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Dr. Mohamed Rahayem
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Abstract: Images and scanned text documents are gradually more used in a vast range of applications. To reduce the needed storage or to accelerate their move through the computers networks, the document images have to be compressed. Traditional compression mechanisms, which are generally developed with a particular image type and purpose, are facing many challenges with mixed documents. This paper describes a statistical block-based technique for an automatic document image segmentation and compression. Based on the number of detected colors in each region of the image, this approach creates a new representation of the image that can produce very highly-compressed document files that nonetheless retain excellent image quality. The proposed algorithm segments the compound document image into blocks of equal size. The blocks are classified into seven different categories. Each category represents an image part that shares the same properties. A new representation of each category is formed and the similar adjacent blocks are merged to form labeled regions sharing the same properties. At the end, to achieve better compression ratio, the different regions of the image are compressed using different compression techniques.

Keywords: Adaptive Compression, Block-Based Segmentation, Image Document Compression, Image Segmentation, Lookup Dictionary Table (LUD).

References:
an open source sensor data stream processing engine called ‘Global sensor n/w (GSN)’ with the android platform to capture sensor data. We present the design, implementation, evaluation, and user experiences of the Cence-me application, which represents the first system that combines the inference of the presence of individual using off-the self sensor enabled mobile phones with sharing of this information through social networking applications such as face-book and my-space. An android based application that monitors the vehicle through an On Board Diagnostics (OBD-2) interface, being able to detect accidents.

Keywords: DAM4GSN architecture, Cence-Me application, On Board Diagnostics (OBD-2) interface.

References:

Authors: Ahmed Sharieh, Raja Masadeh

Paper Title: Implementing Fair Resource Synchronizer Algorithm for Distributed Mutual Exclusion in Mobile Computing Environment

Abstract: Mutual exclusion in distributed systems is a critical feature required to coordinate access to shared resources. It is highly needed to be employed in distributed systems including mobile computing environments. Dynamic Resource Synchronizer algorithm (DRS) works on decreasing the amount of messages that transferred in the system by minimizing the amount of sites that are included in the mutual exclusion. In this paper, a DRS algorithm is presented with a simulation study for distributed mutual exclusion that could be used in mobile environments in which nodes communicate with each other based onto specific conditions. Also, ring topology is used, all nodes have a unique identifier, a node failure doesn’t occur, communication links are bi-directional, and First In First Out (FIFO) priority and a partition in a network doesn’t occur. In addition, decreasing the amount of storage, which is needed at various sites on the system. The DRS algorithm proved that the mutual exclusion is achieved. Whereas, deadlock and starvation are impossible to occur. Thus development mutual exclusion algorithm is one of the most appropriate for mobile computer systems.

Keywords: Distributed systems, synchronization, mutual exclusion, mobile computing.

References:
on Distributed Computing (pp. 2-15). Springer Berlin Heidelberg.

Authors: Jincy Das, Judith Mercy Praveena S, Mirna Genesia Asian, A. Monisha, R. Sindhuja

Paper Title: Communication and Obstacle Detection System for the Disabled using Arduino Lilypad

Abstract: This paper proposes the design of a hand glove using Arduino Lilypad and Zigbee for the people with disability in hearing, speech and vision. There are nearly 900,000 people who are deaf and dumb and 285 million people who are blind. This device would help for communication by bending of flex sensors which are fixed on the glove and the obstacles are detected by Ultrasonic sensor. And the combination of input is processed by the microcontroller Arduino Lilypad. The processed value is transmitted through the Zigbee to Microcontroller-AT89S2051 and the sign language is recognized and the corresponding value is obtained through LCD and speaker. The obstacle is sensed by Ultrasonic sensor and the person is alerted through vibration. The proposed system is compact, wireless and easy to use.

Keywords: Arduino Lilypad, Flex sensor, Hand glove, Microcontroller-AT89S2051, Ultrasonic sensor, Vibration motor, Voice module-WTV040, Zigbee-CC2500.

References:
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Authors: Mena Ahmed, Abdul Halim Ghazali, Thamer Ahmed Mohammad, Badronnisa Yusuf, Aminuddin Abdul Ghanil

Paper Title: Hydraulic Simulation of Flow Around Spur Dikes

Abstract: The morphological changes of rivers, which are manifested by bed and banks deformations, show a direct relationship with water flow and sediment transport. Spur dikes are among the most common structures used to regulate velocity distribution and control sedimentation in a river section. This paper aims to simulate the hydraulic properties of steady turbulent flow in a straight rectangular open channel which has spur dikes with various configurations, such as number, alignment and lengths. The effects of the spur dikes on the velocity distribution have been evaluated three-dimensional (3D) Computational Fluid Dynamic (CFD) method. The simulated results from the model are calibrated and validated using data obtained from physical model. Different scenarios with spur dikes were simulated, and the results were demonstrated using the isosvels, velocity magnitudes and mass exchange between spur dikes fields and main flow. Eventually, each scenario gives a better understanding on employing spur dikes for river restoration, enhancing navigation (by increasing water depth and rearranging the thalweg line), and protecting abutments and pump intakes against erosion as well as creating stable aquatic habitat.

Keywords: Hydraulic simulation, velocity distribution, spur dike, river restoration.
References:

Authors: Meenal P. Talekar, Ravindra Kale

Paper Title: Review on Cryptoleq: Single Instruction Set Abstract Machine

Abstract: Today data communication mainly depends upon digital data communication, where is data security is prior requirement which become crucial now days in every sector. So in order to protect it, various methods and Algorithm have been implemented. Cryptography combines Science, Mathematics, Computer Engineering and Networking. The purpose of this research paper is to find the best cryptographic algorithm for computations (ii) to study the Cryptoleq system which (iii) and finally the comparison of performance of algorithm with Cryptoleq and without Cryptoleq.

Keywords: single instruction machine, heterogeneous computer, mathematical computations, encryption.

6.

References:

Authors: Ananya Kalita, Arnob Bormudoi, Mimi Das Saikia

Paper Title: Probability Distribution of Rainfall and Discharge of Kulsi River Basin

Abstract: The frequency analysis of daily rainfall data of 24 years was carried out to determine the annual one day maximum rainfall and discharge of Ukiam. For evaluation of observed and expected values Weibull’s plotting position Gumbel, Log Pearson and Log normal probability distribution functions were fitted. For determination of goodness of fit chi square test was carried out by comparing the expected values with the observed values. The results found showed that the Log Pearson and Log Normal were the best fit probability distribution for determination of annual one day maximum rainfall and discharge for different return periods respectively.

