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**Paper Title:** Musical Instrument Recognition using Spectrogram and Autocorrelation

**Abstract:** Traditionally, musical instrument recognition is mainly based on frequency domain analysis (sinusoidal analysis, cepstral coefficients) and shape analysis to extract a set of various features. Instruments are usually classified using k-NN classifiers, HMM, Kohonen SOM and Neural Networks. Recognition of musical instruments in multi-instrumental, polyphonic music is a difficult challenge which is yet far from being solved. Successful instrument recognition techniques in solos (monophonic or polyphonic recordings of single instruments) can help to deal with this task. We introduce an instrument recognition process in solo recordings of a set of instruments (flute, guitar and harmonium), which yields a high recognition rate. A large solo database is used in order to encompass the different sound possibilities of each instrument and evaluate the generalization abilities of the classification process. The basic characteristics are computed in 1sec interval and result shows that the estimation of spectrogram and autocorrelation reflects more effectively the difference in musical instruments.

**Keywords:** Speech/music classification, audio segmentation, spectrogram, autocorrelation.

**References:**
2. A. Livshin, X. Rodet: Musical Instrument Identification in Continuous Recordings, Proc. of the 7th Int. Conference on Digital Audio Effects (DAFx-04), Naples, Italy, October 5-8, 2004

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**Paper Title:** Reconstruction of Shape and Position for Scattering Objects by Linear Sampling Method

**Abstract:** This paper presents an approach for shape and position reconstruction of a scattering object using microwaves where the scatterer is assumed to be a homogenous dielectric medium. The employed technique assumes no prior knowledge of the scatter’s material properties like electric permittivity and conductivity, and the far-field pattern is used as the only primary information in identification. The approach proposed consists of retrieving the shape and the position of the scattering object using a linear sampling method. The technique results in high computational speed and efficiency. In addition, the technique can be generalized for any scatterer structure. Numerical results are used to validate the feasibility of the proposed approach.

**Keywords:** Shape Reconstruction, Inverse Scattering, Microwave Imaging, Linear Sampling Method (LSM).

**References:**

Authors: Shiv Kumar, Aditya Shastri

Paper Title: Design of Simulator for Automatic Voice Signal Detection and Compression (AVSDC)

Abstract: A good amount of work has been done in the field of compression, voice signal detection, and spectrum analysis which has been generated a number of results in the past few decades. In this research, following three important problems have been identified:

1. To distinguish between constitutional and unconstitutional Voice: It is an important task to identify authenticity of recorded voice of the specific person. Here it has been tried to develop a Simulator which identifies constitutional and unconstitutional voice.

2. To identify words sequence: It is an important task to recognize words sequence in the recorded voice. Sometimes voice may be recorded fast, clear, or loud. Here it has been tried to develop a simulator to check out whether recorded words are in proper sequence are not.

3. To develop a simulator which does not change file extension and quality of voice signal after compression: Normally, after compression, file extension is changed and quality of the voice signal is deteriorated. Here it has been tried not to change extension of the file after compression with minor distortion in voice signal.

As per review of above three problems, it is being considered a simulator may be designed which may resolve above problems. With this view, the research title is chosen as “Design of Simulator for Automatic Voice Signal Detection and Compression (AVSDC)” which is suitable for pervasive computing, voice signal detection, and spectrum analysis. AVSDC is divided into following two parts:

1. Automatic Voice Signal Detection (AVSD)
2. Automatic Voice Signal Compression (AVSC)

Automatic Voice Signal Detection (AVSD) is used to identify constitutional and unconstitutional voice signal automatically which is performed on the basis of frequency, pitch value, formant value, and sequence of words in the voice signal for several samples of the same voice. An underline purpose of AVSD is to identify fake voice in the security system. Frequency is being mapped to the frequency domain by computing its DFT using the FFT algorithm. Sequence of words is computed by continuously computing difference between absolute averages of two adjacent significant windows and comparing it to a predefined threshold. Word Identification System is part of AVSD which is designed to check out whether recorded words in proper sequence are not. Normally, sometimes spoken words of voice may be recorded very fast, smoothly, or loudly. The main idea behind the word identification system is to first train it with several versions of the same word, thus yielding a “reference fingerprint”. Then, subsequent words can be identified based on how close they are to this fingerprint. The whole idea is evaluated on the basis of Euclidean distance theory. Automatic Voice Signal Compression (AVSC) takes .wav stereo file as an input and compresses 50 to 60 percent of the source file at about 45 kbps with high quality voice signal by taking the help of adaptive wavelet packet decomposition and psychoacoustic model. AVSC takes .wav stereo file as an input and creates .wav mono file after compression. After compression minor distortion is also possible. The main feature of AVSC is that file extension does not change after compression. In other words, compression is done from .wav to .wav extension. AVSC takes .wav stereo file as an input and after compression it creates .wav mono file as an output. AVSC also computes entropy and SNR (Signal to Noise Ratio) of the source file during the compression.

Keywords: MatLab7.0, Euclidean Distance Theory, Wavelet, Frequency Value, Pitch Value, Average Significant Window

References:

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5. Stefan Wabnik, Gerald Schuller, Ulrich Kr ‘amer and Jens Hirschfeld, “Frequency warping In Low delay Audio Coding”, ICASSP 2005, 0-7803-8874-7/05/$20.00 ©2005 IEEE
8. Maria Markaki, Andre Holzapfel, Yannis Stylianos “Singing Voice Detection using Modulation Frequency Features”, Computer Science Department, University of Crete, Greece.
11. Tsung-Han Tsai, Yi-Wen Wang, Shih-Way Hung “An MDCT-Based psychoacoustic model co-processor design for MPEG-2/4 AAC audio encoder” Proceeding in the 7th International Conference on Digital Audio Effects (DAFx’04), Naples, Italy, October 5-8, 2004
The method reported in this paper is a simplified method for compiling rule base matrix. It involves simple arithmetic addition and subtraction, quite handy for those not expert in writing fuzzy rules for FLC of interest. The paper demonstrates the comparison of rule base designed by direct human logic with that of numerical approach practiced in the field of Electrical Engineering at Columbia University, proposed work for 2009 (Jan) exp.

Authors:
T. D. Dongale, T. G. Kulkarni, P. A. Kadam, R. R. Mudholkar

Paper Title: Simplified Method for Compiling Rule Base Matrix

Abstract: The main paradigm shift of fuzzy control lies in the implementation of control strategies in the form of knowledge based algorithm described by fuzzy logic. The fuzzy logic system designer either explores his own knowledge or elicits from domain expert. The knowledge pertaining to control strategy is expressed in the form of IF-THEN fuzzy rules. In Fuzzy Logic Control (FLC), the rules are expressed in the form of matrix table. Filling up consequent premises in the rule table is a tedious job. We present here simple numeric method to compile consequent matrix of FLC. This greatly reduces an over burden on system designer. The method reported in this paper is quite handy for those were not expert in writing fuzzy rules for FLC of interest. The paper demonstrates the numerical approach to frame the rule base. It involves simple arithmetic addition and subtraction operation. In case of highly non-linear system the straightforward approach fails. In such cases, we suggest corrective terms to the rule base.

Keywords: Decision Matrix, Fuzzy Logic, Fuzzy logic control, Fuzzy Reasoning, IF-THEN Rules.

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Authors: P.K.Dhal, C.Christober Asir Rajan

Paper Title: Transient Stability Improvement using Hybrid Controller Design for STATCOM

Abstract: This paper proposes a transient stability improvement using hybrid controller design for STATCOM with static synchronous time critical error and better damping system oscillations after a short circuit fault. This article on a STATCOM Control for transient stability improvement has proposed a hybrid system with fuzzy and neural controller to meet with the addition of Lyapunov energy function criteria to the ability and conditions as well. The performance is analyzed using digital simulation with (SMIB) with infinite bus.

Keywords: Fuzzy Logic, Neural Network, lyapunov energy function, STATCOM, transient stability.

References:

Authors: Manisha Sharma, Harendra Kumar, Deepak Garg

Paper Title: An Optimal Task Allocation Model through Clustering with Inter-Processor Distances in Heterogeneous Distributed Computing Systems

Abstract: Distributed computing systems (DCS) are of current interest due to the advancement of microprocessor technology and computers networks. It consists of multiple computing nodes that communicate with each other by message passing mechanism. Reliability and communication over distances are the main reasons for building the DCS. In distributed computing systems, partitioning of applications software in to modules and proper allocation of modules among processors are important factors for efficient utilization of resources. We consider the problem of m-modules and n-processors (m >> n). In this paper a mathematical model for finding optimal cost and optimal reliability to the problem is presented considering DCS with heterogeneous processors in such a way that the allocated load on each processor is balanced. The results obtained by the present model are compared with the recent models and comparison results show that the model is very effective.

Keywords: Distributed computing system, Module allocation, Inter module communication, Reliability, Data transfer rate, Inter processor distance.

References:
Noise Reduction of an Image by using Function Approximation Techniques.

8.

Abhishek Arvind Gulhane, Abrar Shaukat Alvi

Paper Title: Noise Reduction of an Image by using Function Approximation Techniques.

Abstract: In this proposed work, an efficient simple, fast technique is given to remove noise of an image which is mostly introduced due to environmental changes. We focus on the noise issues that changes image pixels value either on or off. The pixels are easily identified as noisy pixels in grayscale image but it is difficult to recognize in RGB color image. Reason behind it is that, any color combination with white (pixel on) or black (pixel off) generate other color. This paper focus on such technique that reduces the noise in both grayscale and RGB image with recovery of originality of source image.

Keywords: Random Function Approximation, Salt Pepper Noise, Luminance, Noise Blur.
References:

Authors: 
Hala M. A. Mansour, Labib Francis Gergis, Mostafa A. R. Eltokhy, Hoda Z. Said

Paper Title: 
Performance Analysis for Concatenated Coding schemes with Efficient Modulation Techniques

Abstract: 
In digital communication systems, channel coding is the method of adding redundancy to the data in order to reduce the frequency of errors or to increase the capacity of a channel. Concatenated codes are the most superior class of codes making achievable channel capacity almost at par with the Shannon limits. Concatenated codes are error correcting codes constructed by combining two or more simple codes through an interleaver in order to obtain powerful coding schemes. In this paper a special construction of concatenated convolutional coding scheme called parallel-serial concatenated convolutional code (P-SCCC) is presented. The upper bound to the bit error probability of the proposed code is evaluated. Results showed that the error performance of this proposed code scheme is better than that of both classical serial and parallel concatenated convolutional codes. The performance of the proposed code has been studied with different types of digital modulation schemes.

