taken, results are analyzed and their performances are evaluated.

Keywords:--

Facial emotion,Viola-Jones, Bounding Box, Edge detection, Decision Tree Classifier .

A Systematic Performance of various Multi class Imbalance data Classification in Data Mining

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Sankara Gomathi.S., Professor, Department of ECE, Adhi College of Engineering and Technology, Kancheepuram..

Abstract:--

The usage of data is increasing day by day. There is a huge amount of data storage is required for handling the millions of twits, shares in social networks(twitter, face book, whatsApp and youtube) per second. Databases are playing vital role in data warehousing and mining. The process of storing the data in large repository place is known as Data Warehousing. Now days, Search Engines are struggling to follow the Search Engine Optimization techniques. So there is a pressure for data analyst to fetch the data from the data warehouse efficiently. The task of classification with imbalanced datasets have attracted quite interest from researchers in the recent years. Accordingly, various classification techniques are used to handle the newly arrived large amount of data. So many applications have been designed to address this problem from different perspective such as data pre-processing, algorithm modification and sensitive learning. The problem of constructing fast and accurate classifiers in large data set is an important task in data mining and knowledge discovery. This paper illustrate about the various classification techniques based on various techniques and also to improve the correctness of classifier for Classification Techniques in Data Mining.

Keywords:—

Data Mining, Data Warehousing, Classification Techniques, Classifiers.

Enhancing Power Quality Issues in Distribution System Using D-STATCOM

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Abstract:--

Power quality is becoming a major cause of distress in the area of electrical power system in the recent times. It causes many problems in the system such as voltage profile, sag, swell, interruption and noise which results in a failure of end-user equipment. To maintain a continuous voltage stability in electrical distribution system, different types of custom power devices such as Distribution Static Compensator (D-STATCOM) can be effectively used. This paper illustrates an analysis of voltage profile in distribution system by using the performances of D-STATCOM which are based on the VSI principle. The paper depicts the modelling and simulation of D-STATCOM in MATLAB/SIMULINK. Total Harmonics Distortion (THD) is also calculated for the distribution system with and without compensation. Simulation result shows the performance of D-STATCOM under various loads. The simulation result shows that by using D-STATCOM, one can achieve an improving power quality also to reduce the harmonic distortion in the system.

Keywords:—

Power Quality, D-Statcom, Vsi, Thd, Tdd.

Vehicle Tracking and Counting Using Image Contour

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Abstract:--

A novel Image Contour technique to track and count the moving vehicles from the video streams of traffic scenes recorded by stationary cameras is proposed in this research work. The moving vehicles are first extracted from the traffic scene by applying the Adaptive Background Subtraction technique. After the background subtraction, using threshold and median filters, isolated image blobs are identified as individual vehicles. Once the blobs are identified, counting and classification of vehicles in a selected region are carried out. The preliminary results show that the developed system can efficiently and reliably track vehicles when unobstructed view of the traffic scene can be obtained. For optimal camera calibration, an accuracy better than 80% in counting vehicles was observed. The present system performs better with video data in which the vehicles are moving away from the camera compared to the video data in which the vehicles are moving towards the camera. The results obtained through the developed system show that with further improvements the proposed technique can be used in real-time to count and classify the vehicles on busy traffic routes..

Keywords:—

Vehicle Tracking, background subtraction, median filters, Vehicle Counting..

Big Data Based Security Analytics for Protecting Virtualized Infrastructures in Cloud Computing

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Abstract:--

In this Paper Virtualized infrastructure in cloud computing has become an attractive target for cyberattackers to launch advanced attacks. This paper proposes a novel big data based security analytics approach to detecting advanced attacks in virtualized infrastructures. Network logs as well as user application logs collected periodically from the guest virtual machines (VMs) are stored in the Hadoop Distributed File System (HDFS). Then, extraction of attack features is performed through graph-based event correlation and MapReduce parser based identification of potential attack paths. Next, determination of attack presence is performed through two-step machine learning, namely logistic regression is applied to calculate attack's conditional probabilities with respect to the attributes, and belief propagation is applied to calculate the belief in existence of an attack based on them. Experiments are conducted to evaluate the proposed approach using well-known malware as well as in comparison with existing security techniques for virtualized infrastructure.

Keywords:-

Security,Malware,BigData,Correlation,Database,Cloud Computing,Virtualized Infrastructure.

Genetic Algorithm for Classification of Data Mining Benchmark Dataset

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Abstract:--

Data Mining or Knowledge Discovery is needed to make sense and use of data. The main goal of the data mining process is to extract data from a large datasets. Many algorithms are used for the solution of classification of data under the constraints. In this paper we use Genetic Algorithm (GA) for the classification of data. The Genetic algorithm was analyzed as a search strategy to find accurate and comprehensible knowledge within large database for the classification of suggested search. Genetic Algorithm approaches with an initial population (which may be generated at random or seeded by other heuristics), select parents from this population. The intersection and alteration of operators applied to the parents to produce their new off-springs. And these off-springs replace the existing persons in the population and the process repeats. In this way genetic algorithms try to mimic the human evolution to some extent. In this generational form, it produces 'n' off-springs, where n is the size of population, and at the end of the iteration, the entire population is replaced by the new one. Also we were presented the calculation of fitness value repeatedly for the classification of data under a group. GA will evaluate each individual as a potential solution according to a predefined evaluation function. As a result, performing these substitutions can find a feature set that yields classification rules with better support. The suggested approach was tested with the datasets available from UCI machine learning repository in MATAB2014a for the classification of quality factors. The process of reproduction and population replacement goes on until a stopping criterion (the achievement of a performance target or the usage of an allotted amount of CPU time for instance) is met. The paper demonstrates the strength and accuracy of this algorithm for classification in terms of performance efficiency and time complexity required.

Keywords: —

Data Mining, Classification, Genetic Algorithm (GA), Accuracy and Fitness Function.

Recognition of Face Images Based On Feature Extraction

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Abstract:--

Image processing method is to perform some operations on image in order to extract some useful information for developing a digital system. Pattern recognition is one of the significant techniques in image processing. In this paper, recognition of face images based on feature extraction was implemented. The image was segmented into nose, eyes, mouth and face using Viola-Jones method. Each segmented part was analyzed using three methods 1.Gabor method with 0◦, 45◦, 90◦, 2. Local Binary Pattern method and 3.Combination of both Gabor and Local Binary Pattern method. Statistical parameters like mean and Standard deviation are derived from the output image of Gabor and Local Binary Pattern. The result of statistical value is correlated with the statistical value derived from the query image using Euclidean Distance to retrieve the matched image. The combined method produces a better result than the individual method. Data set has been collected by capturing various Face images by a digital camera and stored in a database.

Keywords: -

Feature Extraction, Viola-Jones, LBP, Gabor, Euclidean Distance.