Keywords: Probability distribution, Chi-Square Value

7.
Alzheimer's Disease (AD) is one of the common forms of dementia which is an irreversible neurodegenerative progressive disorder of the brain which affects the elderly population above the age of 65. Alzheimer is a brain disease that causes problems with memory, thinking, and behavior. It is severe enough to interfere with daily activities. Alzheimer symptoms are characterized by memory loss that affects day-to-day function, difficulty performing familiar tasks, problems with language, disorientation of time and place, poor or decreased judgment, problems with abstract thinking, misplacing things, changes in mood and behavior, changes in personality and loss of initiative. There are different types of tests associated with AD such as neuropsychological tests, laboratory tests and various imaging modalities for the early diagnosis of AD. Although these tests are available, they are inadequate for the definite diagnosis of the disease. In this paper we focus on the databases related to AD such as ADNI (Alzheimer Disease Neuroimaging Initiative), OASIS (Open Access Series of Imaging studies), Alz Gene, AD&FTDMDDB (The Alzheimer Disease & Frontotemporal Dementia Mutation Database), (CAMD) Alzheimer's disease Database and NAAC( National Alzheimer’s Coordinating Center), TREAD (Trajectory-Related Early Alzheimer’s Database), Coalition Against Major Diseases use of the s Alzheimer Disease Database and NAAC (National Alzheimer’s Coordinating Center), TREAD (Trajectory-Related Early Alzheimer’s Database), Coalition Against Major Diseases use of the s Alzheimer Disease Database and NAAC (National Alzheimer’s Coordinating Center), TREAD (Trajectory-Related Early Alzheimer’s Database), Coalition Against Major Diseases use of the s Alzheimer Disease Database and NAAC (National Alzheimer’s Coordinating Center), TREAD (Trajectory-Related Early Alzheimer’s Database), Coalition Against Major Diseases use of the s Alzheimer Disease Database and NAAC (National Alzheimer’s Coordinating Center), TREAD (Trajectory-Related Early Alzheimer’s Database), Coalition Against Major Diseases use of the s Alzheimer Disease Database and NAAC (National Alzheimer’s Coordinating Center), TREAD (Trajectory-Related Early Alzheimer’s Database), Coalition Against Major Diseases use of the ADNI Press Release (http://www.alz.org) for “Alzheimer’s Disease International World Alzheimer Report 2010: The Global Economic Impact of Dementia,” Prof Anders Wimo, Karolinska Institutet, Stockholm, Sweden Prof Martin Prince, Institute of Psychiatry, King’s College London, UK. Published by Alzheimer’s Disease International (ADI) 21 September 2010


References:

Authors: Sandeep C. S, Sukesh Kumar A, Susanth M. J.

Paper Title: The Online Datasets Used to Classify the Different Stages for the Early Diagnosis of Alzheimer’s Disease (AD)

Abstract: Alzheimer Disease (AD) is one of the common forms of dementia which is an irreversible neurodegenerative progressive disorder of the brain which affects the elderly population above the age of 65. Alzheimer is a brain disease that causes problems with memory, thinking and behavior. It is severe enough to interfere with daily activities. Alzheimer symptoms are characterized by memory loss that affects day-to-day function, difficulty performing familiar tasks, problems with language, disorientation of time and place, poor or decreased judgment, problems with abstract thinking, misplacing things, changes in mood and behavior, changes in personality and loss of initiative. There are different types of tests associated with AD such as neuropsychological tests, laboratory tests and various imaging modalities for the early diagnosis of AD. Although these tests are available, they are inadequate for the definite diagnosis of the disease. In this paper we focus on the databases related to AD such as ADNI (Alzheimer Disease Neuroimaging Initiative), OASIS (Open Access Series of Imaging studies), Alz Gene, AD&FTDMDDB (The Alzheimer Disease & Frontotemporal Dementia Mutation Database), (CAMD) Alzheimer's disease Database and NAAC( National Alzheimer’s Coordinating Center), TREAD (Trajectory-Related Early Alzheimer’s Database), Coalition Against Major Diseases use of the soft computing techniques and image analysis from the different imaging modalities in an efficient way for making a definite diagnosis and early prediction of AD. Our aim is to predict the early diagnosis in a reliable manner such that to combine the values of different tests with the help of soft computing techniques to develop software tool for a definite diagnosis.

Keywords: Alzheimer Disease, Dementia, ADNI, OASIS, AlzGene, AD&FTDMDDB, TREAD, NAAC. Soft Computing techniques, image analysis.
Abstract: Development of Fe–Al composite layer by utilizing combination surface alloying process with blend of Al and Fe powders has been examined to enhance the surface hardness of cast aluminum amalgam LM4, business Al–Si compound substrate. Tungsten Arc welding procedure is utilized to adjust the surface. Components, for example, welding current, welding speed, terminal to work separation are changed to the composite surface of LM4 with preplaced press covering on the substrate at different levels of welding current (3-mm/sec) and cathode to work remove (2-3mm) in the argon gas protected. The microstructure of the alloyed layer changed with expanding Fe content from hypo-eutectic structure to hyper-eutectic structure. Hardness of the surface changed LM4 combination shifts from HV98.96 to HV141.9 as for the elements chose and their levels [25]. The alloyed examples with low warmth input demonstrates high hardness when terminal to work separation is kept steady, as the cathode to work remove increments small scale hardness additionally increments. The greatest increment in hardness is 40.25% accomplished at Welding current 100A, welding speed 5mm/sec. Electrode to work separate 3mm because of the best possible dissemination of iron particles into the substrate bringing about the arrangement of Al–Fe intermetallic.

Keywords: HV98.96 to HV141.9, LM4, Utilizing Combination, (3-6mm/sec), Intermetallic.

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Authors: Purushottam Sahu, Santosh Kumar Mishra, Shatendra Kumar Sahu

Paper Title: Surface Alloying of Aluminum Alloy (LM4) With Iron Powder using TIG Welding
Design and Fabrication of an Inline Pipe Inspection Robot

Abstract: already there are various designs available in the case of an inline-pipe inspection robot. This research paper aims at preparing a new design along with its fabrication process. For a start we studied the readily available designs and there advantages as well as limitations. We have used CATIA V5R19 to design our robot. The key factors we have considered while in the process of design are mobility, safety in operation, steer ability, and the most important one is size and shape adaptability. Our model is a wireless flexible pipe inspection robot which is capable to pass through a pipe with diameter in range of 6-9 inches. We can detect various defects such as cracks, corrosion, buckles, etc.

Keywords: inline pipe-inspection, mobility, shape adaptability, wireless.

References:

Abstract: Pre-stressing with external tendon is one of the most efficient techniques for rehabilitation of existing structures, strengthening of steel structures, controlling the structure deflection and reduction of the construction cost. This paper consisting of a parametric study to investigate the effect of several parameters on the structure behavior. The key variables examined were the number of deviator, eccentricity of the external tendon, pre-stressing technique. ANSYS software has been used to analyze and simulate the process of applying the pre-stressing force and the structure loads. Geometrical imperfections and buckling modes of the unloaded beam are taken into consideration as an initial condition. The results show that these variables impose additional challenges on the accurate prediction of pre-stressed steel structures performance during its service life.