Keywords: Code concatenation, concatenated code, frequency shift keying, phase shift keying, and quadrature amplitude modulation.

References:

Authors: 
Sandeep Kumar, Gourav Sharma, Gurdeepinder Singh

Paper Title: 
AGC & AVR of Interconnected Thermal Power System While Considering the Effect of GRCs

Abstract: 
As the interconnected power system transmits the power from one area to another system frequency will inevitably deviate from scheduled frequency, resulting in a frequency error. A control system is essential to correct the deviation in the presence of external disturbances and structural uncertainties to ensure a safe and smooth operation of power system. Thus design of Automatic Generation Control (AGC) and Automatic Voltage Regulator (AVR) system play a vital role in the automation of power system. This paper deals with automation of three area interconnected reheat thermal power with consideration of Generation Rate Constraint (GRCs). The primary object of the AGC is to balance the total system generation against system load and losses, while considering the effect of

References:
Generation Rate Constraint (GRCs). So that the desired frequency and power interchange with neighboring systems are maintained in order to minimize the transient deviations and to provide zero steady state error in appropriate short time. Further the role of automatic voltage control is to maintain the terminal voltage of synchronous generator in order to maintain the bus bar voltage. Otherwise bus bar voltage goes beyond permitted limit.

Keywords: Area Control Error (ACE), Automatic Generation Control (AGC), Automatic Voltage Control (AVC), Automatic Voltage Regulator (AVR), Generation Rate Constraints (GRCs).

References:

Authors: Gurudatt Kulkarni, Niraj Patil, Pradip Patil

Paper Title: Private Cloud Secure Computing

Abstract: Cloud computing is an increasingly popular paradigm for accessing computing resources. In practice, cloud service providers tend to offer services that can be grouped into three categories: software as a service, platform as a service, and infrastructure as a service. This paper discuss the characteristics and benefits of private cloud computing. It proceeds to discuss the private cloud characteristics and formation as well as implementation. This paper aims to provide a means of understanding and investigating Private cloud... This paper also outlines the responsibilities of private cloud provider and the facilities to consumer

Keywords: Private, public Cloud, Pass, Azure.

References:

Authors: Shrikrishan Yadav, Santosh Kumar Singh, Krishna Chandra Roy

Paper Title: A Smart and Secure Wireless Communication System: Cognitive Radio

Abstract: Trust is an important concept in human interactions which facilitates the formation and continued existence of functional human societies. The radio frequency spectrum is a limited natural resource and hence its efficient use is of the greatest importance. Cognitive radio is a smart wireless communication system that is conscious of its surrounding environment, learns from the environment and adapts its internal states by making corresponding changes in certain operating parameters in real time. In this paper, we search the adaptive characteristics of cognitive radio in secure and reliable communication. But how a communication system can be made reliable such that there occur no eavesdropping and information leakage. The possible solutions include integrating the merits of spread spectrum modulation, using encryption algorithms and it’s potential to switch over various frequency bands. In the development of future wireless communication systems, the spectrum utilization will play an important key role due to the shortage of unallocated spectrum. The main tasks of the cognitive radio are to provide highly reliable communications whenever and wherever needed and how to utilize the radio spectrum efficiently. Cognitive radio can be the best communication system in an emergency condition as Earthquake, flood and Tsunami etc when all communication systems are failed to provide information and to communicate each other.

Keywords: Decryption, Encryption, Primary User, Radio Frequency Spectrum, Secondary User, Spectrum Analysis.

References:
Authors: Shallesen S. Dhok

Paper Title: Credit Card Fraud Detection Using Hidden Markov Model

Abstract: The most accepted payment mode is credit card for both online and offline in today’s world, it provides cashless payment at every shopping shop in all countries. It will be the most convenient way to do online shopping, paying bills etc. Hence, risks of fraud transaction using credit card has also been increasing. In the existing credit card fraud detection business processing system, fraudulent transaction will be detected after transaction is done. It is difficult to find out fraudulent and regarding loses will be barred by issuing authorities. Hidden Markov Model is the statistical tools for engineer and scientists to solve various problems. In this paper, it is shown that credit card fraud can be detected using Hidden Markov Model during transactions. Hidden Markov Model helps to obtain a high fraud coverage combined with a low false alarm rate.
Keywords: Internet, online shopping, credit card, e-commerce security, fraud detection, Hidden Markov Model.

References:

Authors: P. S. Anish, S. Ramarajan, T. Arun Srinivas, M. Sasikumar

Paper Title: Voltage Balancing in SVM Controlled Diode Clamped Multilevel Inverter for Adjustable drives

Abstract: The work describes a transformer less medium voltage adjustable-speed induction motor drive consisting of two back-to-back connected five-level diode-clamped converters. Due to the feedback from the load to the dc link nodes, there is a chance of voltage imbalance. In this paper the methods for voltage balancing are discussed and simulated. The usage of switching techniques to employ voltage balancing rather than the external circuitry is being discussed. Proper switching results in the control of average current through the nodes and hence the non symmetrical charging and discharging of the dc split capacitors can be avoided. The first phase of work explains the output using the multicarrier pulse width modulation technique and the second phase deals with the modification done using the Space vector Pulse Width Modulation (SVPWM) technique. Voltage balancing is achieved with lesser harmonic content while using the SVPWM technique.

Keywords: Medium-voltage drives, multilevel inverters, Space vector modulation, voltage balancing.

References:
Paper Title: A Deterministic Inventory Model for Deteriorating Items with Price Dependent Demand and Time Varying Holding Cost under Trade Credit

Abstract: In this proposed research, we developed a deterministic inventory model for price dependent demand with time varying holding cost and trade credit under deteriorating environment, supplier offers a credit limit to the customer during whom there is no interest charged, but upon the expiry of the prescribed time limit, the supplier will charge some interest. However, the customer has the reserve capital to make the payments at the beginning, but decides to take the benefit of the credit limit. This study has two main purposes, first the mathematical model of an inventory system is establish under the above conditions. Second this study demonstrate that the optimal solution not only exists but also feasible. Computational analysis illustrates the solution procedure and the impact of the related parameter on decision and profits.

Keywords: Deterioration, price dependent Demand, Trade credit, time varying holding cost.

References:

Abstract:

In this study, we consider an integrated inventory model for price dependent demand and time varying holding cost. The demand rate is a function of the price offered by the supplier. The inventory system is subject to deterioration and the replenishment rate is constant. The supplier offers a credit limit to the customer, and the customer has the reserve capital to pay the outstanding balance at the prescribed time limit, but decides to take the benefit of the credit limit. The optimal payment policy is determined by solving a mixed integer nonlinear programming model. A numerical example is provided to illustrate the solution procedure and the impact of the related parameter on decision and profits.

Keywords: Deterioration, price dependent Demand, Trade credit, time varying holding cost.

References:

Authors: Seyed Zeinolabedin Moussavi, Aliakbar Rahmani

Paper Title: Comparison and Inspection of Harmonic Effects in PMSM and Induction Motors

Abstract: Regarding to different kinds of load, domestic electrical appliances, increasing application of further electrical equipment's which leads to consumption of electric energy, destructive electromagnetic sources EMI added. Recognizing this source and it's side effects on performance of electronic and electrical equipment that could be in form of conductive, inductive and radiated is outstanding. An ideal electric machine is a system that electric energy is applied in pure sinusoid waveform flow has no loss in the heat form. However in practice, elements and
equipment’s with nonlinear characteristic, specially power electronic equipment’s and storage elements of energy could arise higher frequency harmonics causing losses in the form of heat. Numerous electrical motors used in industrial manufacturing companies cause notably heat losses especially then induction motors. The fact that complexity of interconnection between stator and rotor can consider as source of higher harmonics and energy losses, attention is paying from induction motors into Permanent Magnet Synchronous Motors (PMSM). The paper, make a comparison between PMSM and widely used induction motors from the view point of higher frequency harmonics and shows the advantage of PMSM in this regards.

**Keywords:** Torque Control, Induction Motors, Energy Consumption, Harmonic Sources, Permanent Magnetic Synchronous Motors (PMSM), Ripple.

**References:**
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4. Mohammadreza Hassan Zadeh, Arash Kiyounarsi Electrical Engineering Department, Abhar Islamic Azad University, 22, Iran startup and steady-state performance of interior- permanent magnet induction Motors

**Authors:** Sangeetha.M, Arumugam.C, Sapna P.G, Senthil Kumar. K.M

**Paper Title:** Reliability Data Analysis Procedures for Comparing Failure Rates of the System Using Optimal Truncation of Short Tests

**Abstract:** A test was described for two systems, long term and short term with an exponentially distributed time between failures. The test is intended for checking the ratio MTBFi /MTBFs exceeds or equals a prescribed value, versus one that it is less than the prescribed value, by means of long term tests with large average sample number in the earlier system. Our proposed system focus on improving test by using low average sample number in short term which is having the advantage of economy in time requirement and cost. It produces optimum truncated test called binomial Sequential Probability Ratio Test. Criteria are proposed for determining the characteristics of truncated test followed with the discretizing effect of truncation on error probabilities with a view to optimization of its parameters. The search algorithm for truncation apex used in this system achieves closeness to the optimum which depends on successful choice of the initial approximation, search boundaries and on the search step. The enhanced reliability of modern technological systems, combined with the reduced time quotas allotted for creating new system is capable of yielding a highly efficacious test which increases reliability and feasibility of decisions.

**Keywords:** MTBF, Short Truncate Test, Long Term, ADP

**References:**

**Authors:** Sanjay Patel, O. P. Vyas, Hansa Mehra

**Paper Title:** Interfacing of Sensor Network to Communication Network for Disaster Management

**Abstract:** This paper deals with the sensor network and communication network for disaster management, in which the concerned authorities dealing in disaster management get the message on their mobile phones about disaster information. Now a days number of small disasters like fire, chemical leakage, pollution etc, happen frequently and need immediate relief action. In this paper the authors have developed a technique for immediate information release for quick action to such events. In this technique, we have used sensors which sense the disaster information and transfer this information to the mobile user using GSM RS 232 Modem and MDE 8051 development board.