A Robust Chaotic Based Image Cryptography using Wavelet Transform

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Abstract:--

Recently, chaos based mapping has widely been applied for image cryptography due to their inherent cryptographic features. When a Chaotic map is used in conjunction with Wavelet Transforms, efficiency may be improved in the process of image Cryptography. In this paper, Chaotic based image cryptography method is proposed in cascade with wavelet Transform. The proposed scheme has been simulated and analyzed with various geometric and non geometric attacks. The PSNR and CC values are compared with these attacks. The preliminary results show that the proposed scheme performs better with additional robustness.

Keywords:--

Image Cryptography, Chaotic maps and Wavelet Transform.

Sketching of Big Data

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Abstract:--

The Human beings creates everything but the most innovative and creative one is internet. The internet has allowed for very less transfer of data and information in a fraction of seconds. The next level of internet with human innovation to increase the communication, data speed and a large amount of data gathering. The solution for large amount of data gathering is big data. Big data is very large amount of data it does not possible to fit in single machine main memory. The need of big data analysis in increased day by day. In this paper analysis and evaluate the sketching and streaming of big data algorithms. The advantages of sketching include less memory consumption, faster algorithms, and reduced bandwidth requirements in distributed computing environments. Now a day's sketching of big data is essential one.

Keywords:--

Human beings, big data, sketching, internet.

A Modified Algorithm for finding Representative Pattern Sets

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Abstract:--

Many algorithms and techniques are developed for enumerating itemsets from transactional databases. They produce large number of frequent itemsets when the minimum support threshold is low and /or the dataset is dense. The large number of discovered patterns makes further analysis of generated patterns troublesome. Therefore, it is important to find a small number of representative patterns to best approximate all other patterns. This paper modifies the algorithm MinRPset for finding representative pattern sets. It follows the same concepts such as □- covered and greedy method in MinRPset but, it uses NCFP-tree instead of CFP-tree for storing frequent itemsets in a compressed manner. The experiment results show that our algorithm takes lesser execution time to generate representative patterns sets for some dataset in an efficient manner comparing to the algorithm MinRPset.

Keywords:--

Frequent itemset, NCFP-tree, representative pattern sets.

DWT towards Appearance Enhancement of Underwater Images

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Abstract:--

In oceanic environment, capturing a clear underwater image is having a crucial importance. Underwater images are usually degraded due to the effects of absorption and scattering. The quality of underwater imagesare affected by color cast, poor visibility, foggy appearance and misty. In order to overcome those limitations, an underwater image enhancement technique built on a DWT method is proposed. The aim of the proposed algorithm is to improve the quality of underwater images. In this paper, 100 different images are used to perform the comparison of the proposed technique with the previous techniques. Performance of the proposed method of DWT is evaluated using the Structural Similarity Index (SSIM), Entropy and Absolute Mean Brightness Error(AMBE). Performance measurement of the Wavelet techniques produces better enhancement results than previous techniques like Histogram Equalization (HE) and Contrast Limited Adaptive Histogram Equalization (CLAHE).

Keywords:--

Image enhancement; DWT, Color Cast, CLAHE, HE.

Facial Features Detection Using Regression

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Abstract:--

Facial Feature Detection is one of the essential techniques in face recognition, face modeling, head pose estimation and facial expression recognition. Emotions may be recognized through the facial features such as eyes, nose, lip movements etc. The objective of the proposed work is to detect the face with these facial features. Cascade Object Detector is initially proposed to identify the face region from the input image. Then Regression based face alignment algorithm is employed for the feature point alignment and registration. By means of the scale-invariant feature transform and regression results, the landmark points for the facial features are estimated inside the template. Delaunay method is used to construct a triangulation that can be utilized to draw the template with the associated points. Finally the face is detected along with the boundary points. The WSEFEPv101lo dataset is used for evaluation and analysis. Out of 62 facial images, the facial features of 48 images are accurately detected and due to misalignment of facial landmark points due to facial emotions, 14 images are not detected correctly..

Keywords:--

Cascade Object detector, Scale invariant feature transform, regression, Delaunay, boundary.

A Hybrid Technique to Perform Retinal Vessel Enhancement by Contrast Correction and Morphological Operations for Segmentation

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Navdeep Singh., Asst Professor, Punjabi University, Patiala.

Abstract:--

Diabetic Retinopathy is a disease which affects the eyes and may cause vision loss. It can be detected by analyzing the vessels of a retinal vessel. In this paper, we present a blood vessel enhancement and segmentation approach, which is used for analysis of blood vessels. Contrast correction and mathematical morphological operations are used to enhance the blood vessels and then segmentation is performed. The proposed approach is tested on DRIVE dataset and it achieves an average accuracy of 95.40%.

Analysis and Retrieval of Leaf Images Based On Feature Extraction Method

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Abstract:--

Image Processing is a method to perform some operations on an image in order to extract some useful information. Feature Extraction is one of the significant techniques in image processing. In this paper, the analysis was processed in three steps. Firstly, the leaf images were preprocessed using Median Filter and transformed into LBP (Local Binary Pattern).Secondly, the retrieval was performed using feature extraction methods such as GLCM (Gray Level Co-occurrence Matrix), CGLCM (Color Gray Level Co-occurrence Matrix), Shape and Hybrid(combination of color, texture and shape) method. In each method various statistical measurements like Contrast, Correlation, Energy, Homogeneity, Entropy, Area, Perimeter and Eccentricity were calculated. The KNN classification algorithm was used to retrieve the relevant images. The dataset was collected by capturing some 20 types of leaves using Digital Camera. Each type contains 10 images and used for analysis. Finally, the Performance Measurement such as Precision and Recall were measured for each extraction method. The Hybrid extraction method produces a better result than the individual method. This analysis is used to identify the medicinal leaves and its use from the large collection of Database

Keywords—

Feature Extraction, LBP, GLCM, CGLCM, KNN-Classifier, Recall and Precision.

Implementation and Analysis of Reactive Routing protocol in Mobile Ad hoc Networks

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Abstract:--

A Mobile Ad hoc network (MANET) is built from a collection of nodes which has capability to communicate with each other without any infrastructure support. In such a infrastructure less network the mobile nodes are connected wirelessly without any centralized administrator. The routing protocol used for wired network is not suitable for MANET due its unique characteristics like Dynamic topology, high mobility, Self-Organizing, Self-Healing, Network Scalability, frequent link failure and Multi-hop Communication. This paper presents architecture for MANET and considers Ad hoc On Demand Distance Vector (AODV) from reactive routing group for studying the performance of the proposed architecture. This protocol was simulated using NS-2 package and was analyzed in terms of packet delivery ratio, delay, dropped packets and throughput by varying the maximum number of connections for different pause times.

Index Terms—

MANET, AODV, PDR, Dropped Packets, Throughput, End-to-End Delay.