Keywords: Tendon; External pre-stressing; ANSYS; Steel I-beam; Deviator

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Authors: Akshay Ashok Sonawane, Sultan Shahajahan, Azhar Rehanan
rotating probe,” in The Fifteenth International Symposium on Artificial Life and Robotics 2010 (AROB 15th ’10), B-Con Plaza, Beppu, Oita, Japan, February 4-6, 2010.

Authors: Vivek Kumar, Namrata Patil, Bhavesh Zope

Paper Title: Solar Panel Selection for 5KW System

Abstract: The theme of this project work is solar panel selection which capacity is 5KW. The first phase of the project is introduction, prospects, configuration about Photo-Voltaic systems (PV systems) and study of photo-voltaic cells, modular and array. The second phase includes the selection of solar panel, efficiency, economic considerations and calculations of the photo-voltaic system. The photo-voltaic technology is an off-shoot of the evaluation in semiconductor technology during 1980s. Several different base materials and doping materials were tried during early 1980s. By mid 1980s the silicon has been adopted as base material for producing photo-voltaic cells by almost all the photo-voltaic cell manufacturers. They work on principle of the light energy of the sun is directly converted into electrical energy.

Keywords: photo-voltaic; cell; modular; array

References:

Authors: Nazrin Nazar, A. Nizad

Paper Title: Effect of Treated Recycled Aggregate on the Mechanical Properties of Polypropylene Fibre Reinforced Concrete

Abstract: The non-availability of materials is one of the major factors affecting the progress of construction. Natural resources are becoming insufficient to meet the increasing demand in construction. As a solution to the above problems, recycled aggregates from the demolished waste are now being used as replacement of natural aggregates. But the use of recycled aggregates drastically decreases the strength of concrete. This is mainly due to old mortar on the surface of aggregate which render the surface porous and makes it of inferior quality. Recent literatures suggests surface treatment to improve the strength. Therefore in this study, recycled aggregate that is treated in dil. HCl to the surface of aggregate which render the surface porous and mak issues of inferior quality. Recent literatures suggests surface treatment to improve the strength. Therefore in this study, recycled aggregate that is treated in dil. HCl to the surface of aggregate which render the surface porous and mak problems, recycled aggregates from the d...

Authors: Swati A.Patil, Suraj P. Ahirrao, Priya V. Chumble, Manali R. Navale, Tausif N. Mulani

Paper Title: Industrial Waste Water Management by Implementing Wetland Ecosystem

Abstract: Constructed wetlands are natural alternative to technical methods of wastewater treatment, however our understanding of the complex processes caused by the plants, micro organisms, soil matrix and the substances in the wastewater, and how they all interact with each other, is still rather incomplete. The main objective of this project is to compare the parameters of industrial wastewater sample which is treated by wetland ecosystem with another industrial wastewater samples without applying wetland ecosystem. The Principle of this is to perform a preliminary comparative study between some coagulants on the removal of suspended solids organic matter and testing the Chemical and Biochemical Oxygen Demand from the industrial waste water. For implementation of wetland ecosystem, we are going to study specific plants which can be used for wetland ecosystem.

Keywords: industrial wastewater, characteristics of wastewater, constructed wetland, wetland ecosystem

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Authors: R. Rathish, P. Mahendiran, R. Manikandan, M. Naveen Kumar, A. Pravin Kumar

Paper Title: Fabrication of Solar Power using Vehicle

Abstract: Now a days without electrical energy there is nothing in the world. Electrical energy can be taken from various methods like wind mills, power plants. But the raw materials which are used for producing electrical energy is not sufficient for upcoming years. In order to overcome the problem solar energy is necessary. It is an renewable, evergreen and everlasting energy. In our project we construct a solar powered vehicle prototype which convert the solar power converted into electrical power by the help of components like DC motor, Solar panel, DC battery

Keywords: Electrical, DC motor, Solar panel, DC battery.

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Authors: Amruta Matkar, Tanmay Mhetre, Ashish More, Neha Gangra

Paper Title: Urine-The Source of Energy

Abstract: The proposed work is all about electricity generation, whilst cleaning the urine ‘fuel’ and producing clean water in addition to fertilizer, and focusing on small-scale MFC units, which have been shown to be more efficient and energy-dense. The continuous flow nature of the MFC technology facilitates continuous growth of the constituent biofilm organisms, which clean the input, and can be subsequently used as fertilizer. In essence, the more powerful the MFC is, the greater are the rates of urine utilization. A microbial fuel cell is a device that uses natural biological processes of ‘electric’ bacteria to turn organic matter, such as urine, into electricity. These fuel cells are efficient and relatively cheap to run, and produce nearly zero waste compared to other methods of electricity generation. In practice, urine will pass through the microbial fuel cell for the reaction to happen. From here, electricity is generated by the
bacteria which can then be stored or used to directly power electrical devices. Microbial fuel cells could be a great source of energy in developing countries, particularly in impoverished and rural areas. To have created technology that can potentially transform the lives of poor people who don’t have access to, or cannot afford electricity, is an exciting prospect. I hope this will enable those in need to enjoy a better quality of life as a result of our research.

Keywords: ACID (Anode Current Into Device), CCD (cathode current departs), MFC (Microbial Fuel Cell), CH4N2O (Molecular Formula of Urea), C5H4N4O3 (Uric Acid), Oxidant (Oxidizing Agent).

References:

Authors: Richmond Adebiaye

Paper Title: Interpreting Users’ Perceptions of Mobile Security Methods and Their Effectiveness

Abstract: The increasing adoption of open source operating system (OS) platforms, such as Android and iOS, has opened up new security vulnerabilities and threats to mobile devices and other wireless access technologies. Recent statistics show that mobile networks around the globe “generate exceedingly over 86 exabytes of traffic annually”. Thus, mobile security vulnerabilities and threats such as SMS spam, rogue apps, adware, malware, cyber-attacks and unlawful eavesdropping have become an ever-increasing problem for mobile users around the world. This paper proposes a quantitative research survey to investigate mobile device security and the implications of security application recommendations for its users. The objective is to identify increased security risks, and recommend best security practices for mobile users. To obtain quantitative values, web-based questionnaires using the Likert scale were used, and data processed by factor analysis, ANOVA and multiple regression analysis tabulated along a continuum in numerical form. The study thus identifies and reveals the impacts of smartphone security threats such as mobile adware, rogue application downloads, and considers the suitability of smartphone security solutions offered by various vendors. This paper provided insights into users’ problems of malware, attack channels, black industry ‘chain of smartphone security’, and accessibility to smartphone security solutions introduced by mobile vendors. As this study adds to the available body of knowledge, it is anticipated that future research will continue to advance the available information regarding rogue applications, adware, malware, and other security threats related to mobile technology.