**Keywords:** GSM, MDE0851 board, KEIL, AT command
Abstract: One of the main problems in biomedical data processing like electrocardiography is the separation of the wanted signal from noises caused by power line interference, external electromagnetic fields, random body movements and respiration. Different types of digital filters are used to remove signal components from unwanted frequency ranges. It is difficult to apply filters with fixed coefficients to reduce Biomedical Signal noises, because human behavior is not exact known depending on the time. Adaptive filter technique is required to overcome this problem. In this paper type of adaptive filters are considered to reduce the ECG signal noises like PLI and Base Line Interference. Results of simulations in MATLAB are presented. In this we have used Recursive Least Squares (RLS). RLS algorithm is proposed for removing artifacts preserving the low frequency components and tiny features of the ECG. Least-squares algorithms aim at the minimization of the sum of the squares of the difference between the desired signal and the model filter output. When new samples of the incoming signals are received at every iteration, the solution of the least-squares problem can be computed in recursive form resulting in the recursive least-squares (RLS) algorithms. The RLS algorithms are known to pursue fast convergence even when the Eigen value spread of the input signal correlation matrix is large. These algorithms have excellent performance when working in time-varying environments. All these advantages come with the cost of an increased computational complexity and some stability problems, which are not as critical in LMS-based algorithms.

Keywords: ECG Signal, Dirichlet’s Condition, Adaptive Filter.

References:

Abstract: Present paper is analyzing the permanent magnet dc motor (PMDC) through state space variables so that command speed without consequence resulted from voltage and power and load fluctuations can be obtained. For this purpose, we should write equations of permanent magnetic motor and then by applying these equations and known methods of control, try for making desirable behavior of these motors, and by using MATLAB software in coding, analyzing real behavior of motor could be possible, and regarding to these results, planning for future of a system in front of short circuit and load fluctuation could be possible. We are trying to reduce dangers resulted from mistakes in experiments.

Keywords: Permanent magnetic motor, modern control, efficiency, permanent magnetic motors, control, permanent magnet motor, sensorless, torque fluctuation.

References:

Authors: R.Hari Kumar, C.Ganesh Babu, P.Shri Vignesh
Paper Title: Earlier Detection of Oral Cancer from Fuzzy Based Photo Plethysmography

Abstract: The main objective of this paper is to detect the occurrence of cancer in its early stages from Fuzzy based photoplethysmography. One of the key problems in the treatment of cancer is the early detection of the disease. Often, cancer is detected in its advanced stages, when it has compromised the function of one or more vital organ systems and is widespread throughout the body. Methods for the early detection of cancer are of utmost importance and are an active area of current research. The photo Plethysmography readings are taken for the patients in Madurai, Chennai, and Coimbatore regions and are converted to a quantized value and then classified using the fuzzy logic in accordance with clinical standards of TNM (Tumor Node Metastatic) codes. This method helps people to get rid of the glitches of cancer and also to cure the cancer in its early stage. It is a cost effective method and it needs no trained persons to operate. This paper can be further improved by a designing of VLSI fuzzy processor, which is capable of dealing with complex fuzzy inferences systems. It can also be made user friendly and it can be made available in all health care centers. The results can be made within short period without any delay for further processing.

Keywords: Early Detection of Cancer, TNM Codes, photo Plethysmography, Fuzzy logic.

References:


Authors: K.M. Pandey, A.P. Singh
Paper Title: Numerical Simulation of Combustion Chamber without Cavity at Mach 3.12

Abstract: In this Simulation, supersonic combustion of hydrogen at Mach 3.12 has been presented. The combustor has a single fuel injection perpendicular to the main flow from the base. Finite rate chemistry model with K-e model has been used for modeling of supersonic combustion. The pressure rise due to the combustion is not very high on account of global equivalence ratio being quite low. Within the inlet the shock-wave-boundary layer interactions play a significant role. The combustor without cavity is found to enhance mixing and combustion while increasing pressure loss, compared with the case without cavity to the experimental results. The OH mass fraction is less as the gas expands around the combustion chamber, caused by more severe shear layers and stronger shocks are induced which leads loss in total pressure of the supersonic stream.

Keywords: Hydrogen, Shear layers, Stabilization, stagnation temperature, Supersonic combustion.

References:
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Numerical simulation of turbulent-propane-ber 2 and inlet fuel at Mach number 2 and compare

Authors: K.M. Pandey, S.K. Reddy K.K.

Paper Title: Numerical Simulation of Wall Injection with Cavity in Supersonic Flows of Scramjet Combustion

Abstract: A supersonic combustion ramjet engine (scramjet) is one of the most promising air-breathing propulsive systems for future hypersonic vehicles, and it has drawn the attention of an ever increasing number of researchers. This work involves an application of computational fluid dynamics to a problem associated with the flow in the combustor region of a scramjet. A cavity wall injector is an integrated fuel injection approach, and it is a new concept for flame holding and stabilization in supersonic combustors. The presence of a cavity on an aerodynamic surface could have a large impact on the air flow surrounding it, and this makes a large difference to the performance of the engine, namely it may improve the combustion efficiency and increase the drag force. The objective of the work was to design the four wall injector model with cavity using gambit, study the combustion processes of air-fuel (h2) mixture for the wall injector models with inlet air at Mach number 2 and inlet fuel at Mach number 2 and compare the performance of the different wall injector models. There are several key issues that must be considered in the design of an efficient fuel injector. Of particular importance are the total pressure losses created by the injector and the injection processes that must be minimized since the losses reduce the thrust of the engine. In this analysis, the two-dimensional coupled implicit Reynolds averaged Navier-Stokes (RANS) equations, the standard k-ε Turbulence model, SST-kω Turbulence and the eddy-dissipation reaction model have been employed to investigate the flow field in a hydrogen-fuelled scramjet combustor with a cavity design and to analyze the combustion processes. Numerical results are obtained with the Fluent solving SST-kω Turbulence model to have the best results of all models. The grid independent test was also carried out. The profiles of static pressure, static temperature, and two components of velocity and mole fraction of hydrogen at various locations of the flow field are presented. Computed values using SST-kω turbulence model are found to have good overall agreement with results obtained from literature reviews and some discrepancies were observed were for static pressure and static temperature in the vicinity of the jets due to unsteadiness in the shock system.

Keywords: Scramjet engine, Mach number 2, RANS Equations, Turbulence model.

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Keywords: Cloud, Private Cloud, Security, Secure data Transmission.

References:

Authors: T.P.Mote, S.D.Lokhande
Paper Title: Temperature Control System Using ANFIS
Abstract: This paper describes three important aspects: design, simulation and Implementation of Adaptive Neuro fuzzy system applied to the temperature variable of a thermal system with a range of 250°C to 500°C. An Adaptive Neuro Fuzzy Inference System (ANFIS) based controller is proposed for water temperature control. The generation of membership function is a challenging problem on the membership functions. The ANFIS based input – output model is used to tune the membership functions in fuzzy system. Experimental results are compared with the conventional PID Controller and Neural Network Controller. All the controllers are tested in various operating conditions and varying set point changes and also for disturbance rejection. This shows that better performance can be achieved with ANFIS tuning.

26. Keywords: ANFIS, Artificial neural network, PID, Temperature control.

References:
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Authors: Prashana Balaji V., Anvita Gupta Malhotra, Khusshali Menaria
Paper Title: Flux Balance Analysis of Melanogenesis Pathway
Abstract: A computational model could serve as a conventional engineering approach to uncover the biochemistry of the metabolic pathways. These would dynamically mimic the pathways in-silico. Flux Balance Analysis (FBA) is one such method wherein characterization of growth yields, bio-energy production, environmental conditions and robustness under knock out & knock down can be studied. We have built a comprehensive dynamic platform of integrated network for melanogenesis pathway containing 6 major reactions. Wherein detailed stoichiometric matrix of the pathway reactions is constructed followed by defining constraints and objective function. Subsequently, these are optimized using linear programming to give us resultant fluxes. Using this model, vulnerability of the enzymes in these pathways is studied; essentiality of participating enzymes are established and varied computational gene knock-out experiments which can decipher effect of inhibition on metabolic circuit are performed. Results of the simulations were in corroboration with published results and predictions were validated. However, this platform can enables us to make elaborate prediction in the known modeled domain and later with amalgamation of more modelled pathways into this network; a comprehensive virtual cell can be constructed.

Keywords: Melanogenesis, Flux Balance Analysis (FBA), Pheomelanin, Eumelanin, Systems Biology.

References:


Authors: M.A.P. Chamikara, Y.P.R. D. Yapa, S.R.Kodituwakku, J. Gunathilake

Abstract: Many police departments all around the world lack of good and efficient crime recording and analysis systems. The vast geographical diversity and the complexity of crime patterns have made the analyzing and recording of crime data even difficult. According to the Sri Lankan police department, they face these problems for many years. This paper presents an intelligent crime analysis and recording system designed to overcome problems that appear mainly in the Sri Lankan police department. The proposed system is a GIS based system which comprises of data mining techniques such as Hotspot detection, Crime clock, Crime comparison, Crime pattern visualization, Outbreaks detection and the Nearest police station detection. Salient features of the proposed system include a rich environment for crime data analysis and a simplified environment for location based data analysis. It facilitates the identification of various types of crimes in detail and assists the police personals to control and prevent such incident efficiently. The SL-SecureNet was tested for about 1000 crime records. The test results indicated that it functions in an efficient and reliable manner.

Keywords: Crime Analysis, Crime Investigation, Data Mining, Intelligent Policing

References:

Authors: Pravin D. Pardhi, Prashant L. Paikrao, Devendra S. Chaudhari

Abstract: Content-based image retrieval (CBIR) has received much research interest since couple of decades. The query technique for CBIR using relevance feedback is being used by the researchers, to search desired image from huge collection of visual data. This paper reviews various processes of image search and few query techniques.

Keywords: Content-based image retrieval (CBIR), image search, query technique, relevance feedback (RF)

References:
frequent patterns in the sequences of products purchased by customers through time ordered transactions. Later on its application was extended to complex applications like telecommunication, network detection, DNA research, etc. Several algorithms were proposed. The very first was Apriori algorithm, which was put forward by the founders themselves. Later more scalable algorithms for complex applications were developed. E.g. GSP, Spade, PrefixSpan etc. The area underwent considerable advancements since its introduction in a short span. In this paper, a systematic survey of the sequential pattern mining algorithms is performed. This paper investigates these algorithms by classifying study of sequential pattern mining algorithms into two broad categories. First, on the basis of algorithms which are designed to increase efficiency of mining and second, on the basis of various extensions of sequential pattern mining designed for certain application. At the end, comparative analysis is done on the basis of important key features supported by various algorithms and current research challenges are discussed in this field of data mining.