Classifying Tamil Audio Signals According To Speakers Using Combined MFCC and LPC Method

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Abstract:--

Social network is a main ambassador for information sharing in this digital era. Nowadays social network is being utilized by different level of people in diverse platforms for many reasons.Most of the data which are shared by social media are unstructured data which does not have a predefined format. There are many examples of unstructured data; among those audio plays a vital role as many audios are being shared in social Medias. Audio data can be utilized to leverage intelligence such as identify the speaker, identifying emotions, identifying the area of talk etc. Since Tamil is one of the longest surviving classical language in the world and very few researches are focused on Tamil audio analysis, this paper deals with Tamil audio speaker recognition implemented in Matlab version 13. The basics of speech recognition, feature extraction process and pattern matching paves the way for identifying and classifying Tamil audios according to speakers are also reviewed. In order to improve the efficiency of recognition process, during the pre-processing stage Adaptive Weiner filter is employed for removing unwanted noise from the audio signal. After pre-processing stage, the retrieved enhanced signal is utilized for feature extraction process which is carried out using combined LPC (Linear Predictive Analysis) and Mel-Frequency Cepstral Coefficients (MFCC). The mfcc coefficients are used as audio classification features to improve the classification accuracy. LPC is one of the most powerful speech analysis techniques and is a useful method for encoding quality speech at a low bit rate. Hence MFCC and LPC could contribute more to exract best features.In order to increase the accuracy rate of training and recognition,MFCC and LPC are combined in feature extraction .The feature extraction process generates feature vectors which are extracted for further processing. The extracted feature vectors are applied to hybrid MLP and SVM machine learning Algorithm to identify the speaker and classify the audios accordingly.

Key terms:

Big Data, LPC, MFCC, MLP, SVM

Alternate Path of Uncertainty Assignment Problem

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Abstract:--

In this Paper, we present a new algorithm to obtain the alternative path assignment for multi objective fuzzy assignment. This method did not need any parameters or node to solve the problem and successfully goes to solving multi objective assignment problem into Bi-objective assignment problem. Moreover , it gives the best alternate assignment path. But due to situation the assignment parameters are uncertain. So , we consider the assignment parameters are Triangular Fuzzy Numbers. Finally a numerical Example has been illustrated.

Performance Analysis of Vedic Multiplier Based on Various Adders

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Abstract:--

Vedic Mathematics is the ancient system of mathematics which has a unique technique of calculations based on 16 Sutras. This paper proposes the design and implementation of 16 Bit Vedic Multiplier based on carry save adder using the techniques of Ancient Indian Vedic Mathematics. The proposed Vedic multiplier is coded in VHDL (Very High Speed Integrated Circuits Hardware Description Language), synthesized and simulated using Xilinx ISE 14.1 design suite. The design is synthesized using Artix-7 FPGA family. The Artix-7 family is based on 28nm design which operates at 50% lower power than 45 nm technology. In this paper peak memory usage, delay, power, power-delay product and energy-delay product are the parameters taken for comparison. The results that were taken for comparison has previously done for 16 bit Vedic multiplier based on 16 bit modified carry select adder, 16 bit ripple carry adder and 16 bit kogge-stone adder[2] and here that results were constituted in this paper for comparative study with 16 bit Vedic multiplier based on carry save adder for same parameters. This paper also gives information of Urdhva Tiryakbhyam algorithm of Vedic Mathematics which is utilized for multiplication to improve the speed and area of multipliers. It enables parallel generation of intermediate products, eliminates unwanted multiplication steps with zeros and scaled to higher bit levels. So the design complexity gets reduced for inputs of larger no of bits and modularity gets increased.

Keywords: -

Vedic Multiplier, VHDL, Urdhva Tiryakbhyam, Modified carry select adder, Vedic multiplier, Ripple carry adder, Kogge stone adder, Carry save adder

A Review on Image Enhancement Techniques

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Abstract:--

The quality of an image is mostly affected due to weather, lighting or equipment that has been used for image capture. Image enhancement is the process of adjusting or enhancing the digital images by altering its structural features like contrast and resolution so that the results are more suitable for display or further image analysis. The enhancement process includes removal of noise, sharpen or brighten of image and making it clearer to identify the key features. In this paper, Image Enhancement techniques such as Point processing and Histogram Equalization techniques are reviewed and discussed. Point processing operations contain image negative, contrast stretching, thresholding transformation, gray level slicing, logarithmic transformation and power-law transformation. Under Histogram Equalization, Contrast Limited Adaptive Histogram Equalization (CLAHE), Equal Area Dualistic Sub-Image Histogram Equalization (DSIHE), Dynamic Histogram Equalization (DHE) Algorithms are reviewed. The concepts of all these techniques are discussed, compared and their performances are evaluated based on the parameters Absolute Mean Brightness Error (AMBE), Contrast and Peak-Signal-to-Noise-Ratio (PSNR) values.

Keywords—-

Image Enhancement, Point processing, Histogram Equalization, contrast stretching

A Review on Edge Detection Techniques for Image Segmentation

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Abstract:--

Image segmentation is the process of subdividing an image into constituent parts or objects in the image. The process may be discontinuity based or region based. Edge detection is the discontinuity based image segmentation technique. In this paper, diverse Edge Detection techniques like Canny Optimal Edge Detection, Sobel Operator, Prewitt Operator and LoG are reviewed, compared and analyzed based on the performance metrics Performance Ratio(PR), Peak signal-to-noise ratio(PSNR), Mean Square Error(MSE). From the results, Canny Optimal Edge detection (COE) technique will effectively identifies the edges for noisy and complex images when compared to other techniques with high PSNR and PR.

Keywords—

Image segmentation, edge detection, Sobel Operator, prewitt operator.

Glaucoma Detection and Its Classification Using Fuzzy-C Means and K-Means Segmentation

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Abstract:--

Glaucoma, the most common cause of blindness is the disease of the optic nerve of the eye and can lead to ultimate blindness if not treated at an early stage. Raised intraocular pressure, increase in cup to disk ratio and visual field test are some of the measures for such a disease. The main objective of this paper is to find an automated tool to detect glaucoma at an early stage and to classify this disease based on its severity and damage of the optic fiber. The objective of this study is pre-processing of retinal fundus image for enhancing the quality which is required for further processing and to design a novel algorithm to measure the cup to disc ratio of retinal fundus image from the online database and classify the disease according to its severity using fuzzy classification toolbox in MATLAB.

This paper presents Evaluation K-mean and Fuzzy c-mean image segmentation based Clustering classifier. It was followed by thresholding and level set segmentation stages to provide accurate region segment. The performance and evaluation of the given image segmentation approach were evaluated by comparing K-mean and Fuzzy c-mean algorithms in case of accuracy, processing time, Clustering classifier, and Features and accurate performance results. The database consists Glaucoma affected images executed by K-mean and Fuzzy c-mean image segmentation based Clustering classifier. The experimental results confirm the effectiveness of the proposed Fuzzy c-mean image segmentation based Clustering classifier. The statistical significance Measures of mean values of Peak signal-to-noise ratio (PSNR) and Mean Square Error (MSE) and discrepancy are used for Performance Evaluation of K-mean and Fuzzy c-mean image segmentation. The algorithm's higher accuracy can be found by the increasing number of classified clusters and with Fuzzy c-mean image segmentation.