Keywords: Smartphones; Mobile security; Information Security; Android O/S; Vulnerabilities and Threats; iOS

References:

Authors: Venkatesh Patil, Ganesh Satras, Mukund Pawar, Ranjitkumar Biradar

Paper Title: Transformer Oil Temperature Monitoring with GSM Based Fault Detection

Abstract: Transformer is an important and costly device in the power system. The reliable and fault free operation of a decisive role in the availability of electricity. The ageing of transformer depends on several factors especially electrical and thermal stresses. Due to which incipient faults occurs which in turn if left undetected will cause deterioration and eventually lead to failure of the transformer. The presence of faults in transformer results in chemical
decomposition of the transformer oil. The transformer oil is deteriorated due to the combination of the ageing process such as partial discharge (PD), electrical arcing and thermal ageing. But some faults occur in the substation that faults are affect the transformer operation as well as transformer life. These faults are short circuit and open circuit faults. In this project, we will attempt to show that how to avoid such electrical equipment failures could be caused by temperature rise in transformer and short circuit, Open circuit in substation.

Keywords: AVR Microcontroller, LM35 Temperature Sensor, GSM Module Etc.

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Authors: Johnson Y, Imthias Ahamed T P

Paper Title: Robust Analysis with Controller Design of Forward-Speed Dynamics of UAVs in Close Formation Flight

Abstract: Study of multi-UAVs (Unmanned Aerospace Vehicles) in close formation flight has received wide attention due to the significant advantages in resource mapping at greater swaths, 3-D imaging etc. The control design study and its analysis is carried out for two aerodynamically non-identical UAVs in a leader-follower pattern of flight and it can be extended for multi UAVs. The modeling includes the effect of leader-trailing-wing vortex on the follower, both for nominal and perturbed system dynamics. Robust controller design to maintain the relative velocity between two UAVs in longitudinal plane close formation flight under nominal, wind and aero-perturbed condition is the major objective of this article. The forward velocity control of the leading vehicle and its tracking by a follower are performed by a PID controller and then compared with that of a robust H∞ controller.

Keywords: Formation flight, UAV, PID, robust h-infinity, tracking and control, wing vortex.

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Abstract: Tumor detection and removal is one medical issue that still remains challenging in field of biomedicine. Early imaging techniques had the drawback of being invasive and hence the CT and MRI imaging technique help the surgeons in providing a better vision. In this paper, tumor image processing involves three stages namely pre-processing, segmentation and morphological operation. After the acquisition of the source image, it is pre-processed by converting the original image to grayscale in addition high pass filter for noise removal and median filter for quality enhancement is provided which is followed by enhancement stage resulting with histogramic equivalent image. Finally segmentation is done by means of watershed algorithm. The above proposed methodology is helpful in generating the reports automatically in less span of time and advancement has resulted in extracting many inferior parameters of the tumor. The present work demonstrates that method can successfully detect the brain tumor and thereby help the doctors for analyzing tumor size and region. The algorithms have been developed by using MATLAB.

Keywords: Brain Tumor, MRI Image, Segmentation, Filtering

References:

Authors: Sukanta Kumar Tulo, Madhusmruti Nayak, Manish Kumar, Khushboo

Paper Title: Brain Tumor Detection from MRI Image using Digital Image Processing

Abstract: Tumor detection and removal is one medical issue that still remains challenging in field of biomedicine. Early imaging techniques had the drawback of being invasive and hence the CT and MRI imaging technique help the surgeons in providing a better vision. In this paper, tumor image processing involves three stages namely pre-processing, segmentation and morphological operation. After the acquisition of the source image, it is pre-processed by converting the original image to grayscale in addition high pass filter for noise removal and median filter for quality enhancement is provided which is followed by enhancement stage resulting with histogramic equivalent image. Finally segmentation is done by means of watershed algorithm. The above proposed methodology is helpful in generating the reports automatically in less span of time and advancement has resulted in extracting many inferior parameters of the tumor. The present work demonstrates that method can successfully detect the brain tumor and thereby help the doctors for analyzing tumor size and region. The algorithms have been developed by using MATLAB.

Keywords: Brain Tumor, MRI Image, Segmentation, Filtering

References:

Authors: Janaki Sivakumar, K. Thangavel

Paper Title: Gender Classification with Weighted Principal Component (wPC) using BPN

Abstract: Gender Classification in the field of forensic Science becomes essential in the case of criminal investigation. Automated tools can help forensic experts by reducing their manual efforts. Soft computing techniques like Fuzzy Computing, Neural Networks and Genetic Algorithm are all helpful to develop automated tools for human identification. Lateral Cephalogram plays a vital role in Gender Classification from skeletal remains. Principal component analysis (PCA) is a technique that is useful for the compression and classification of data. This study proposes Weighted Principal Component Landmarks of lateral Cephalogram landmarks as an ideal measure. Also this study recommends BPN as an optimal classifier for Gender Classification from lateral Cephalogram.

Keywords: Lateral Cephalogram, Forensic Anthropology, Cephalofacial Landmarks, Linear Measurements, GLCM Features, Principal Components, Weighted Principal Components, Feature Extraction and Back Propagation Neural Network

References:
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Authors: Prasad M. Pawar, Pooja S. Gurav, Mrunal S. Raut, Pratik P. Shinde

Paper Title: Design and Fabrication of Coco Pith Block Making Machine

Abstract: Small scale industries play a major role in the economic development of India. To enhance its growth and to effectively utilize the renewable energy, waste products to be reused. one such product is coir pith. Coir is mainly used in exporting and in agricultural field, as it is good absorbent of the water. It maintains the moisture content of the...
pith to enhance the quality of the product. The Konkan as well as costal region has a tremendous plantation of coconut trees. Coconut trees are known as ‘Kalpavruksha’ i.e each n every part of it is useful. The industries manufacturing coir ropes as their main output stores coco pith which is the left over product after the production of the coir ropes, as waste material and sold to the outer agencies at a very cheaper rate. We have designed and fabricated a machine to make the blocks of the coco pith. We have designed a machine in minimum possible cost, less work space, and portable which can be used in small scale and household use also. We have applied pressure of about 4 bar using a lead screw, which is driven with the help of chain drive. Analysis for lead screw for static and torsional loading is done in which maximum stress intensity for static loading is 1.3684e+009 Pa and for torsion loading 1.2467e+009 Pa. Maximum equivalent stress in static loading is 1.8797e+009 Pa and for torsional loading is 1.1732e+009 Pa.

Keywords: Coco Pith, Lead Screw, Portabil.

References:
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Authors: Joseph Zacharias, Vijayakumar Narayan

Paper Title: Two-Band QAM Data Transmission using Parallel Mach-Zehnder Modulators in RoF System

Abstract: A radio over fiber (RoF) system with the transmission of two QAM sidebands by using two parallel Mach-Zehnder modulator is proposed. Optical comb generation at the central station (CS) helps to produce two comb from a single laser diode. This RoF system uses dual parallel Mach-Zehnder modulators (MZM) for the transmission of two QAM modulated sidebands. In one branch of the MZM, 4-QAM data is transmitted while in the other 16-QAM data is transmitted. Finally the downlink performance of the RoF system can be analyzed by using signal constellations and eye diagrams.