**Keywords:** Sequential Pattern, Sequence Database, Itemsets, Apriori.

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13. Jian Pei, Jiawei Han, Wei Wang, “Constraint-based sequential pattern mining: the pattern growth methods”, J Intell Inf Syst., Vol. 28, No.2, 2007, pp. 133 –160.
15. J. Han, J. Pei, and X. Yan, StudiFuzz,”Sequential Pattern Mining by Pattern-Growth: Principles and Extensions”, 180, 2005, pp. 183–220.

**Authors:**
Rakesh Kumar, Jyotishree

**Paper Title:**
Effect Of Polygamy With Selection In Genetic Algorithms

**Abstract:**
Genetic algorithms are based on evolutionary ideas of natural selection and genetics. Important operators used in GA are selection, crossover and mutation, where selection operator is used to select the individuals from a population to create a mating pool which will participate in reproduction process. A number of selection operators have been used in the past like roulette wheel selection, ranked selection, elitism etc. where elitism is used to enforce the preservation of best solution found so far unless a new best individual is discovered. Elitism is implemented by copying the best individual of a generation into the next generation without any change. In this paper a particular form of elitism, polygamy, is proposed and implemented in which in each generation the best individual is selected and that participates in crossover with all other individuals in the mating pool created by any other selection mechanism. Polygamy has also been observed in a number of animals like lion, elk, baboons etc. Results obtained show the improvement over traditional selection operators available in literature.

**Keywords:** genetic algorithm, polygamy, rank selection, roulette wheel, selection.

**References:**
Abstract: In several design cases, designers need to optimize a number of responses concurrently. A general approach for the multiple response cases optimization start with using the regression models to calculate the correlations between response functions and control factors. Then, a system for collecting various response functions together into one quantity, such as an objective function, is engaged and, at last, an optimization technique is used to calculate the best combinations for the control functions. A different method proposed in this paper is to use an artificial neural network (ANN) to calculate the parameter response functions. At the optimization stage, a multi objective genetic algorithm (MOGA) is used in combination with an objective function to establish the optimum conditions for the control functions. A crane hook example has been taken to optimize multiple shape parameter responses to with stand a new loading condition. The results estimate the reduction in mass and sufficient factor of safety to show the proposed approach for the optimization of multi-disciplinary shape optimization problems.

Keywords: ANN, MOGA, Shape optimization, Meta modeling

References:


34. Authors: Ram Kumar Singh, Amit Ashtana

Paper Title: Architecture Of Wireless Network

Abstract: To allow for wireless communications among a specific geographic area, an access stations of communication network must be deployed to allow sufficient radio coverage to every mobile users. The access stations, successively, must be linked to a central hub called the MSC (mobile switching centre). The mobile switching centre allow connectivity among the PSTN (public switched telephone network) and the numerous wireless base stations, and finally among entirely of the wireless subscribers in a system. The global telecommunications control grid of PSTN which associate with conventional (landline) telephone switching centre (called central office) with MSCs all around the world.

Keywords: Network, MSC, PSTN, Cellular system.

References:

35. Authors: Ashwini Gulhane, Prashant L. Paikrao, D. S. Chaudhari

Paper Title: A Review of Image Data Clustering Techniques

Abstract: In order to find the close association between the density of data points, in the given data set of pixels of an image, clustering provides an easy analysis and proper validation. In this paper various clustering techniques along with some clustering algorithms are described. Further k-means algorithm, its limitations and a new approach of clustering called as M-step clustering that may overcome these limitations of k-means is included.

Keywords: M-step clustering, k-means clustering.

References:

36. Authors: Glory H. Shah, C. K. Bhensdadia, Amit P. Ganatra

Paper Title: An Empirical Evaluation of Density-Based Clustering Techniques
Abstract: Emergence of modern techniques for scientific data collection has resulted in large scale accumulation of data pertaining to diverse fields. Conventional database querying methods are inadequate to extract useful information from huge data banks. Cluster analysis is one of the major data analysis methods. It is the art of detecting groups of similar objects in large data sets without having specified groups by means of explicit features. The problem of detecting clusters of points is challenging when the clusters are of different size, density and shape. The development of clustering algorithms has received a lot of attention in the last few years and many new clustering algorithms have been proposed. This paper gives a survey of density based clustering algorithms. DBSCAN [15] is a base algorithm for density based clustering techniques. One of the advantages of using these techniques is that it may exist in the data set. It can detect the clusters of different shapes and sizes from large amount of data which contains noise and outliers. OPTICS [14] on the other hand does not produce a clustering of a data set explicitly, but instead creates an augmented ordering of the database representing its density based clustering structure. This paper shows the comparison of two density based clustering methods i.e. DBSCAN [15] & OPTICS [14] based on essential parameters such as distance type, noise ratio as well as run time of simulations performed as well as number of clusters formed needed for a good clustering algorithm. We analyze the algorithms in terms of the parameters essential for creating meaningful clusters. Both the algorithms are tested using synthetic data sets for low as well as high dimensional data sets.

Keywords: DBSCAN, OPTICS, DENCLOUE, Spatial Data, Intra Cluster, Inter Cluster.

References:
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Authors: Pushpaja V. Saudagare, D.S. Chaudhari

Paper Title: Facial Expression Recognition using Neural Network – An Overview

Abstract: In many face recognition systems the important part is face detection. The task of detecting face is complex due to its variability present across human faces including color, pose, expression, position and orientation. So using various modeling techniques it is convenient to recognize various facial expressions. In the field of image processing it is very interesting to recognize the human gesture by observing the different movement of eyes, mouth, nose, etc. Classification of face detection and token matching can be carried out any neural network for recognizing the facial expression. This paper reviews various techniques of facial expression recognition systems using MATLAB (neural network) toolbox.

Keywords: face recognition, neural network, and facial expression recognition.
References:


Authors: Hadi Razmi, Atabak Mashhadi Kashiban

Paper Title: Nonlinear PID-Based Analog Neural Network Control for a Two Link Rigid Robot Manipulator And Determining the Maximum Load Carrying Capacity

Abstract: An adaptive controller of nonlinear PID-based analog neural networks is developed for the point to point and orientation-tracking control of a two link rigid robot manipulator. In each case, the maximum load carrying capacity of robot manipulator subject to accuracy and actuators constraints is obtained. In comparison with conventional PID method, the use of neural network controller can increase maximum load carrying capacity of robot manipulators. A superb mixture of a conventional PID controller and a neural network, which has powerful capability of continuously online learning, adaptation and tackling nonlinearity, brings us the novel nonlinear PID-based analog neural network controller. Computer simulations were carried out in two axes manipulator and the effectiveness of the proposed control algorithm was demonstrated through the experiments, which suggests its superior performance and increasing the maximum load carrying capacity of this manipulator.

Keywords: Analog neural network, Adaptive control, Maximum load carrying capacity, Nonlinear PID control.

References:

Authors: Ashish B. Ingale, D. S. Chaudhari
Paper Title: Speech Emotion Recognition

Abstract: In human machine interface application, emotion recognition from the speech signal has been a research topic for many years. To identify the emotions from the speech signal, many systems have been developed. In this paper, speech emotion recognition based on the previous studies which uses different classifiers for the emotion recognition is reviewed. The classifiers are used to differentiate emotions such as anger, happiness, sadness, surprise, neutral state, etc. The database for the speech emotion recognition system is the emotional speech samples and the features extracted from these speech samples are the energy, pitch, linear prediction cepstrum coefficient (LPCC), Mel frequency cepstrum coefficient (MFCC). The classification performance is based on extracted features. Inference about the performance and limitation of speech emotion recognition system based on the different classifiers are also discussed.

Keywords: Classifier, Emotion recognition, Feature extraction, Feature Selection.

References:

Authors: Nikita Bhatt, Amit Thakkar, Amit GANatra
Paper Title: A Survey & Current Research Challenges in Meta Learning Approaches based on Dataset Characteristics

Abstract: Classification is a process that predicts class of objects whose class label is unknown. According to No Free Lunch (NFL) theorem, there is no single classifier that performs better on all datasets. Meta learning is one of the approaches that acquired knowledge based on the past experience. The knowledge in Meta-Learning is acquired from a set of meta-examples which stores the features of the problem and the performance obtained by executing a set of candidate algorithms on Meta Features. Based on the experience acquired by the system during training phase, ranking of the classifiers is provided based on considering various measures of classifiers.

Keywords: Classification, Meta Learning, Ranking.

References:
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Numerical Analysis of Helicopter Rotor at 400 RPM

Abstract: In this paper the main objective of this simulation is to analyze the flow around an isolated main helicopter rotor at a particular main rotor speed of 400 rpm, and angle of attack of 8 degrees and blades of the helicopter Eurocopter AS350B3 which uses the blade profile of standard ONERA OA209 airfoil during hovering flight conditions. For CFD analysis, the Motion Reference Frame (MRF) method with standard viscous k-ε turbulent flow model was used on modeling the rotating rotor operating in hovering flight. The Ansys fluent was used for the purpose of analysis.

Keywords: Aerodynamics, CFD, helicopter, hovering, MRF, rpm.

References:
6. FLUENT News 2002 (11) 2, pp: s9

Authors: K.M. Pandey, A. Surana and D. Deka

Paper Title: Numerical Analysis of Helicopter Rotor at 400 RPM

Abstract: Classification, Single label problem, Multi label problem

Keywords: Multi label classification, methods for multi label classification

References:
2. Outline Multi Label Classification http://www.tsc.uc3m.es/~jesse/talks/mend.pdf

Authors: Purvi Prajapati, Amit Thakkar, Amit Ganatra

Paper Title: A Survey and Current Research Challenges in Multi-Label Classification Methods

Abstract: Classification is used to predict class of unseen instance as accurate as possible. Multi label classification is a variant of single label classification where set of labels associated with single instance. Multi label classification is used by modern applications, such as text classification, functional genomics, image classification, music categorization etc. This paper introduces the task of multi-label classification, methods for multi-label classification and evolution measure for multi-label classification. Also done comparative analysis of multi label classification methods on the basis of theoretical study and than on the basis of simulation done on various data sets.

Keywords: Classification, Single label problem, Multi label problem

References:
2. Outline Multi Label Classification http://www.tsc.uc3m.es/~jesse/talks/mend.pdf

Authors: K.M. Pandey, A. Surana and D. Deka

Paper Title: Numerical Analysis of Helicopter Rotor at 400 RPM

Abstract: In this paper the main objective of this simulation is to analyze the flow around an isolated main helicopter rotor at a particular main rotor speed of 400 rpm, and angle of attack of 8 degrees and blades of the helicopter Eurocopter AS350B3 which uses the blade profile of standard ONERA OA209 airfoil during hovering flight conditions. For CFD analysis, the Motion Reference Frame (MRF) method with standard viscous k-ε turbulent flow model was used on modeling the rotating rotor operating in hovering flight. The Ansys fluent was used for the purpose of analysis.