Speaker Recognition with Moment Features Using Lab view

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Abstract:--

Now a days, Biometrics is being used extensively for the purpose of security. Biometrics deals with identifying individuals with their physiological such as fingerprint, DNA,ECG etc or behavioral traits i.e. rhythm, voice etc. Voice is a most natural way of communication and non-intrusive as a biometric, voice biometric has characteristics of acceptability, cost ,easy to implement is required. Also voice based biometric system can be easily combined with other biometric systems to enhance the reliability and security of the system. This paper describes speaker recognition with moment features using Lab VIEW software. Speaker recognition consists of speaker verification and speaker identification. This project is to accumulate over a period of time few human being 's voice samples and check those voice samples with already stored data. In this project, silence removal, preprocessing, feature extraction has been done. For feature extraction, Mel Frequency Cepstral Co efficient (MFCC) is used. The moment features of speech is found for collecting database. Euclidean distance is found for the purpose of comparison.

Index Terms—

Lab VIEW software; MFCC;

Web Page Navigation Analysis from Log File in Web Usage Mining

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Abstract:--

Web mining is the process of finding web pattern from web data. Web link mining finding useful things from log file. Support vector machine is used to classify all the data of web log file that analyze data and identify patterns. After applying SVM, Data into one pattern can be discovered. This pattern is useful for business analyst to take a useful decision. Finally we get classified data from web user navigation data.

Keywords: -

Appriori, SVM.

DWT Towards Appearance Enhancement of Underwater Images

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Abstract:--

In oceanic environment, capturing a clear underwater image is having a crucial importance. Underwater images are usually degraded due to the effects of absorption and scattering. The quality of underwater images are affected by color cast, poor visibility, foggy appearance and misty. In order to overcome those limitations, an underwater image enhancement technique built on a DWT method is proposed. The aim of the proposed algorithm is to improve the quality of underwater images. In this paper, 100 different images are used to perform the comparison of the proposed technique with the previous techniques. Performance of the proposed method of DWT is evaluated using the Structural Similarity Index(SSIM), Entropy and Absolute Mean Brightness Error(AMBE). Performance measurement of the Wavelet techniques produces better enhancement results than previous techniques like Histogram Equalization(HE) and Contrast Limited Adaptive Histogram Equalization (CLAHE).

Keywords—

Image enhancement; DWT, Color Cast, CLAHE, HE.

Identification of Finger Print Patterns Using a Robust Feature Extraction and Classification Method

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Abstract:--

In recent years, fingerprints are measured to be the finest method for biometric classification. These patterns are secure to use, distinctive for every person and do not change in one's lifetime. Human fingerprints are well-off in information called minutiae, which can be used as recognition symbols for security purposes. As per the individuality of the fingerprint it provides us methods of flawless detection. The purpose of study is to design and develop the pattern type classification to be familiar with the pattern using Minutia. This Process is based on the pattern type identification using features that are extracted based on minutia and are classified based on the classifiers of Neural Networks. In this process the images are preprocessed using thinning, termination, bifurcation, ridge to valley area process to obtain the final minutiae. Featured values such as mean and standard deviation are extracted from the preprocessed image. In building the classification scheme, arches pattern, loops pattern Whorls pattern were identified from the fingerprint images. Classification process is done to determine which group set is the inputted fingerprint based on their values. Classification information is basically concerned with line patterns, whereas individual information focuses on deviations from a straight or curved continuous ridge line. The Classification processes are done using the K Nearest Neighbor Classifier using the outputted image obtained from the preprocessing and the feature extraction values. The experimental result of the study is fully functional on the minutiae-based method and the values for identifying the different patterns. The performance of a fingerprint classification is frequently measured in terms of accuracy or error rate, efficiency and speed.

Keywords:

Finger Print, Minutiae, Feature Extraction, Pattern Identification, KNN Classifier, Neural Network.

A Survey on Vehicle Classification Techniques

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Abstract:--

Vehicle classification has emerged as a significant field of study because of its importance in variety of applications like surveillance, security system, traffic congestion, avoidance, accident prevention etc. So far numerous algorithms have been implemented for classifying vehicles; the aim of this paper is to give the opportunity to the researcher to become closely familiar with the methods used for classification of vehicles. Methods based on Image Processing, Neural Networks and Data Mining are reviewed, discussed and compared. This survey emphasizes that Canny Edge Detection technique gives better solution than other edge detective techniques in terms of vehicle identification. The Fuzzy c-means clustering and K nearest neighbor algorithms prove better for extracting the features of vehicle like area, length width ratio etc.

Keywords—

Vehicle classification, Neural Networks, Canny Edge Detection, Fuzzy c-means clustering, K nearest neighbor.

Study of Genetic Algorithm Based Wind Power Integration to Power System

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Abstract:--

This paper presents a hybrid optimization method that aims at minimizing the total system losses while taking into account the stochastic behavior of Wind Power Generation [WPG] and load during different seasons. One issue related to wind power integration concerns the location and capacities of the wind turbines (WTs) in the network. Although the location of wind turbines is mainly determined by the wind resource and geographic conditions, the location of wind turbines in a power system network may significantly affect the distribution of power flow, power losses, etc. Furthermore, modern WTs with power-electronic interface have the capability of controlling reactive power output, which can enhance the power system security and improve the system steady-state performance by reducing network losses. The optimization algorithm considers the probability of fulfilling the main constraints, including voltage and current limits. The hybrid optimization method combines the Genetic Algorithm (GA), gradient based constrained nonlinear optimization and the sequential Monte Carlo simulation (MCS) method. The GA is suitable for finding the optimal capacity and location of WTs as both control variables are integer values. The gradient-based constrained nonlinear optimization is adopted for the optimal power factor setting of WTs as the algorithm usually provides the fastest solution.

Index Terms—

Distribution Network Operators, Genetic Algorithm, Monte Carlo Simulation, Wind Power System.

Pooling of Computing Resources in Private Cloud Deployment

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Abstract:--

Resource pooling in cloud is considered as a shared pool of computing resources such as Cores, RAM, Storage, Disk etc. It helps in the resource allocation among users, thus increasing the utilization rate and saves cost. There are many large shared cloud resource pools such as Amazon EC2 cloud, Google Cloud etc which monitor the usage of computing resources and generates the billing to users based on the usage of resources. These are commercial public cloud and resource pooling implementation is done using cost-optimization approach. In this paper, we deployed a resource pool of opensource private cloud openstack using MAAS (Metal as a Service) and Juju. There are many opensource cloud platforms such as Openstack, Eucalyptus, Opennebula etc for deployment of private cloud. For production use, a openstack tool, MAAS (Metal as a Service) with Juju manages the computing resources more flexibly. First, the MAAS ubuntu server cluster is deployed on a private network in which machine Cores, RAM, Storage, Disk, etc are added dynamically using pre-defined powertype. Furthermore, Juju environment is configured and Juju Bootstrapping is done for assignment of openstack services. The pooling configuration is done step-by-step and a resource pool of six machines is successfully deployed, each machine lists the number of Cores, RAM, Storage, Disk, etc. As a result, the openstack services are assigned to deployed machines, thus allocation of resources would be easily monitored and controlled.