Keywords: Comb generation, Quadrature amplitude modulation (QAM), Radio over fiber (RoF).

References:

Authors: Sagar L Belgaonkar, A.Amarnath, Ismail R Garag, Manjunath S Makari, Iiyashkhan A. Desai, Rahul M. Patil

Paper Title: Critical behavior of STILT columns in RC Framed Structures under the influence of wind

Abstract: Wind is horizontal movement of air due to temperature difference. Wind has significant role to play in design of high rise building because it results in static and dynamic loads. In this paper, effect of wind load on 11 Storey RCC Building having different column heights which may be due to unevenness in the slope of the ground is analyzed. Effect of wind is studied under consideration of IS 875: Part III 1987 Models are prepared and analyzed for wind effect using ETABS 2013. Models with varying slopes are studied.

Keywords: Displacement, Stilt Factor, Sloping Ground, Wind

References:
Humans hardly realize the complexities involved in vision, but in fact, our eye is more powerful than it seems. It

In recent years, due to emerging technologies in the field of wireless networks, ad hoc networks have

organized and self-configured wireless mobile nodes (MN) such as mobile devices, laptops, and PDAs, able to communicate with each other without the need of any fixed network infrastructure nor centralized administrative support. MANET is a network that exchanges information among the entities that are potentially mobile without any pre-defined infrastructure based communication support. These networks are of practical importance in applications like environmental monitoring, health care, military, location tracking, disaster recovery and many more. This paper provides a comprehensive study of MANET applications scenarios, main features and characteristics, challenges facing the deployment of MANET, current issues and latest research issues.

Keywords: MANET applications, Characteristics, Challenges, recent issues

References:


Authors: Ramya R.

Paper Title: Aquatic Rare Species Habitat Detection and Tracking

Abstract: Computer vision has gained paramount significance in recent times due to the increased use of cameras as portable devices and their incorporation in standard PC hardware, mobile devices, machines etc. Computer vision techniques such as detection, tracking, segmentation, recognition and so on, aim to mimic the human vision system. Humans hardly realize the complexities involved in vision, but in fact, our eye is more powerful than it seems. It
processes around 60 images per second, with each image consisting of millions of points. Computer vision is still a long away from its goal of replicating the human eye, but in the meantime various computer vision techniques are being applied to complex applications. The proposed algorithm is resistant to small illumination changes and also involves a module that reduces effects of camera movement. In this system four static cameras are used to capture the moving objects. Background subtraction method subtracts the moving object from static underwater place. This procedure is done by pixel by pixel. Area of the species is also main consideration. Once the species are detected from static underwater place, using background subtraction method tracking is done on each of the four sides. Gaussian mixture model (GMM) and BLOB analysis method is applied for counting the rare species. Gaussian mixture model gives the better segmentation to the original images. BLOB analysis produces the bounding boxes to the species.

**Keywords:** Blob analysis, Gaussian Mixture Model, MATLAB.

**References:**

**Authors:** A. Elizabeth, Bavanirajan, Kannabirani, Surendiran

**Paper Title:** BLDC Motor Driven Solar PV Array Fed Water Pumping System Employing Zeta Converter

**Abstract:** This paper proposes a simple, cost effective and efficient brushless DC (BLDC) motor drive for solar photovoltaic (SPV) array fed water pumping system. A zeta converter is utilized in order to extract the maximum available power from the SPV array. The proposed control algorithm eliminates phase current sensors and adapts a fundamental frequency switching of the voltage source inverter (VSI), thus avoiding the power losses due to high frequency switching. No additional control or circuitry is used such that the performance is not affected under dynamic conditions. The suitability of proposed water pumping system is designed and modeled such that the performance is not affected under dynamic conditions. The suitability of proposed system at practical operating conditions is demonstrated through simulation results using MATLAB/Simulink followed by an experimental validation.

**Keywords:** BLDC motor, SPV array, Zeta converter, INC-MPPT.

**References:**
Authors: Alkhatbat Khalafalla Muslim Abdelhadi, Hala Eldaw Idris, Abdalla Abdulrahman Mohamed

Paper Title: A QoS Analysis of UGS and ERTPS Scheduling Service Flows in video Conference over Worldwide Interoperability for Microwave Access (Wi-MAX)

Abstract: The IEEE 802.16e (published 2005) defined five different Quality of Service (QoS) classes including UGS, eRTS, rTTS, nRTT, and BE. It is well known that UGS and eRTS are designated to support QoS for voice applications with silence suppression. The other three classes have different applications. In this paper, we investigate the performance of UGS and eRTS QoS classes in terms of multimedia applications such as video conferencing over WiMAX network scenarios. The OPNET modeler 14.5 simulator is employed for simulation purposes in order to evaluate the performance of UGS and eRTS with a focus on video conferencing streaming and voice applications. The simulations show that the user with UGS QoS could provide higher throughput and lower delay, lower jitter, and lower queuing delay compared to the eRTS QoS case. Consequently, we also evaluated the video conferencing/streaming application for the eRTS QoS case. Simulation results in this case show that for a defined two scenarios of network and a certain combination of users that are allocated a QoS and a selected application e.g., video or voice conferencing, UGS offers higher performance than eRTS.

Keywords: QoS, UGS, eRTS, throughput, delay, jitter, queuing delay..

References:

Authors: Sunil Kumar Singh, Mahaveer Prasad Sharma

Paper Title: A Y-Shaped Planar Monopole Antenna for Wide Band Applications

Abstract: A Y shaped monopole utilizing a modified notch in the ground is presented. The monopole is developed from a triangle monopole and has increased the impedance bandwidth from ~550MHz to ~6GHz for reflection coefficient less than -10dB. Since the antenna shows a bandwidth ratio of 3.9:1, it can be considered as an Ultra Wide Band antenna. Use of stepped notch under feed line provides here the better impedance matching and increased bandwidth. We use ANSOFT High Frequency Structure Simulator (ANSOFT HFSS 13.0) which uses Finite Element Method (FEM) for its processing. The monopole is fabricated on FR4 epoxy dielectric substrate and both simulated and measured results are found to be in agreement.

Keywords: Impedance Bandwidth, Monopole Antenna, Reflection Coefficient, Ultra Wideband.