Keywords: Aerodynamics, CFD, helicopter, hovering, MRF, rpm.

References:
6. FLUENT News 2002 (11) 2, pp: s9
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Authors: R.Gomathi, A.K.Gnanasekar, V.Nagarajan

Paper Title: Performance Analysis using Adaptive Decision for Parallel Interference Cancellation Receiver in Asynchronous Multicarrier DS-CDMA Systems

Abstract: In this paper, we present and analyze the performance of asynchronous multicarrier direct-sequence code division multiple-access (DS-CDMA) system using adaptive decision at the receiver. In addition to that parallel interference cancellation (PIC) scheme is presented at the receiver. The PIC scheme offers better interference suppression capability. At the last stage, the interference cancelled outputs from all the subcarriers are maximal ratio combined (MRC) and feeds viterbi decoder. Conventionally coded multicarrier DS-CDMA system compares BER from the decision which helps in further improvement.

Keywords: Interference cancellation, Multiple access Interference.

References:

Authors: Reema Patel, Amit Thakkar, Amit Ganatra

Paper Title: A Survey and Comparative Analysis of Data Mining Techniques for Network Intrusion Detection Systems

Abstract: Despite of growing information technology widely, security has remained one challenging area for computers and networks. In information security, intrusion detection is the act of detecting actions that attempt to compromise the confidentiality, integrity or availability of a resource. Currently many researchers have focused on intrusion detection system based on data mining techniques as an efficient artifice. Data mining is one of the technologies applied to intrusion detection to invent a new pattern from the massive network data as well as to reduce the strain of the manual compilations of the intrusion and normal behavior patterns. This article reviews the current state of art data mining techniques, compares various data mining techniques used to implement an intrusion detection system such as Decision Trees, Artificial Neural Network, Naive Bayes, Support Vector Machine and K-Nearest Neighbour Algorithm by highlighting advantages and disadvantages of each of the techniques. Finally, a discussion of the future technologies and methodologies which promise to enhance the ability of computer systems to detect intrusion is provided and current research challenges are pointed out in the field of intrusion detection system.

Keywords: Classification, Data Mining, Intrusion Detection System

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Analysis of Secure Mobile Agent System

Abstract: As a recently emerging distributed computing paradigm, mobile-agent technology attracts great interests because of its salient merits. However, it also brings significant security concerns, among which the security problems between a mobile agent and its platforms are of primary importance. While protecting a platform (platform or host security) can benefit from the security measures in a traditional client-server system, protecting a mobile agent (mobile-agent or code security) has not been met in traditional client-server systems and is a new area emerging with mobile-agent technology. We analyzed the different types of security issues related to mobile agent. After analysis, we found that there are many kind of technology available to ensure mobile agent security. But not a single technology provides complete solution for the same. We proposed an algorithm in which we use monitoring agent and dummy agent in place of original mobile agent. Monitoring agent checks the behavior of next node in the network. If monitoring agent finds the node suspicious, it sends the alert acknowledgment to original agent and original agent doesn’t travel to that suspicious node.

Keywords: Mobile agent, distributed systems, security.

References:

Authors: Miriyala Markandeyulu, Bussa V.R.R.Nagarjuna, Akula Ratna Babu, A.S.K.Ratnam

Paper Title: A Study of Role Based Access Control policies and Constraints

Abstract: Access control policies are constraints that protect computer-based information resources from unauthorized access. Role-Based Access Control (RBAC) is used by many organizations to protect their information resources from unauthorized access. RBAC policies are defined in terms of permissions that are associated with roles assigned to users. A permission determines what operations a user assigned to a role can perform on information resources. Role-based access control (RBAC) is also a powerful means for laying out higher-level organizational policies such as separation of duty, and for simplifying the security management process. One of the important aspects of RBAC is authorization constraints that express such organizational policies. This paper presents an overview of Role-based access control policies and constraints.

Keywords: Constraints, RBAC, Policies, UML.

References:

Authors: Hota H.S., Sahu Pushpanjali

Paper Title: A Comparative Study of Different Statistical Techniques Applied to Predict Share Value of State Bank of India (SBI)

Abstract: Prediction of share value is one of the critical job and is necessary for the current financial scenario, due to the high uncertainty prediction system can not predict the share value with high accuracy. In this piece of research work an attempt is made to analyze the prediction based on statistical techniques with special reference to the share value of State Bank of India (SBI). The data that is downloaded consists share value for open, close, volume, high, and low in equal interval of time from Jan-2003 to May-2011. Two different techniques ARIMA and Exponential Smoothing is being used to compare the accuracy. Statistical measure are carried out and it is found that expert modeler is working well for the prediction of share value of SBI. The future value for the next 5 months from May-2011 from both the models are also evaluated.

Keywords: Expert modeler, Exponential Smoothing, Auto Regressive Integrated Moving Average (ARIMA).

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6. R.J.Frank, N.Davey, S.P.Hunt Department of Computer Science, University of Hertfordshire.
8. SPSS Clementine Release 12.0 help file

Authors: K.Poornima, R.Kanchana

Paper Title: A Method to Align Images Using Image Segmentation

Abstract: Most high level interpretation task rely on image alignment process. In this work, a method for automated image alignment through image segmentation is proposed. The image data need to be analyzed, preferably by automatic processing techniques because of the huge amount of data. This new approach mainly consists in combining several segmentations of the pair of images to be registered. It can be applied to a pair of satellite images with simulated translation, and to real remote sensing examples comprising different viewing angles, different acquisition dates and different sensors. This process allows the alignment of pairs of images (multitemporal and multisensor) with differences in rotation and translation, with small differences in the spectral content, leading to the subpixel accuracy.

Keywords: Image alignment, Image segmentation, Wiener filtering.

References:

References

Authors: S. J. Suji Prasad, Susan Varghese, P. A. Balakrishnan
Paper Title: Particle Swarm Optimized I-PD Controller for Second Order Time Delayed System
Abstract: In this paper, I-PD controller is optimized using particle swarm intelligence for a Second Order Time Delayed System. Optimization is done on the basis of performance indices like settling time, rise time, peak overshoot, ISE (integral square error) and IAE (integral absolute error). In industrial processes, PID controllers and its variants are most preferred though there are significant developments in the control systems. If the parameter of controller is not properly designed, then desired control output may fail. The simulation results with optimized I-PD controller proved to be giving better performances compared with Ziegler Nichols and Arvanitis tuning.
Keywords: Proportional integral and derivative (PID); Proportional kick; Derivative kick; Settling time; Rise time and Tuning.

References:

Authors: K.M.Pandey, Jagannath Rajshekharan and Sukanta Roga
Paper Title: Wall Static Pressure Variation In Sudden Expansion In Flow Through De Laval Nozzles At Mach 1.74 And 2.23 In Circular Ducts Without Cavities: A Fuzzy Logic Approach
Abstract: In this paper the analysis of wall static pressure variation has been done with fuzzy logic approach to have smooth flow in the duct. Here there are three area ratio choosen for the enlarged duct, 2.89, 6.00 and 10.00. The primary pressure ratio is taken as 2.65 and cavity aspect ratio is taken as 1 and 2. The study is analysed for length to diameter ratio of 1.24 and 6. The nozzles used are De Laval type and with a Mach number of 1.74 and 2.23. The analysis based on fuzzy logic indicates that the length to diameter ratio of 1 is sufficient for smooth flow development if only the basis of wall static pressure variations is considered. Although these results are not consistent with the earlier findings but this opens another method through which one can analyse this flow. This result can be attributed to the fact that the flow coming out from these nozzles are parallel one.
Keywords: wall static pressure, area ratio, pressure ratio, De Laval nozzle, Mach number.

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50. 299-302

51. 303-310

Authors: S.Joshuwa, E.Sathishkumar, S.Ramsankar

Paper Title: Advanced Rotor Position Detection Technique for Sensorless BLDC Motor Control

Abstract: Brushless DC Motor drives have made a successful entrance into various sectors of industry such as aerospace, automotive and home appliances due to its simple structure. The accurate knowledge of the rotor position is required for good performance of brushless DC motors the need for the rotor angle information in BLDC has been satisfied by use of some form of rotor position sensor. The position sensor used in BLDC drives have the disadvantages of additional cost, electrical connections, mechanical alignment problems, and disadvantage of being inherent source of unreliability. These bottlenecks results in several sensor less technique in recent years. A proposed sensor less scheme is used to overcome the disadvantages of sensored scheme. The rotor position detection can be estimated even at standstill and running conditions. The methods which is proposed in this project is 1. Back EMF ZCD 2. RF Injection method.

Keywords: Brushless DC Motor, Back EMF ZCD

References:

Performance Analysis of an InGaAs Based p-i-n Photodetector

Abstract: an InGaAs based p-i-n photodetector model is chosen in order to find out quantum efficiency, photocurrent density, and normalized frequency response with and without RC effect. Normalized frequency response is the most important factor in order to analyze the performance of p-i-n photodetector. Quantum efficiency, photocurrent density, normalized frequency response curves are obtained by formulation which is done from structure and MATLAB simulation. A relation for the fiber-to-waveguide coupling efficiency has also been used to calculate the overall quantum-efficiency of waveguide photodetector [1]. Normalized frequency response is obtained by varying value of frequency dependent transfer function of equivalent circuit model of p-i-n photodetector with frequency. For enhancing bandwidth of photodetector, the parametric values of photodetector such as reverse bias junction capacitance and resistance, has been optimized. The effect of carrier trapping at a heterointerface has also been considered to study the frequency dependence of the photocurrent at low-bias voltages [1].

Keywords: p-i-n photodetector, quantum efficiency, photocurrent density, normalized frequency response.

References:

New Approach of Data Encryption Standard Algorithm

Abstract: The principal goal guiding the design of any encryption algorithm must be security against unauthorized attacks. Within the last decade, there has been a vast increase in the accumulation and communication of digital computer data in both the private and public sectors. Much of this information has a significant value, either directly or indirectly, which requires protection. The algorithms uniquely define the mathematical steps required to transform data into a cryptographic cipher and also to transform the cipher back to the original form. Performance and security level is the main characteristics that differentiate one encryption algorithm from another. Here introduces a new method to enhance the performance of the Data Encryption Standard (DES) algorithm is introduced here. This is done by replacing the predefined XOR operation applied during the 16 round of the standard algorithm by a new operation depends on using two keys, each key consists of a combination of 4 states (0, 1, 2, 3) instead of the ordinary 2 state key (0, 1). This replacement adds a new level of protection strength and more robustness against breaking methods.