Keywords —

Juju; MAAS; Openstack; Resource Pooling

Design and Analysis of Low Noise Amplifier using Active Inductor in ADS

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Abstract:--

Low Noise Amplifier(LNA) found its significant application in wireless communication systems. LNA must be designed with high gain, low noise figure, low power, small area, low cost and good input and output matching to get higher performance. In this paper LNA is designed in three stages which are common gate amplifier , common drain amplifier and active inductor to achieve higher performance. Common drain and Common gate are used for input and output matching and to lower the noise whereas active inductor is used to obtain low power consumption and to reduce chip size. The results show that the proposed LNA is able to achieve the best performance with the simulated gain of 28.974dB, lower consumption of 0.7mW and noise figure of 5dB. This modified LNA is suitable for low voltage applications mainly in wireless communication systems.

Index Terms—

Active inductor, ADS, High gain, Low power, LNA.

Abnormality Feature Extraction in the Spinal Cord Mri Using K-Means Clustering

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Abstract:--

Research on Medical Image proposes an efficient platform for automatic analysis and detection of any Deformations in a given medical image data set especially in Spinal Cord for an effective and better understanding in diagnosis. The abnormality of spinal cord may include Tumor, Disc hernia, Fracture, swelling etc., which has been detected from any given modality of Medical images such as MRI, CT and fMRI etc. In this work, Spinal Cord MRI Image is taken for the implementation which has two phases. Phase I: Identifying any anomaly features or distortion is found to be existed in the given image or not. This can be done by comparing the histogram values of both Normal and abnormal images. Histograms in image processing are used to show how many of each pixel values present in an image. Then if unusual exist in the given image phase I moves to next. Phase II: Involves in Clustering of the image which is used to find depth of the existence of the calcification in the MRI Spinal Image. K-Means Clustering is implemented to extract the Anomalous Features exactly by grouping similar object into one cluster, and dissimilar objects into different clusters. The performance of the algorithm and the time taken to complete every cluster phase is analysed. Further, the algorithm's efficiency is being observed to prove that it gives a perfect accuracy.

Keywords:

Medical Images, Image processing, Histogram, Feature Extraction, K-Means Clustering

BUGS in Silicon

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Abstract:--

In computing system, a processor refers to an electronic circuit which performs operations on some external data which is stored in usually memory or some other data stream like Hard-disk, Flash-drive, etc. The market leaders in manufacturing CPU's are Intel, AMD and ARM. MMX, SSE, SSE2, SSE3, SSE 4, SSE 4.1, SSE 4a, SSE4.2, SSE5, x86-64, AMD-V, Intel-VTx, AVX, AVX2, AVX-512, AES, SHA, FMA3, FMA4, F16C, XOP, 3D-NOW are the major instruction set present in today's CPU's. In this paper, we will discuss literature study on available processors and emphasized on Bugs in processors that are top marketers today.

A Case Study of Association Rule for the Confidence and Support in Spatial Data Mining

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Abstract:--

Association Rule Mining is a common task in the field of Data Mining, involving the recognition of frequent patterns, usually in transactional databases. Association Analysis is a method for discovering attractive relationships hidden in large data sets. Given a set of transactions, it finds rules that will predict the occurrence of an item based on the occurrences of other items in the transaction. The association rule analysis is made with support and confidence to identify how strong the discovered rules are. In this paper, we have discussed the Apriori algorithm to identify frequent item sets. When identifying the frequent person items in the database and extending them to larger item sets while the items convince the minimum support condition (frequency of items in the database). The frequent item sets determined by Apriori are then used to determine association rules. As it is a common association rule mining, when a set of item set given the algorithm attempts to find subsets which are common to at least a minimum number of the itemsets. In this paper, a "bottom up" approach based Apriori algorithm, when common subsets are extensive one item at a time (a step known as candidate generation), and a group of candidates are tested against the data. The algorithm terminates when no more successful extensions are found.The algorithm is implemented in a structured manner with MATLAB programming language, using dataset available in UCI machine learning repository for the voting of each of the U.S. House of Representatives Congressmen on the 16 key votes identified. Given the vote data set, the performance of the Apriori algorithm is analyzed under the association rule. In this algorithm the scanning of the dataset was repeatedly to satisfy the rule in mining the frequent itemset. The algorithm constructs more frequent patterns to find out complete set of patterns in proving the reliability towards Apriori algorithm.

Keywords:

Association Rule, Apriori Algorithm, Frequent itemset, Market Basket Analysis,datamining,candidate generation.

A Survey of Image Mining Techniques for Diagnosing Heart Disease

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Abstract:--

Image mining refers to a data mining technique which is used to extract the knowledge directly from the images. It supports a large field of applications such as medical diagnosis, agriculture, industrial work, space research and the educational field. Heart disease is one of the popular causes of death in the world. Heart disease diagnosis is a most important challenge faced by medical fields and hospitals. The goal of this paper is to present a study of various image mining techniques and different algorithms used to diagnose the heart diseases.

Keywords—

Image Mining, Heart Disease, Classification, Clustering, ANN, Back Propagation.

Secure and Efficient Technique for Network Enhancement using Hash Value and Confidence in MANET

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Abstract:--

In the current years, the wireless network can be infrastructure or infrastructure less in which there is no centralized structure. Mobility Ad Hoc Network (MANET) is the set of nodes where they can communicate to each different wirelessly. They act as a router and forward data at the receiver through the intermediate nodes. It is vulnerable to many attacks due to wireless nature and there are many techniques to eliminate these attacks from the network. In this paper, we send the data through the secure path for which multiple paths are formed. For multiple paths, there are many protocols used and then we calculate the confidence value and reputation value to detect the malicious nodes in the path. Finally we get the secure path for the data transmission towards the destination. In this way, the performance of network is improved and the security is also enhanced.

Keywords:—

Wirelessly Network, Infrastructure, Routing Protocol, Trust, Confidence value and Security.

Analysis and Implementation of Lossless Image Compression for various formatting Images

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Abstract:--

Digital image compression is a method of image data reduction to save storage space. Image compression is the process of reducing the size of the image that will enhance images sharing, image transmission and easy storage of the image. There are two types of image compression techniques. In Lossy compression, the compressed image is not equal to the original image; it means the quality of compressed image is less than the original image. In Lossless compression the compressed image is exactly equal to the original image. In this work, the analysis of different format of images have been implemented using the Lossless image compression techniques such as Huffman coding, EZW and SPIHT. Huffman encoding technique basically works on the rule of probability distribution. The principle is to reduce the size of the image by removing redundancies. Less number of bits is used to encode the image. Huffman encoding method is used in JPEG image. Set partitioning in hierarchical trees (SPIHT) is a wavelet based image compression technique. It gives good image compression ratios and image quality. EZW method is based on progressive encoding to compress an image. Experimental result was carried out on four types of image format such as .bmp, .jpg, .png, .tiff. The Performance metrics such as Peak signal-to- noise ratio (PSNR), Compression Ratio (CR), Mean square error (MSE), Bits per pixel (BPP) were measured for each format of images. From this analysis Huffman coding gives better compression ratio for .JPG images and SPIHT method gives better Peak signal-to-noise ratio for .PNG images and Huffman coding gives better Bit Per Pixel for the .PNG image.