References:

Authors: Tejaswini Bhandarkar

Paper Title: Enhancing Security of Android Phones

Abstract: Use of mobile commerce for conducting commercial transactions online is increasing rapidly. A wide range of wireless devices which includes mobile phones, tablets provide an easier way for mobile payments and M-commerce. Risk associated with such devices such as loss of private information is also increasing. The basic requirement for using secure M-Commerce application is a secure mobile operating system. Without a security feature or secure application on the device, it is not possible to have secure Mobile-transaction. Among many operating system used for mobile devices, android operating systems are widely used. Though Android Systems are good in memory management they are also vulnerable to security attacks. Such security attacks make the phone unusable, cause unwanted SMS/MMS (short message service/multimedia messaging service) billing, or expose private information. There are two doors for attacker to attack a smart phone. The first is to get users to download, install, and run software that contain unethical codes such as virus, worms etc. and the other is to attack device directly by using software vulnerabilities.
This paper presents security assessment for Android with an overview of security architecture for android. The paper also list various threats to android devices and there countermeasures.

**Keywords:** Android Systems, mobile payments, software vulnerabilities.

**References:**
1. An Insight into the Security Issues and Their Solutions for Android Phones,[2015]
5. Mobile Aattacks and Defense , white paper copublished by the IEEE computer and Reliability Societies July/August 2011.

**Authors:** Ch. Sankara Rao, K. Soujanya, T. Sudhakar Reddy

**Paper Title:** A Simplified Version of Multilevel Inverter with Minimal Number of Switches

**Abstract:** Multilevel inverters have created a new wave of interest in industry and research. These multilevel inverters are generally used in medium voltage high power application. In this paper a eleven level inverter is proposed which has less number of switches compared to the conventional inverter. This inverter topology reduces the size and complexity of the system. The effectiveness of the proposed topology has been demonstrated and the results are validated by simulating the proposed topology in MATLAB.

**Keywords:** Multilevel Inverters, circuit topology, reduced device count.

**References:**

**Authors:** Ajit Kumar Senapati, Shantanu Kumar Sahoo, Saylesh Singh, Sudhakar Sah, Pratyush Ranjan Padhi, Nitesh Satapathy

**Paper Title:** A Comparative Investigation on Physical and Mechanical Properties of MMC Reinforced With Waste Materials

**Abstract:** Aluminium alloy based metal matrix composites (MMC) are produced with agro waste Rice Husk Ash (RHA) and industrial waste Fly Ash as reinforcement. By the continuous stir casting method the MMCs were fabricated in a bottom pouring furnace at 7000C. A rectangular metal mould was used to prepare the casting having dimension 300x50x20 mm3. The effect of adding the different reinforcement were realized through various mechanical behaviour tests. Based upon the standards in the mechanical workshop samples were prepared for measuring mechanical properties such as Impact strength, Compression strength, Tensile strength, Brinell hardness and Density test of both the MMCs. The Fly Ash and Rice Husk distributions in the MMCs were confirmed through the examinations conducted of the microstructure on image analyzer and scanning electron micrographs. Results thus found revealed that there is a great effect of reinforcing Flyash and Rice Husk in aluminium alloy matrix composites. Fly ash gave more enhanced mechanical properties as compared to Rice Husk. Thus selection of waste material from industry based and agro based for reinforcement was found one of the most important criteria for fabricating aluminium matrix composites where as during machining process is the average surface roughness (Ra) and the cutting force required to carry an operation on it,, and it is mostly caused by many machining parameters such as speed, feed , depth of cut.

**Keywords:** Metal Matrix Composites (MMCs), Flyash, Rice Husk Ash (RHA), Mechanical Properties, Physical properties, Surface Roughness, Speed, Feed, Depth of Cut.
Abstract: This paper presents a method for the detection of epileptic seizure from EEG signal using empirical mode decomposition (EMD). The intrinsic mode functions (IMFs) which is generated by the EMD method can be considered as a set of amplitude and frequency modulated (AM-FM) signals. The Hilbert transformations of these IMFs which is circular form in the complex plane can be used as a feature for radius calculation and the higher order moments like variance, skewness and kurtosis are applied on the output values of the Short-time Fourier transform (STFT) of the IMFs. The proposed method shows better classification result than simply applying higher order moments. The effectiveness of the proposed method is tested using the dataset which is available online. It is found that the result obtained from radius measurement and higher order statistical moments provide good discrimination performance for the detection of epileptic seizure.

Keywords: Electroencephalogram (EEG), intrinsic mode functions (IMFs), empirical mode decomposition (EMD), radius measurement.

References:

Authors: Kaushik Das, Rajkishor Moudi

Paper Title: Detection of Epileptic Seizure using Radius Measurement and Higher Order Moments in The EMD Domain

References:
Authors: Ashish Bandekar, George G. Chase

Paper Title: Performance of an Electrowet-Coalescer

Abstract: Water in diesel fuel can cause corrosion and reduce engine performance. Mechanical separators are most effective when water in the fuel is in the form of drops larger than about 100 microns but often fuels contain emulsified drops smaller than 100 microns. Pre-coalescence of the emulsified drops to larger drops can improve separation performance of mechanical separators such as coalescing and membrane filters. In this work, a thin-slit radial-flow electrowet-coalescer device was experimentally tested and statistically analyzed to evaluate the performance. The effects of the slit gap distance, the diesel fuel flow rate, and the applied electric potential were evaluated. Application of a full quadrature statistical model and the response optimizer method in Mintab™ shows the applied potential and the gap distance had greater impacts on the average drop size exiting the device than did the flow rate. The analysis determined the best performance occurred with the applied potential of 380V, gap distance of 0.0007m and flow rate of 2ml/s. At these conditions the average drop size increased from 33 microns in the inlet stream to 120 microns in the exit stream. The electric power required to operate the device was less than 1 milliwatt.

Keywords: Electro wetting, Coalescence, Oil-water separation.

References:

Authors: Modi Milan, Kutwal Musarraf, Varia Akash, Goswami Parth, N. J. Parmar

Paper Title: Study of 6s Concept and its Effect on Small Scale Industry

Abstract: The search for quality is never ending which involves continuous improvement process to find a way to restrict the reasons creating problems. These can be accomplished by going through stages instead of implementing a...
large improvement. The various concepts such as Kaizen, PDCA cycle, Quality circle, JIT, 5S, etc. Can be proven helpful in this type of improvement. Among all Kaizen have high level of difficulty as it requires huge potential steps. Due to this, as a foundation of “Kaizen” we study 6S concept. It is derived from concept of 5S. 6S concept have one more “S” which stands for safety with organization, surrounding and health. The merits of 6s concept are reduce in wastage, reduction in defects, soaring of productivity, morale of worker goes high, etc. This all combine resulted in gradual improvement of industry with reduction in environmental problems. Furthermore, it also reduced the cost of production and high product services.

Keywords: 6S, continuous improvement process, kaizen, 5S, productivity, EHS.

References:
Abstract: The objective of this research is to improve the productivity by optimizing certain operations of the manual assembly process of a product in a manufacturing industry. By creating a standard process in manual assembly line time is saved as well as energy is conserved. In this paper, flow process chart of assembly line of a particular product is studied. The two hand process chart is used for the assembly process of a product in a manufacturing industry. By creating a standard process in manual assembly line, the time saved and improvement to the operations is noted thus improving the assembly process.