Keywords: DES, Encryption, Decryption.

References:
2. O.P. Verma, Ritu Agarwal, Dhiraj Dafouti,Shobha Tyagi “ Performance Analysis Of Data Encryption Algorithms “, 2011
8. J.Orlin Grabbe “The DES Algorithm Illustrated”

An Improved Fuzzy-Based CPU Scheduling (IFCS) Algorithm for Real Time Systems

Abstract: The principal goal guiding the design of any encryption algorithm must be security against unauthorized attacks. Within the last decade, there has been a vast increase in the accumulation and communication of digital computer data in both the private and public sectors. Much of this information has a significant value, either directly or indirectly, which requires protection. The algorithms uniquely define the mathematical steps required to transform data into a cryptographic cipher and also to transform the cipher back to the original form. Performance and security level is the main characteristics that differentiate one encryption algorithm from another. Here introduces a new method to enhance the performance of the Data Encryption Standard (DES) algorithm is introduced here. This is done by replacing the predefined XOR operation applied during the 16 round of the standard algorithm by a new operation depends on using two keys, each key consists of a combination of 4 states (0, 1, 2, 3) instead of the ordinary 2 state key (0, 1). This replacement adds a new level of protection strength and more robustness against breaking methods.

Keywords: DES, Encryption, Decryption.

References:
2. O.P. Verma, Ritu Agarwal, Dhiraj Dafouti,Shobha Tyagi “ Performance Analysis Of Data Encryption Algorithms “, 2011
8. J.Orlin Grabbe “The DES Algorithm Illustrated”
**Abstract:** Till now various types of scheduling algorithms are used for determining which process should be executed by the CPU when there are multiple no. of processes to be executed. There are many conventional approaches to schedule the tasks but no one is absolutely ideal. In this paper an improved fuzzy technique has been proposed to overcome the drawbacks of other algorithms for better CPU utilization, throughput and to minimize waiting time and turn around time.

**Keywords:** Task, process, fuzzification, priority, cpu utilization, fuzzy scheduler, turnaround time, scheduling efficiency

**References:**

**Authors:** Sripathy Mallahia, Krishna Vinayak Sharma, M Krishna

**Paper Title:** Development and Comparative Studies of Bio-based and Synthetic Fiber Based Sandwich Structures

**Abstract:** The present work was to focus on the investigation of the flexural and fatigue behaviour of flatwise, edgewise compression and water absorption of E-glass/epoxy, jute/epoxy, bamboo/epoxy, glass-jute/epoxy, glass-bamboo, Jute/bamboo/Polyurethane foam sandwich composites. Both natural and synthetic based sandwich composites were synthesized with different fabric and polyurethane foam. The fiber/resin ration for glass/epoxy is 65:35 and all other natural fibers composites are 50:50 ratio of fibre to resin weight fraction. The sandwich specimens were prepared by hand adopting the lay-up method. This was followed by compression at room temperature. Bamboo/glass hybrid structure yields higher value of core shear stress and facing bending stress. This is higher than both pure glass, bamboo. This shows how effectively hybridization can be used to tailor materials for our specific use.

**Keywords:** Natural fiber, polyurethane foam, sandwich structure, synthetic fiber.

**References:**

**Authors:** Shyama M, P.Swaminathan

**Paper Title:** Digital Linear and Nonlinear Controllers for Buck Converter

**Abstract:** Both linear PID controllers and fuzzy controllers are designed and implemented for a buck converter. Comparison between the two controllers is made in the aspect of design, implementation and experimental results. Design of fuzzy controllers is based on heuristic knowledge of the converter and tuned using trial and error, while the design of linear PID and PI controllers is based on the frequency response of the buck converter. Implementation of linear controllers is quite straightforward, while implementation of fuzzy controllers has its unique issues. A comparison of experimental results indicates that the performance of the fuzzy controller is superior to that of the linear PID and PI controllers. The fuzzy controller is able to achieve faster transient response, has more stable steady-state response, and is more robust under different operating points.

**Keywords:** DC-DC Converter, Buck Converter, PID controller, Fuzzy logic controller

**References:**
References:

Authors: U.L.Sindhu, V.Sindhu, P.S.Balamurugan

Paper Title: Privacy Aware Monitoring Framework For Moving Top-K Spatial Join Queries

Abstract: In moving object environment, it’s unfeasible for database to track the random object movement and to store the locations of object exactly all the times. The basic issue in case of moving object monitoring is efficiency and privacy. We used a framework for moving object to hide their own identities by execution of probabilistic range monitoring queries. The Privacy-aware monitoring framework for spatial join queries which is flexible, it addresses two issues; such as “efficiency and privacy” in monitoring moving object. Because of blurring exact position of object and increase in unnecessary updates costs it’s not possible to provide accurate result. So, we propose an efficient processing of continuously moving top-k spatial keyword (MKSK) queries over spatial query processing for the problem of privacy aware monitoring framework. This develop an efficient query processing, evaluation and reevaluation based on spatial queries which could be effective for computing safe zones that guarantee correct results until the user remains in safe zone, the reported results will be valid and no limiting of frequent updates from objects. The Voronoi Cell Optimization technique which accelerates depth sorting by clustering polygon has been implemented. Our solution is common for moving queries employ safe zones. In our performance study, we compare it with an existing approach using simulation. Our proposed approach outperforms than the conventional approaches without compromising much on the concept of safe zone to save computation and communication costs.

Keywords: Nearest-neighbor queries; probabilistic queries; range queries; spatial databases

References:

Authors: Swagatika Devi

Paper Title: K-ANONYMITY: The History of an IDEA

Abstract: Publishing data about individuals without revealing sensitive information about them is an important problem. In recent years, a new definition of privacy called k-anonymity has gained popularity. In a k-anonymized dataset, each record is indistinguishable from at least k–1 other records with respect to certain “identifying” attributes. In this paper, we discuss the concept of k-anonymity, from its original proposal illustrating its enforcement via generalization and suppression. We also discuss different ways in which generalization and suppression can be

References: 343-346

Authors: Swagatika Devi

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References: 347-352
applied to satisfy k-anonymity. By shifting the concept of k-anonymity from data to patterns, we formally characterize the notion of a threat to anonymity in the context of pattern discovery. We provide an overview of the different techniques and how they relate to one another. The individual topics will be covered in sufficient detail to provide the reader with a good reference point. The idea is to provide an overview of the field for a new reader from the perspective of the data mining community.

Keywords: K-Anonymity, Generalization, Suppression, Pattern discovery.

References:

Authors: V.Sindhu, U.L.Sindhu, P.S.Balamurugan

Paper Title: Efficient and Dynamic Behaviour of Continuous Query in Unstructure Overlay Network

Abstract: The main objective of the peer to peer content distribution systems are to register for a long term presence in the network and to publish its own data to that network. These requirements can be done by having some set of indexing and routing techniques. For this solution, a sequence of approaches has already been proposed by the existing researchers. But these approaches are not flexible for these systems and too complex. In the unstructured p2p system it uses to retrieve the data if it matches. Also, certain limitations are obtained. In order to solve this problem, we propose an approach of continuous query in unstructured overlay network with consistency maintenance. In peer-to-peer, consistency maintenance is widely used techniques for high system performance. This approach is to support the continuous queries in unstructured overlay networks. It achieves high efficiency and consistency maintenance at a significantly low cost. Simulation results demonstrate the effectiveness of our proposed approach in comparison with existing approaches.

Keywords: consistency maintenance, continuous query, peer to peer

References:

Authors: K.Thirumalai kannan, B.Senthil Kumar

Paper Title: Heat Transfer and Fluid Flow Analysis in Plate-Fin and Tube Heat Exchangers with Different Shaped Vortex Generators

Abstract: Numerical analyses were carried out to study the heat transfer and flow in the plate-fin and tube heat exchangers with different shaped vortex generators mounted behind the tubes. The effects of different span angles α (α = 30°, 45° and 60°) are investigated in detail for the Reynolds number ranging from 500 to 2500. Numerical simulation was performed by computational fluid dynamics of the heat transfer and fluid flow. The results indicated that the triangle shaped winglet is able to generate longitudinal vortices and improve the heat transfer performance in the wake regions. The case of α = 45° provides the best heat transfer augmentation than rectangle shape winglet

References:
generator in case of inline tubes. Common flow up configuration causes significant separation delay, reduces form drag, and removes the zone of poor heat transfer from the near wake of the tubes.

**Keywords:** Vortex generator; Common flow up; Heat transfer enhancement; Plate-fin and tube heat exchanger.

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19. Yunus A.Cengel “Fluid mechanics”

**Authors:** K.M.Pandey, S.Chakraborty, K.Deb

**Paper Title:** CFD Analysis of Flow through Compressor Cascade

**Abstract:** This work aims at analyzing the flow behavior through a compressor cascade with the help of Computational Fluid Dynamics using the FLUENT software. An attempt has been made to study the effect of angle of attack or flow incidence on various flow parameters viz. static pressure, dynamic pressure, turbulence and their distribution in the flow field and predict the optimum range of angle of attack based on the above observations. Particularly, two principle parameters viz. the static pressure rise for the compressor cascade and the turbulence kinetic energy are considered in this analysis. It is observed that maintaining a slightly positive angle of flow incidence of +2 to +6 degrees is advantageous.

**Keywords:** Cascade, CFD, Total Pressure, Temperature Magnitude, Viscosity, Thermal Conductivity

**References:**


**Authors:** K.M.Pandey, Sushil Kumar, Jyoti Prakash Kalita

**Paper Title:** Wall Static Pressure variation in sudden expansion in cylindrical ducts with cavities for supersonic flow for Mach 1.58 and 2.06: A Fuzzy Logic Approach

**Abstract:** In this paper the analysis of wall static pressure variation has been done with fuzzy logic approach to have smooth flow in the duct. Here there are three area ratio chosen for the enlarged duct, 2.89, 6.00 and 10.00. The primary pressure ratio is taken as 2.65 and cavity aspect ratio is taken as 1 and 2. The study is analyzed for length to diameter ratio of 1.24 and 6. The nozzles used are De Laval type and with a Mach number of 1.74 and 2.23 and conical nozzles having Mach numbers of 1.58 and 2.06. The analysis based on fuzzy logic theory indicates that the length to diameter ratio of 1 is sufficient for smooth flow development if only the basis of wall static pressure
variations is considered.