Keywords –

Image Compression Techniques, Huffman coding, SPHIT, EZW, PSNR, MSE, BPP.

A Study on Near-Duplicate Image Detection System

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Abstract:--

Due to abundantincrease of imagingtechnologies, manipulation of digital images create a severe problemin various fields such us medical imaging, journalism, scientific publications,digital forensics etc.This gives the challengesin matching of slightly modified images to their original ones which is called as near-duplicate image detection.The images are altered using some faetures such as cropping,changing its shape,contrast,saturation,framing etc. DigitalImage Processing plays a vital role in finding near duplicate images in various applications. The near duplication image detection process is used to find the duplicate image by comparing the slightly altered images to the original one to assist in the detection of forged images. This paper presents the survey of near duplication image detection system, its applications and it gives the analysis of the various researches held in this field.

Keywords –

Image Processing, Near Duplicate Image, Similarity matching.

A Novel Human Palm print Authentication - Integrating Haralick's Texture and PPCA Subspace Feature Extraction with Traditional Classifiers

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Abstract:--

The research study based on the integration of two feature extraction techniques meant for better palmprint recognition is presented in this paper. The authentication software systems based on palmprint needs to provide higher recognition accuracy for cipher data. The work explores a novel method for extracting features from palm prints, by integrating inseparable feature extraction methods, such as, Probabilistic Principal Component Analysis with Multilevel Wavelet Transform and GLCM-Haralick'stexture which would enhance the rate of recognition. A comparative recognition results are obtained for individual as well as for integrated feature extraction methods using traditional classifiers, and, the results are tabulated. The classifiers such as unsupervised (KNN), supervised (Backpropagation, Naïve Bayes and SVM) are put under study to attain the reliable accuracy of the palmprint authentication system. The performance metric and recognition time of these classifiers are tabulated and analyzed. The palmprint datasets are taken from Hong Kong POLYU, Multispectral 2D-palmprintimage database and The Hong Kong Polytechnic University, Kowloon, Hong Kong. The entire work is programmed with MATLAB with version 7.10.0.499 (R2015a) 32 bits. The proposed system claims better accuracy in less recognition time compared to existing palm-print based authentication systems.

Keywords-

Palmprint Recognition, Haralick's texture and PPCA subspace based feature extraction, KNN, BP-ANN, Naïve Bayes and SVM Classifiers.

Big Data Concepts, Challenges and Solution in Hadoop Ecosystem

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Abstract:--

Data becomes big data when its volume, variety, and velocity exceed the abilities of our systems architecture and algorithm. This paper discusses about three major sources of big data: machine generated data, people generated data and organization generated data, 6V's of Big Data: volume, velocity, variety, valence, veracity and value along with we discussed the different variety of data: structured, semi-structured and un-structured data like sensor, images, PDF, CSV, JSON, RDMS, database, table data etc. out of which approximately 5% of available data is in structured form rest other data is in either un-structured or semi structured. Big data is facing lots of challenges due to volume, variety and other complexity in the data. Hadoop is the platform where we can find all our solution related to big data to store process and analysis purpose. The main objective of this paper to describe how Hadoop can solve different challenges of Big data by using HDFS (Hadoop distributed file System), Map Reduce and Hadoop Ecosystem components like Hive, Sqoop, HBase, Pig, spark, Flume, Kafka etc.

Index Terms—

Big Data, 6 V's, Structured data, un-structured data, Hadoop, HDFS, Hadoop Ecosystem

Big Data – Technologies, Challenges and Future Scope

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Abstract:--

Big Data has gained much attention from the academia and the IT industry. In the digital and computing world, information is generated and collected at a rate that rapidly exceeds the boundary range. The term, Big Data'has been coined to refer to the gargantuan bulk of data that cannot be dealt with by traditional data-handling techniques. A huge repository of terabytes of data is generated each day from modern information systems and digital technologies such as Internet of Things and cloud computing. Analysis of these massive data requires a lot of efforts at multiple levels to extract knowledge for decision making. Therefore, big data analysis is a current area of research and development. The utilization of Big Data Analytics after integrating it with digital capabilities to secure business growth and its visualization to make it comprehensible to the technically apprenticed business analyzers has been discussed in depth. Aside this, the incorporation of Big Data in order to improve population health, for the betterment of finance, telecom industry, food industry and for fraud detection and sentiment analysis have been delineated. The challenges that are hindering the growth of Big Data Analytics are accounted for in depth in the paper.

Index Terms—

Big Data, Data Visualization, Integration.

Safety Measurements of Electromagnetic Fields Radiated from Mobile Base Stations

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Abstract:--

The regulatory framework on human exposure to electromagnetic fields (EMFs) is a crucial task that the telecommunication operators and the authorities have to face. Some procedures have been introduced in standards, based on both computations and measurements, for the assessment of the compliance of the radio transmitters to the given EMF limits. The procedures could vary depending on the position of the observation point around the transmitting antennas. In this article, the definitions of EMF zones and the zone's boundaries around an antenna are revised and tailored for the evaluation of human exposure to the EMFs. Measuring equipment for electromagnetic fields (EMF) for demonstrating safety and environmental compatibility. The devices measure the total electric and/or magnetic field strength and automatically compare it with limit values specified by national and international bodies in standards or directives.

Index Terms—

Electromagnetic Fields (EMF), Base Station, Maximum Peak Point, Radiofrequency, Power Density (PD), Public Limit (PL), Occupational Limit, National DOT/TRAI/TERM Cell Guidelines

A Study on Keystroke Dynamics for Touch Screen

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Abstract:--
At present maximum people store private and sensitive data on their Smartphone. Consequently, the demand is growing for secure mobile authentication methods. Setting a password-based authentication is the most frequently used method to protect data from intruders. However, people tend to use password, which can be easily remembered, hence easy to crack. Therefore, additional mechanism is needed to enhance the security of password based authentication. One such complementary method is to use the typing pattern of the user, known as keystroke dynamics. Keystroke dynamics or typing dynamics refers to the automated method of identifying or confirming the identity of an individual based on the manner and the pattern of typing on a keyboard. Keystroke dynamics is a behavioral biometric, Keystroke dynamics on mobile referred as Touch dynamics and refers to the process of measuring and assessing human touch rhythm on touch screen mobile devices (e.g. smartphones and digital tablets). In this paper we are mentioning the different patterns to authenticate the touch screen mobiles.

Implementation Aspects of RF-repeaters in Cellular Networks

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Abstract:--

At present maximum people store private and sensitive data on their Smartphone. Consequently, the demand is growing for secure mobile authentication methods. Setting a password-based authentication is the most frequently used method to protect data from intruders. However, people tend to use password, which can be easily remembered, hence easy to crack. Therefore, additional mechanism is needed to enhance the security of password based authentication. One such complementary method is to use the typing pattern of the user, known as keystroke dynamics. Keystroke dynamics or typing dynamics refers to the automated method of identifying or confirming the identity of an individual based on the manner and the pattern of typing on a keyboard. Keystroke dynamics is a behavioral biometric, Keystroke dynamics on mobile referred as Touch dynamics and refers to the process of measuring and assessing human touch rhythm on touch screen mobile devices (e.g. smartphones and digital tablets). In this paper we are mentioning the different patterns to authenticate the touch screen mobiles.