Keywords: Work flow, Two hand process, Downlighter

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18. Mr. Chavan V. B., Prof. Gaikwad M. U. A review on development of Glass Fiber/Epoxy Composite Material.

Authors: Kajar Sejpal

Paper Title: Improving The Assembly Process of Down lighter by using Two Hand Process Chart

Abstract: This paper, shows the importance of using two hand process chart to optimize the assembly process of a down lighter by improving the efficiency of the workers. The process chart is used to study the time taken by each operation and the flow of the process is standardized. The two hand process chart helps in reducing the time taken by each operation and improving the overall efficiency of the assembly process.

Keywords: Work flow, Two hand process, Downlighter

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4. Dr. Harish Jain, Dr. Pratibha Yadav, ”Application of Method Study to Improve Work Flow Process in a Dietary Facility of a Medical College”, Volume 6, Issue 3, March 2016, ISSN - 2249-555X, IF : 3.919, IC Value : 74.50

Authors: Mayuri Vajjanath Atre, K. Chandra Obula Reddy

Paper Title: A Novel Hybrid Power Conditioner for Mitigation of Harmonics and Neutral Line Current in Three Phase Four Wire Distribution System

Abstract: In this paper, a novel hybrid power conditioner is proposed for suppressing harmonic currents and neutral-line current in three-phase four-wire distribution power systems. The proposed hybrid power conditioner is composed of a neutral-line current attenuator and a hybrid power filter. The hybrid power filter, configured by a three-phase power converter and a three-phase tuned power filter, is utilized to filter the nonzero-sequence harmonic currents in the three-phase four-wire distribution power system. The three-phase power converter is connected to the inductors of the three-phase tuned power filter and, in parallel, its power rating can thus be reduced effectively. The tuned frequency of the three-phase tuned power filter is set at the fifth harmonic frequency. The neutral-line current suppressor is connected between the power capacitors of the three-phase tuned power filter and the neutral line to suppress the neutral-line current in the three-phase four-wire distribution power system. With the major fundamental voltage of the utility dropping across the power capacitors of the three-phase tuned power filter, the power rating of the neutral-line current suppressor can thus be reduced. Hence, the proposed hybrid power conditioner can effectively reduce the power rating of passive and active elements. A hardware prototype is developed to verify the performance of the proposed hybrid power conditioner. Experimental results show that the proposed hybrid power conditioner
achieves expected performance.

Keywords: Harmonic, neutral-line current, power converter

References:

Authors: Alkhabatah Khalafalla Muslim Abdelhadi, Hala Eldaw Idris

Paper Title: Performance Evaluation of ARQ Mechanism in WiMax Networks

Abstract: WiMAX (Worldwide Interoperability for Microwave Access) is the IEEE 802.16 standards-based wireless technology, provides Broadband Wireless Access (BWA) for Metropolitan Area Networks (MAN). The Automatic Repeat request (ARQ) mechanism in WiMAX uses a feedback channel for the confirmation of error-free packet delivery or for packet retransmission request. This method can increase network throughput when radio channel condition is worse. In this paper attempt has been made to study the effect of implementation of ARQ on the performance of WiMAX network through simulation. Simulation study has been carried out for WiMAX network with and without enabling ARQ. The performance is been compared by considering the performance metrics like throughput, delay and jitter.

Keywords: WiMAX, ARQ, Base station, Subscriber Stations, Simulation.

References:
Abstract: The article presents the application of neural network and decision tree techniques to investigating barometric data got with instruments measuring the weight of the human plantar onto contact surface while strolling. The examination was completed on a gathering of planter photo taken while the subject remained on the reflected photograph box. We gather 35 understanding, 30 of them are male and 5 female with various ages. Numerical qualities for foot examination for every patient foot part get measuring 12 property. Some foot plant pathologies, similar to buckle and level foot, are ordinarily identified by a human master by method for impression pictures. All things considered, the absence of prepared individual to finish such high first screening discovery endeavors blocks the routinely analytic of the previously mentioned pathologies. In this work an imaginative programmed framework for foot plant pathologies in view of neural systems (NN) and Decision Tree (DT) are introduced. The outcomes accomplished with this framework confirm the attainability of setting up programmed conclusion frameworks in light of the impression and example acknowledgment. The order settled on by the resultant choice tree was right for all the more than 94% steps. This permits to point the parameters which are the best discriminators between the explored sorts of human walk.

Keywords: WiMAX, ARQ, Base station, Subscriber Stations, Simulation.

References:
Authors: Saleh S. Altayyar

Paper Title: A Comparative Study of Medical Equipment Maintenance Cost and Performance for Selected Saudi Hospitals

Abstract: Healthcare technology administrators are always held responsible for the poor performance of the medical equipment maintenance team, delay in response to service requests, and long down time. Customer satisfaction are just part of the challenges they are facing. The objective of this study is to analyze and compare the cost of medical equipment maintenance, performance of medical equipment maintenance team in three major hospitals in Saudi Arabia (academic, military, and public). The annual cost of maintenance per medical equipment, work load per 1 FTE (technical employee), down time, turnaround time, cost of service ratio (COSR), hourly cost of maintenance, and acquisition cost per 1 FTE (technical employee) are used in the assessment and analytical comparison. When comparing the cost of service (COSR), turnaround time, and the down time in the three hospitals, it can be seen that the academic hospital has the lowest COSR (3.7%), the lowest down time (1.2 days) and the lowest turnaround time (1.5 days). The other two hospitals (military and public) have relatively higher COSR (6.7 and 5.8 %) respectively and high down time (29 and 10.7) days respectively. it is clear from this study that hospital that uses a combination of in house, Original Equipment Manufacturer (OEM), and independent service provider (third party) contract tend to have redundancy in technical staff which results in under worked technical staff and consequently unnecessary increased spending on maintenance, and poor maintenance performance, when measured by the annual cost of maintenance of medical equipment, down time, and turnaround time. This can be seen in the public hospital which has the highest cost of medical equipment maintenance among the three hospitals ($570).

Keywords: Acquisition Cost per technician, Cost of Service (COSR), Medical equipment maintenance, Methods of Maintenance.

References:
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Authors: Cong-Trang Nguyen, Yao-Wen Tsai

Paper Title: A Decentralized Finite-Time Sliding Mode Controller for Large-Scale Systems: a Moore-Penrose Inverse Approach

Abstract: In this paper, a class of uncertain large-scale systems with mismatched uncertainties and unknown disturbances of state variables is considered. First, a novel reduced-order observer (ROO) is designed to estimate unmeasurable variables. A novel decentralized finite-time sliding mode controller (DFTSMC) based on measured variables is then established to drive state trajectory of systems to a sliding surface and main a sliding motion on it thereafter in finite time. In addition, a newly appropriate linear matrix inequality (LMI) condition is given such that the system in sliding mode is asymptotically stable. Finally, a numerical simulation is performed which shows the effectiveness and advantages of proposed method.
Keywords: Decentralized Finite Time Sliding Mode Controller (DFTSMC), Reduced-Order Observer (ROO), finite-time convergence, large-scale systems.