Keywords: air ratio, De Laval nozzle, Mach number, pressure ratio, wall static pressure.

References:

Authors: Wiqas Ghai, Navdeep Singh

Paper Title: Analysis of Automatic Speech Recognition Systems for Indo-Aryan Languages: Punjabi A Case Study

Abstract: Punjabi, Hindi, Marathi, Gujarati, Sindhi, Bengali, Nepali, Sinhala, Oriya, Assamese, Urdu are prominent members of the family of Indo-Aryan languages. These languages are mainly spoken in India, Pakistan, Bangladesh, Nepal, Sri Lanka and Maldives. All these languages contain huge diversity of phonetic content. In the last two decades, few researchers have worked for the development of Automatic Speech Recognition Systems for most of these languages in such a way that development of this technology can reach at par with the research work which has been done and is being done for the different languages in the rest of the world. Punjabi is the 10th most widely spoken language in the world for which no considerable work has been done in this area of automatic speech recognition. Being a member of Indo-Aryan languages family and a language rich in literature, Punjabi language deserves attention in this highly growing field of Automatic speech recognition. In this paper, the efforts made by various researchers to develop automatic speech recognition systems for most of the Indo-Aryan languages, have been analysed and then their applicability to Punjabi language has been discussed so that a concrete work can be initiated for Punjabi language.
Keywords: Maximum likelihood linear regression, Learning vector quantization, Multi layer perceptron, Cooperative heterogeneous artificial neural network.

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Authors: R. Kandiban, R. Arulmozhiyal

Paper Title: Design of Adaptive Fuzzy PID Controller for Speed control of BLDC Motor

Abstract: Brushless DC motors (BLDCM) are widely used for many industrial applications because of their high efficiency, high torque and low volume. This paper proposed an improved Adaptive Fuzzy PID controller to control speed of BLDCM. This paper provides an overview of performance conventional PID controller, Fuzzy PID controller and Adaptive Fuzzy PID controller. It is difficult to tune the parameters and get satisfied control characteristics by using normal conventional PID controller. As the Adaptive Fuzzy has the ability to satisfy the control characteristics and it is easy for computing. The experimental results verify that a Adaptive Fuzzy PID controller has better control performance than the both Fuzzy PID controller and conventional PID controller. The modelling, control and simulation of the BLDC motor have been done using the software package MATLAB/SIMULINK.

Keywords: Brushless DC (BLDC) motors, proportional integral derivative (PID) controller, Fuzzy PID controller, Adaptive Fuzzy PID controller.

References:
9. Shreya Jain, Samta Gajbhiye

Paper Title: Comparing and Selecting Appropriate Measuring Parameters for K-means Clustering Technique

Abstract: Clustering is a powerful technique for large scale topic discovery from text. It involves two phases: first, feature extraction maps each document or record to a point in a high dimensional space, then clustering algorithms automatically group the points into a hierarchy of clusters. Hence to improve the efficiency & accuracy of mining task on high dimensional data the data must be pre-processed by an efficient dimensionality reduction method. Recently cluster analysis is popularly used data analysis method in number of areas. K-Means is one of the well

Authors: Shreya Jain, Samta Gajbhiye

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Abstract: Clustering is a powerful technique for large scale topic discovery from text. It involves two phases: first, feature extraction maps each document or record to a point in a high dimensional space, then clustering algorithms automatically group the points into a hierarchy of clusters. Hence to improve the efficiency & accuracy of mining task on high dimensional data the data must be pre-processed by an efficient dimensionality reduction method. Recently cluster analysis is popularly used data analysis method in number of areas. K-Means is one of the well
known partitioning based clustering technique that attempts to find a user specified number of clusters represented by their centroids. In this paper, a certain k-means algorithm for clustering the data sets is used and the algorithm outputs k disjoint clusters each with a concept vector that is the centroid of the cluster normalized to have unit Euclidean norm. Also in this paper, we deal with the analysis of different sets of k-values for better performance of the k-means clustering algorithm.

**Keywords:** Data Mining, Text Mining, Clustering, K-Means Clustering, Silhouette plot.

**References:**
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**Authors:** Vimala.C, V.Radha

**Paper Title:** A Family of Spectral Subtraction Algorithms for Tamil Speech Enhancement

**Abstract:** Speech enhancement aims to improve the speech quality by using various techniques and algorithms. Over the past several years there has been considerable attention focused on the enhancement of speech degraded by several types of noise. The degradation of speech due to the presence of noise causes severe difficulties in various communication environments. Noise suppression has numerous applications like Human Computer Interaction, hands-free communications, Voice over IP (VoIP), hearing aids, teleconferencing system etc. For this issue there is always a unique need for the technique which offers expected outcome with limited complexity in implementation. Hence, in this paper a family of spectral subtraction techniques is employed for Tamil speech noise cancellation due to its simplicity. The algorithms adopted for this research work are namely basic spectral subtraction, Non linear Spectral Subtraction, MultiBand Spectral Subtraction, Minimum Mean Square Error (MMSE), and Log Spectral MMSE. All these algorithms are analyzed and implemented for two types of noises namely white and babble noise. The performances of these algorithms are estimated based on SNR and MSE measures. Based on the experimental results, the Non linear spectral subtraction algorithm provides better results than any other adopted algorithms.

**Keywords:** Speech enhancement, Tamil Speech, Spectral Subtraction, Non linear Spectral Subtraction, MMSE, Log Spectral MMSE, SNR and MSE.

**References:**

**Authors:** Sachin Kumar, Niraj Singhal

**Paper Title:** A Study on the Assessment of Load Balancing Algorithms in Grid Based Network

**Abstract:** Grid computing comprises of distributed computer systems which are geographically dispersed to share the combination of resources in a heterogeneous environment. The ever varying and increasing demands of the computational resources have generated the need for solutions that are more flexible. With the use of a high tech computer that has more and faster processors and auxiliary storage space or more RAM (random access memory), it is not well enough for a solution as the system usage patterns differ. A grid based distributed system can solve this problem by allowing multiple independent jobs to run over a network with heterogeneous computing nodes. A
network-aware load balancing algorithms that are dynamic as well as quick are the requirement of a network of computers to keep the workload balanced, represented by these jobs. The purpose of this paper is to review various different load balancing algorithms for the grid based distributed network, identify several comparison metrics for the load balancing algorithms and to carry out the comparison based on these identified metrics between them.

**Keywords:** dynamic load balancing algorithms; grid based distributed network; comparison metrics; Heterogeneous node; Load Balancing Policy

**References:**

**Authors:** Sonam Shukla, Pradeep Mishra

**Paper Title:** A Hybrid Model of Multimodal Biometrics System using Fingerprint and Face as Traits

**Abstract:** The issues associated with identity usurpation are currently at the heart of numerous concerns in our modern society. Establishing the identity of individuals is recognized as fundamental to the numerous administrative operations. Identity documents (IDs) are tools that permit the bearers to prove or confirm their identity with a high degree of certainty. In response to the dangers posed by theft or fraudulent use of identity documents and security threats, a wide range of biometric technologies is emerging, covering e.g. face, fingerprint and iris. They are also proposed to enforce border control and check-in procedures. These are positive developments and they offer specific solutions to enhance document integrity and ensure that the bearer designated on the document is truly the person holding it. Biometric identifiers - conceptually unique attributes - are today portrayed as the panacea for identity verification. Biometrics is the science and technology of measuring and analyzing biological data of human body, extracting a feature set from the acquired data, and comparing this set against to the template set in the database. Experimental studies show that Unimodal biometric systems had many disadvantages regarding performance and accuracy. Multimodal biometric systems perform better than unimodal biometric systems and are popular even more complex also. We examine the accuracy and performance of multimodal biometric authentication systems using state of the art Commercial Off- The-Shelf (COTS) products. Here we discuss fingerprint and biometric systems, decision and fusion techniques used in these systems. We also discuss their advantage over unimodal biometric systems.

**Keywords:** Fingerprint Recognition; Binarization; Block Filter Method; Matching score and Minutia; Face Recognition; Face Mask; Mask Fitting and Warping.

**References:**
8. X.Li , G. Mori , H.Zhang ; Expression-Invariant Face Recognition with Expression Classification.
This paper deals with LMMSE-based denoising scheme with a wavelet interscale model and Joint bilateral Filter in spatial domain. The proposed algorithm consists of two stages. In the first stage, a vector is represented by the wavelet coefficients at the same spatial locations at two adjacent scales and the LMMSE is applied to the vector. Compare to Orthogonal Wavelet Transform (OWT), Overcomplete Wavelet Expansion (OWE) provides better results hence it is employed. While applying the LMMSE rule, the important features in an image like edges, curves and textures can be identified. Also spatial domain method output provides a high quality denoising image than wavelet method with fewer artifacts; hence this wavelet domain output as a reference image for the Joint Bilateral Filter (JBF). By using this reference image and the non-linear combination of information of adjacent pixel, the edge details of the images can be preserved in a well manner. The experimental results prove that the proposed approach is competitive when compared to other denoising methods in reducing various types of noise. Also the proposed algorithm outperforms other methods both visually and in case of objective quality peak-signal-to-noise ratio (PSNR).

Keywords: Image Denoising; Joint Bilateral Filter; Multiscale LMMSE; Interscale Wavelet Model.

References:
Abstract: This paper provides the design for air conditioning system using fuzzy logic as well as neuro-fuzzy method. Inputs taken for the air conditioning system are from temperature and humidity sensors and the output is to control the compressor speed. The simulation results of both systems using fuzzy logic and neuro-fuzzy are shown as well as compared to signify better of the two.

Keywords: Air Conditioning system, fuzzy logic control, neuro-fuzzy, rule base.

References:

Authors: Maneesha Sharma, Himani Bansal, Amit Kumar Sharma

Paper Title: Cloud Computing: Different Approach & Security Challenge

Abstract: Cloud computing has generated a lot of interest and competition in the industry and it is recognized as one of the top 10 technologies of 2010[1]. It is an internet based service delivery model which provides internet based services, computing and storage for users in all market including financial, health care & government. In this paper we did systematic review on different types of clouds and the security challenges that should be solved. Cloud security is becoming a key differentiator and competitive edge between cloud providers. This paper discusses the security issues arising in different type of clouds.