Keywords:

External antenna, Signal booster system, internal antenna, GSM, UMTS

Mobile network measurements using Android

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Abstract:--

Introducing a mobile telephony standard requires the cooperation of many engineers. Once implemented the networks require many improvements on the long-term scale. Lots of research is performed at the universities and similar research institutions with limited access to expensive measurement equipment. Introducing the new generations of mobile devices, e.g. smart phones, enables the development of applications with functions which can be compared to sophisticated professional measurement systems.

This paper shows the possibilities of optimizing the process of measurement by using a widely spread Android devices. By using the open source tools the measurement applications can be offered to a vast community providing huge datasets and lowering the overall measurement costs.

Single Cell Function Test of Long Term Evolution Network Using XCAL

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Abstract:--

The evaluation of the performance of a mobile communication Long Term Evolution Network entails collection of data which contains network parameters details, along with desired range, such as Drive Route, Coverage Plot (overall, sector Alpha, sector Beta, sector Gamma), Mac Layer Throughput Download, Mac Layer Throughput Upload and PCI Plot etc.. To collect such data, drive test is performed using the drive test tool XCAL. This paper concentrates on the procedure of the drive test and the results obtained after completion of the test.

Keywords –

LTE, MCC, MNC, TAC, CGI, PCI, RSRP, SINR, RSRQ, RSSI, BSSID, SSID, SNR, DTDL, DTUL, FMS.

Cat Swarm Optimization based Localization Algorithm for Wireless Sensor Networks

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Sanjay Kumar Malik., Associate Professor, Department of Computer Science & Engineering, SRM University, Delhi-NCR Campus, Sonepat

Abstract:--

In Present time, Wireless sensor networks (WSNs) can be applied in many different applications areas. It is a network of sensor nodes whose primary work is to collect the data from sensing field and process these data. Hence, in WSNs, localization problem can be occurred due to lack of information about the accurate positions of sensor nodes. The localization algorithms divide into range free and range based algorithms. Due to hardware limitations of WSNs devices, range free localization algorithms are more widely adopted to determine the position of nodes in sensor fields. But, these algorithms have tendency of error during the computation of nodes positions. DV-hop is one of the popular range free localization algorithm that can widely adopted in WSNs and works on the concept of hop distance estimation. In this paper, an improved version of DV-hop localization algorithm is proposed based on cat swarm optimization algorithm, called CSO DV-Hop algorithm. The main concern of the integration of CSO algorithm with DV-Hop algorithm is to reduce the localization error of DV-Hop algorithm. The simulation results reveal that proposed algorithm enhances the location accuracy in comparison to other algorithms being compared.

Diagnosing Human Diseases using Toe Nail

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Abstract:--

Digital Image Processing deals with manipulation of digital images through a digital computer. Digital Image Processing plays a vital role in medical field. Medical Imaging helps to reveal and analyze the internal structure and external structure of the human parts for easy diagnosis of the diseases. A human Toe nail is one of the parts for finding the diseases. The diseases can be detected by extracting its assorted features from the nail. The features such as color, texture and shape are the basic component to ascertain the affected areas in nail. In this paper, the proposed system is developed to identify the diseases using toe nail color. In this system, the nail images are acquired by the image acquisition and the segmentation technique is applied for feature extraction to extract the affected portion of the toe nail. The Hue value is used for identifying the color of the nail. Finally, the result is evaluated and the nail disease is diagnosed based on the nail color.

Keywords –

Medical Image, Toe nail, Hue value, Color

Identification of bacteria using Digital Image Processing

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Abstract:--

In the field of microbiology, there is no direct method to find out the microorganism and their species of bacteria. Microscopic sample analysis is a common manual technique employed for bacterial detection and identification. After the analysis process, more than 25 biochemical tests are used to determine the bacteria and its species. These tests include gram reaction, motility, shape, spore, biochemical tests and so on. These tests will be time-consuming and is subjected to poor specificity. Hence it requires highly trained personnel for testing. In order to overcome the existing manual problems, digital image processing techniques can be used. The main aim of the proposed work is to use image-processing techniques to identify the bacteria from images. After staining the microorganisms with appropriate dyes, images of the microorganisms were captured using a digital camera attached to an electron microscope. To identify the species, image processing techniques such as preprocessing, segmentation, morphological operations are used.

Keywords—

microorganism, bacteria, image processing techniques

A Secure and Dynamic Multi-Keyword Ranked Search Scheme over Encrypted Cloud Data

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Abstract:--

In view of extending omnipresence of dispersed registering, a consistently expanding number of data proprietors are energized to outsource their data to cloud servers for uncommon solace and reduced cost in data organization. Regardless, fragile data should be encoded before outsourcing for security [1] necessities, which obsoletes data utilization like watchword based record recuperation. In this paper, I present an ensured multi-catchphrase situated look scheme over mixed cloud data, which at same time reinforces dynamic revive operations like cancelation and incorporation of reports. Specifically, vector space appear and for most part used TF_IDF show are participated in document advancement and request age. I assemble an exceptional tree-based record structure and propose an "Unquenchable Depth-first Search" count to give gainful multi-watchword situated look. The ensured kNN computation is utilized to scramble the document and question vectors, and meanwhile ensure correct substance attain figuring between encoded record and request vectors. Remembering ultimate objective to restrict quantifiable strikes, apparition terms are added to rundown vector for blinding inquiry things. In view of usage of our outstanding tree-based rundown structure, the proposed plan can achieve sub-straight request time and deal with cancelation and incorporation of proceedings of adaptably. Expansive tests are coordinated to demonstrate the efficiency of proposed plot

Disease Identification in Plants Using K-means Clustering and PCA Based GLCM using Classification with ANN

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Abstract:--

Image processing is the technique which is applied to process the digital information from the images. The plant disease detection is the technique which is applied to detect disease from the input images. In this work, the technique is applied which is based on textural feature extraction, segmentation, and classification. The GLCM algorithm is applied which extracts textural features from the image. The k-mean clustering algorithm is used for the segmentation of input images. The SVM classifier is applied to the existing algorithm which will classify the input image into two classes. To improve the performance of existing algorithm the SVM classifier is replaced with KNN classification. This leads to an improved accuracy of disease detection, moreover classifying the data into multiple classes.

keywords:

Textural feature,GLCM, segmentation , k-mean clustering.