References:

Authors: B. Sunil, V. R. Rajeev, C. Jaimon, S. Jose

Paper Title: Numerical Simulation of Dry Reciprocating Wear Loss Characteristics of Al 6061 Alloy

Abstract: In this paper, attempts were made to develop a numerical wear model. The developed wear model was used to investigate the effect of parameters on the response reciprocating wear loss characteristics of Al 6061 alloy against En 31 hard steel counterface. A Box–Behnken design of experiment was used to investigate the effect of parameters such as normal load (15-45N), reciprocating velocity (0.4-0.6 m/s), and sliding distance (300-500 m) on the response reciprocating wear loss characteristics of Al 6061 alloy. The normal load (Percentage of contribution, P = 34.23%), and reciprocating velocity (P = 43.75%), sliding distance (P = 14.45%) are the controlling factors on the response wear loss behaviour of Al 6061 alloy. The interaction model term between the normal load and reciprocating velocity (P = 3.21%) was the secondary influencing factor on the response wear loss characteristics of Al 6061 alloy within the range of parameters investigated. An optimized sliding condition was identified by the genetic algorithm (GA) approach as load 15N, reciprocating velocity 0.6m/s and sliding distance 300m.

Keywords: Wear loss, Percentage of contribution, Reciprocating tribometer, Genetic algorithm.

References:


Authors: Monisha Mohan, Preetha V. H

Paper Title: A Review on Block-Key Point Based Copy Move Forgery Detection

Abstract: in which a part of a digital image is copied and pasted within the same image. Many algorithms have been developed for detecting the copy move forgery. Copy move forgery is mainly classified into two types which is block based and keypoint based. The block based method includes PCA, DCT, DWT etc and key point based method includes SIFT and SURF. This paper will include a detail study of different image forgery detection techniques, different tampering techniques and a detailed study of different block based and keypoint based method.

Keywords: Copy move forgery, DCT, DWT, SIFT, SURF

References:

Authors: Gayathri S P, Sajeer M

Paper Title: Biometric Information Security System Based On Nonlinear Encryption Scheme

Abstract: With the growth of multimedia and digital technology the transmission over public channel become more common and also the issues with the confidentiality and integrity of data increases in an alarming rate. Biometric characteristics such as fingerprint, iris, palm print, gestures, handwritten signature and hand geometry have to be considered as an efficient tool for establishing the identity of an individual. Because they contain the unique characteristics of a person. So we proposed a method, to protect the biometric information from any of the unauthorized access. Which utilizes an orthogonal coding and multiplexing technique, direct LSB replacement steganography technique and finally a chaotic encryption method. Multiple biometric signatures are encoded and then multiplexed together in the form of a single image using orthogonal encoding and multiplexing. The encoded image is embedded in to the colour cover image, which is decomposed in to three plane namely red, green, blue respectively. In steganography technique, the multiplexed image pixel is used to replace the LSB of corresponding colour cover image pixel for information hiding purpose. Finally, the stego image is encrypted using a non linear encryption technique. The objective of this paper is to develop a novel and efficient technique to protect the Biometric Information from any unauthorized access and also reduces the vulnerability of an intruder to retrieving any information through any steganalysis attack. In addition to this technique can also accommodate a number of different biometric information in the same cover image while maintaining the negligible amount of distortion when compared with original colour cover image. The encrypted images are random, non repeated and unpredictable. Chaotic encryption have excellent diffusion and confusion properties and can resist the any plaintext attack. The performance of the proposed technique was investigated through matlab simulation using various biometric signatures and colour cover images.

Keywords: orthogonal transform, steganography, nonlinear encryption, chaotic system
Abstract: Industrial, commercial and domestic gas appliances cover an extremely wide range of requirements with regard to flame stability, flame temperature, shape, size and aeration which need to be satisfied for optimal performance. With the wide spread use of LPG in industrial, commercial and domestic appliances, it should be our endeavor to design efficient burner systems not only to conserve fuel but also to keep our environment clean and green. In atmospheric burner primary air is entrained by momentum sharing between the gas and the surrounding air. The amount of air induced in this way is generally about 50 to 70 % of the stoichiometric air requirement. Two types of atmospheric burners may be distinguished, those in which the gas issues at normal supply pressure and those in which the gas is supplied from a compressor or high pressure supply. The importance of the former type, e.g., the Bunsen burner primary air is claimed to improve thermal efficiency of the stove. The mesh is made of durable special compound metal alloy to withstand vigorous LPG heat. Interwoven wires enable concentrated high flame. Also, the utensils do not get blackened as no unburnt carbon are produced. This work aims at quantifying the effect of add-on disc holding wire-mesh above the burner head on the thermal efficiency of the gas stove and to determine its optimum location to further improve the thermal efficiency. The experiments suggest that the use of wire mesh on burner head improves gas stove thermal efficiency. Use of this gadget will be beneficial, as it leads to saving of LPG, however small, and on a global scale, it will be a major step towards energy conservation as millions of stove operate globally.

Keywords: Domestic Lpg Gas Stove, burner, flame.

References:
2. T.N. Singh, Effect of Flame Ring Design on Thermal Efficiencies of the Pressure Stoves, Narosa, Delhi 2000.

Authors:
Manjith Shukur, U. S. P. Shet

Paper Title: Experimental Investigations on the Efficacy Augmentation of a Domestic LPG Gas Stove using an Add-on Wire Mesh

Abstract: There have been several attempts to improve thermal efficiency of gas stoves by improving various parameters like flame stability, flame temperature, shape, size and aeration etc. including the burner heads. The spacing of ports, inclination of the flame cones, port geometry are also important parameters which govern the flow pattern of hot gases impinging on the heat exchanger vessel. Several gadgets are displayed on the market, claiming that they can improve thermal efficiency of the gas stove. One such gadget is the wire mesh disc, which placed over the burner head is claimed to improve thermal efficiency of the stove. The mesh is made of durable special compound metal alloy to withstand vigorous LPG heat. Interverwoven wires enable concentrated high flame. Also, the utensils do not get blackened as no unburnt hydrocarbons are produced. This work aims at quantifying the effect of add-on disc holding wire-mesh above the burner head on the thermal efficiency of the gas stove and to determine its optimum location to further improve the thermal efficiency. The experiments suggest that the use of wire mesh on burner head improves gas stove thermal efficiency. Use of this gadget will be beneficial, as it leads to saving of LPG, however small, and on a global scale, it will be a major step towards energy conservation as millions of stove operate globally.

Keywords: Efficacy Augmentation, Domestic LPG Gas Stove, Add-on Wire Mesh

References:
2. T.N. Singh, Effect of Flame Ring Design on Thermal Efficiencies of the Pressure Stoves, Narosa, Delhi 2000.