Life-time Improvement of Wireless Sensor Networks using Relay Nodes and Fuzzy Logic

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Abstract:--

Wireless sensor networks play an important role in many military and civilian purposes. The major drawback of these networks is that of the energy of the nodes which are randomly deployed and cannot be recharged regularly. The energy simultaneously affects the lifetime of the network. Clustering approach improves the energy and lifetime of the network. The suitable Cluster Head is selected based on several measures. In our approach Cluster Head is selected using fuzzy logic. Also to this approach we introduce sensor nodes that act as relay nodes on the edge of the network between main nodes and the sink. The data is transferred from the member nodes to the Cluster Head and from there towards the Sink. This is a basic clustering approach, and the Cluster Head is to be selected efficiently considering various parameters such as energy level, distance from base station, centrality, and number of nodes in cluster. Even though this logic is used we introduce relaying nodes which act as intermediate cluster heads. When a particular Cluster Head is very far from the Sink, the intermediate Cluster Head is accessed to obtain efficient data transfer from the nodes to sink. This increases overall lifetime of the network.

keywords:

wireless sensor networks; clustering; fuzzy logic.

A Literature Review on the Framework of Camouflage of RIT with RDH Methods for Plain Text Images towards Better Outsourcing

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Abstract:--

Now a days there is very big problem of data hacking into the networking era. There are number of techniques available to overcome this problem. So, Data hiding is a technique for embedding information into covers such as image, audio, and video files, which can be used for media notation, copyright protection, integrity authentication, covert communication, etc.,. In this thesis various existing Data Hiding techniques are studied and reviewed. In this thesis mainly focus on embedding data and restore data with better quality. This thesis discusses Reversible Data Hiding techniques based on Reversible image transformation to embed data and then extract data. The proposed techniques are applied and compared to found which methods is suitable for hiding data into the camouflage image and then losslessly restore the information.

keywords:

Reversible Data Hiding, Reversible Image Transformation, Embedding.

Analysis of Startle Type Epileptic Seizures Using Empirical Mode Decomposition and Machine Learning Technique

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Abstract:--

Epilepsy is a neurological disorder of the brain. The electroencephalogram (EEG) is a clinical tool for analyzing the brain's electrical activity. In this paper, the EEG signals is pre-processed and emitted by using Empirical Mode Decomposition (EMD), the signal is decomposed into Intrinsic Mode Function (IMF) and subsequently used for extracting features. Statistical features like Inter-Quartile Range (IQR), Mean Absolute Deviation (MAD) and Entropy are extracted. A Machine learning technique is used for classifying the abnormalities in the electrode. Support Vector Machines (SVM), Naïve Bayes (NB) and Nearest Neighbor are used to classify the abnormalities in the electrode. We have obtained an accuracy rate of 93.75 % for SVM, 99.02 % for NB and 97.32% for NN. From this we infer that the event is provoked at the central of frontal and parietal region of the brain.

keywords:

EEG, Seizure, Empirical mode decomposition, IQR, MAD, Support Vector Machine, Naïve Bayes, Nearest Neighbor

Energy-Conserving Multi-Mode Clusters Maintenance For Hierarchical Wireless Sensor Networks

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Abstract:--

Since the beginning of the era of wireless sensor networks energy conservation has been a major concern because it is limited in nature. An energy-conserving multi-mode clusters maintenance method is proposed which works on event driven mechanism. This method is different form the conventional cluster maintenance model as it involves periodic re-clustering based on New Hierarchical Stable Election Protocol (NHSEP) algorithm among the whole network. The triggers of this method includes node's nodes residual energy being under threshold, joining or exiting from any cluster, and so on and so forth. Depending upon the damaged cluster, whether node is a member of different cluster or same cluster we can begin inter cluster maintenance or inner cluster maintenance. The enhanced method can save a considerable amount of energy to maintain the damaged network thus prolonging the network life. Simulation is done using NS2 and parameters such as Energy Remaining, Bit error rate, Packet Delivery Ratio, Throughput and control overhead are compared.

keywords:

NHSEP, hierarchical, WSN, Lifetime

Structural Characterization of PANI\MnO_2 polymer Nanocomposites

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E.Kumar., School of Science, Tamilnadu Open University, Chennai, Tamilnadu, India.

Abstract:--

Polyaniline \ manganese dioxide (PANI/MnO_2) nanocomposites have been synthesized MnO_2 nanoparticles into the PANI matrix by in situ polymerization method. The composite formation and structural changes in PANI/MnO_2 nanocomposites were investigated by X-ray diffraction (XRD), Scanning Electron Microscopy (SEM) and Fourier transform infrared spectroscopy (FT-IR).XRD pattern of PANI/MnO_2 nanocomposites exhibited sharp and well-defined peaks of tetragonal phase of MnO_2 in PANI matrix. SEM images of the composites showed that MnO_2 nanoparticles were dispersed in the PANI matrix. The FT-IR analysis revealed that there was strong interaction between PANI and MnO_2..

keywords:

MnO_2 , Polymer nanocomposite, in situ polymerization, XRD,SEM.

PSNR Based Optimization Applied To Maximum Likelihood Expectation Maximization for Image Reconstruction in A Multi-Core System

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Dr.Christopher D Dharmaraj., Associate Professor in Computer Science, V.V.Vanniaperumal College for Women, Virundhunagar.

Abstract:--

Image Reconstruction Techniques (IRTs) has been conceded using various reconstruction algorithms. Compared to Analytical image reconstruction method, Statistical image reconstruction methods best suites to reconstruct a high quality image. However, time complexity is involved in it. To overcome the time complexity Maximum Likelihood Expectation Maximization (MLEM) algorithm is parallelized in a multi-core environment. This work concentrates on parallelizing MLEM to reconstruct an image on a shared memory environment in order to reduce the reconstructing time. An attempt is made to optimize the Iteration to reconstruct an image. The performance analyses are employed to know the timeliness, speedup and efficiency for both Sequential and Parallel MLEM. Phantom data set of various sizes under different number of projections is used in our present study. The research shows that the multi-core environment provides the source of high computational power leading to reconstruct an image promptly.

keywords:

Image Processing, Image Reconstruction, Iterative Image Reconstruction, Maximum Likelihood Expectation Maximization, Parallel Processing, OpenMP

Water quality for agriculture purpose in some villages around Vallanadu using GIS, Thoothukudi, Tamilnadu, India

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Manimaran D., Assistant Professor, Dept. of Geology, V O Chidambaram College, Thoothukudi.

Abstract:--

This study was conducted to evaluate factors regulating groundwater quality in an area with agriculture as main use. Under this study thirty six groundwater samples have been collected from various part of around Vallanadu, Thoothukudi district. Groundwater samples were chemically analyzed for major physicochemical parameter in order to understand the different geochemical processes affecting the groundwater quality. The analytical results shows higher concentration of total dissolved solids (25.00%), electrical conductivity (27.78%) and magnesium hazard (8.33%) for pre monsoon and total dissolved solids (19.44%), electrical conductivity (22.22%) and magnesium hazard (22.22%) for post monsoon which indicates signs of deterioration as per BIS standards. The other parameters such as percent sodium, Kelley's ratio, Permeability index and Residual sodium carbonate suggest that the groundwater of the study area is suitable for irrigation purpose.

keywords:

Groundwater quality, hydrochemistry, Vallanadu, Irrigation Quality and Thoothukudi District.

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