Keywords: Cloud, Security, Security challenges, Cloud computing

References:

Authors: Alagendran B, Manimurugan S

Paper Title: A Survey on Various Medical Image Compression Techniques

Abstract: Medical images are much important in the field of medicine , all these medical images are need to be stored for future reference of the patients and their hospital findings hence, the medical image need to undergo the process of compression before storing it. On these days of medical advancement there exist many compression techniques. This paper investigates mainly on the various types of medical image compression techniques that are existing, and putting it all together for a literature survey. Scope of this study focuses on the different available medical image compression techniques with their performance results.

Keywords: Discrete Cosine Transform, Discrete Wavelet Transform, Medical Image Compression, Set Partitioning in Hierarchical Trees,

References:

Authors: John Justin M, Manimurugan S

Paper Title: A Survey on Various Encryption Techniques

Abstract: This paper focuses mainly on the different kinds of encryption techniques that are existing, and framing all the techniques together as a literature survey. Aim an extensive experimental study of implementations of various available encryption techniques. Also focuses on image encryption techniques, information encryption techniques, double encryption and Chaos-based encryption techniques. This study extends to the performance parameters used in encryption processes and analyzing on their security issues.

Keywords: Chaotic Encryption, Double Encryption, Image Encryption, Information Encryption

References:

Authors: N.Devi, V.Nagarajan

Paper Title: FPGA Based High Performance Optical Flow Computation Using Parallel Architecture

Abstract: The proposed work describes a highly parallel architecture for high performance optical flow computation. This system implements the efficient Lucas and Kanade algorithm with multi-scale extension for the computation of large motion estimations. This work deals with the architecture, evaluation of the accuracy and system performance. It also has extension to the original L&K algorithm. So the capable of working is larger than the standard mono scale approaches. In this proposed system, Matlab and Modelsim simulation are selected for local optical flow algorithms due to their potential for a high-performance massive parallelization. The results are obtained with a throughput of one pixel per clock cycle along the whole processing scheme by using the fine-pipeline based architecture.

Keywords: FPGA, Lukas kanade algorithm, Pipelining

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Authors: M.Jenath, V.Nagarajan

Paper Title: FPGA Implementation On Reversible Floating Point Multiplier

Abstract: Field programmable gate arrays (FPGA) are increasingly being used in the high performance and scientific computing community to implement floating-point based system. The reversible single precision floating point multiplier (RSPFPM) requires the design of reversible integer multiplier (24:24) based on operand decomposion approach. Reversible logic is used to reduce the power dissipation than classical logic and do not loss the information bit which finds application in low power computing, quantum computing, optical computing, and other emerging computing technologies. Among the reversible logic gates, Peres gate is utilized to design the multiplier since it has lower quantum cost. Operators of the multiplier is decomposed into three partitions of 8 bits each using operand decomposition method. Thus the 24:24 bit reversible multiplication is performed through nine reversible 8x8 bit multipliers and output is summed to yield an efficient multiplier optimized in terms of quantum cost, delay, and garbage outputs. This proposed work is designed and developed in the VHSCIC hardware description language (VHDL) code and simulation is done using Xilinx 9.1.simulation tool.

Keywords: Reversible logic gates, reversible logic circuits, reversible multiplier circuits, quantum computing, Nanotechnology based systems.

References:


Authors: M.Amarendra, S.Srikanth, G. Siva Suteja, B.Prasanna lakshmi, K.Madhavi latha

Paper Title: Fast and Slow Transient Response of WECS with Simultaneous Actions

Abstract: This paper details the transient operation of a wind energy conversion system (WECS) used simultaneously as an ac- tive filter and power generator. This study is intended to address the system response to two types of transient phenomena: voltage dips (fast transients) and wind speed variations (slow transients). The system response to voltage dips is governed by the electrical system dynamics and control method and results in the evaluation of the WECS low-voltage ride through capability. The study of the system response to wind speed variations requires a complete mechanical model to be included. Simulation results are presented for a typical WECS, and a discussion is carried out dealing with the generalization of the present work to other configurations.

Keywords: Doubly fed induction generator(DFIG), Harmonic compensation, Low-voltage ride through (LVRT), Transients, Wind energy conversion systems(WECs).

References:


Authors: K.Nageswara Rao, D.RajyaLakshmi, T.Venkateswara Rao

Paper Title: Robust Statistical Outlier based Feature Selection Technique for Network Intrusion Detection

Abstract: For the last decade, it has become essential to evaluate machine learning techniques for web based intrusion detection on the KDD Cup 99 data set. Most of the computer security breaches cannot be prevented using access and data flow control techniques. This data set has served well to identify attacks using data mining. Furthermore, selecting the relevant set of attributes for data classification is one of the most significant problems in designing a reliable classifier. Existing C4.5 decision tree technology has a problem in their learning phase to detect automatic relevant attribute selection, while some statistical classification algorithms require the feature subset to be selected in a preprocessing phase. Also, C4.5 algorithm needs strong preprocessing algorithm for numerical attributes in order to improve classifier accuracy in terms of Mean root square error. Irrelevant features in the network attack data may degrade the performance of attack detection in the decision tree classifiers. In this paper, we evaluated the influence of attribute pre-selection using Statistical techniques on real-world kddcup99 data set. Experimental result shows that accuracy of the C4.5 classifier could be improved with the robust pre-selection approach when compare to traditional feature selection techniques.

Keywords: Normalization, Network security, data mining, intrusion detection, filtering.

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Authors: CheeFai Tan, Ranjit Singh Sarban Singh, Mohd. Rizal Alkahari

Paper Title: Water Pressure Loss Analysis of Mobile Machine for Fire Fighting Purpose

Abstract: Fire fighting is risky profession. They are not only extinguishing fires in tall buildings but also must drag heavy hoses, climb high ladders and carry people from buildings and other situations. There are many fire fighting officers lost their lives in the line of duty each year throughout the world. The statistics of the fire fighting fatality is still increasing day by day. The paper describes the water pressure loss analysis of mobile fire fighting machine prototype.

Keywords: Fire Fighting, Mobile Machine, Pressure Loss Analysis.

References:

Authors: A.Nirmal Kumar, B.G.Geetha

Paper Title: Achieving Software Engineering Knowledge Items with an Unit Testing Approach

Abstract: Classification makes a vital role to advancing knowledge in both science and engineering. It is a process of investigating the relationships between the objects to be classified and identifies gaps in knowledge. Classification in engineering also has a practical application. They can help maturing Software Engineering knowledge, as classifications constitute an organized structure of knowledge items. Till date, in existing system, there have been few attempts at classifying in test cases. In this research, we examine how useful classifications in Software Engineering are for advancing knowledge by trying to classify testing techniques. This paper presents a preliminary classification of a set of unit testing techniques. To obtain this classification, we enacted a generic process for developing useful Software Engineering classifications. The proposed classification has been proven useful for maturing knowledge about testing techniques. SE helps to: 1) provide a systematic description of the techniques,2) understand testing techniques by studying the relationships among techniques (measured in terms of differences and similarities), 3) identify potentially useful techniques that do not yet exist by analyzing gaps in the classification, and 4) support practitioners in testing technique selection by matching technique characteristics to project characteristics.

Keywords: Classification, software engineering, testing, test design techniques, testing techniques, unit testing techniques.

References:


Authors: Sumit Kumar Banchhor, Om Prakash Sahu, Prabhakar

Paper Title: A Speech/Music Discriminator based on Frequency energy, Spectrogram and Autocorrelation

Abstract: Over the last few years major efforts have been made to develop methods for extracting information from audio-visual media, in order that they may be stored and retrieved in databases automatically, based on their content. In this work we deal with the characterization of an audio signal, which may be part of a larger audio-visual system or may be autonomous, as for example in case of an audio recording stored digitally on disk. Our goal was first to develop a system for segmentation of the audio signal, and then classify into one of two main categories: speech or music. Segmentation is based on mean signal amplitude distribution, whereas classification utilizes an additional characteristic related to frequency. The basic characteristics are computed in 2sec intervals, resulting in the segments’ limits being specified within an accuracy of 2sec. The result shows the difference in human voice and musical instrument.

Keywords: Speech/music classification, audio segmentation, zero crossing rate, short time energy, spectrum flux.

References:
8. Ruan boyao. The application of PCNN on speaker recognition based on spectrogram. Master Degree Dissertations of Wuyi University, 2008.

Authors: Patimakorn Jantaraprim, Pornchai Phukpattaranont

Paper Title: Fall Detection for the Elderly using a Support Vector Machine

Abstract: We propose a short time min-max feature for improving fall detection performance based on the specific signatures of critical phase fall signal, acquired using a tri-axial accelerometer on a torso. Our proposed feature has been validated by a Support Vector Machine with two-fold cross-validation. Fall and scripted activities were tested in the experiment. Performance was evaluated by comparing the short time min-max with a maximum peak feature. The results obtained from 420 sequences show that the performances of short time min-max feature can approach 98.2%
sensitivity and 100% specificity for a radial basis function kernel, which are better than those from the maximum peak feature for all testing kernels. The short time min-max feature also uses one sensor for the body’s position without a fixed threshold for 100% sensitivity or specificity, and without additional processing of a posture after a fall. The simplicity and high performance of our proposed feature makes it suitable for implementation on a microcontroller for use in practical situations. Chusak Limsakul, Booncharoen Wongkittisuksa

**Keywords:** Fall detection, Critical phase, Short time min-max feature, Support Vector Machine.

**References:**


**Authors:** Pooja Yadav, Ravindra Prakash Gupta

**Paper Title:** Weighted Code Transmission In Optical CDMA

**Abstract:** In this paper, the comparative analysis of a fibre optics CDMA system with or without weighted code is presented using Matlab simulation. By changing various parameters of the systems, we compare two systems in terms of BER. As the number of active users increases the BER increases. It is found that the system using weighted code is better.

**Keywords:** CDMA, BER, Weighted Code

85. References:


**Authors:** Nidhi Pandey, Shashank Sahu, P. Ahmed

**Paper Title:** Automated Requirements Gathering using Intelligent Agents for e-Learning System

**Abstract:** The software requirements gathering process can be automated using intelligent agents. Such agents can be created to capture the requirements, as and when they may evolve during the requirements elicitation, analysis and negotiations, specification, documentation and validation phases. In this paper we present an intelligent agent-based model for e-learning system environment. In this system three types of agents namely: Adviser Agent, Content Managing Agent and Personalization Agents have been developed. The major advantage of this model is that these agents can evolve in the course of their operations by enhancing their capabilities through their ever increasing learning abilities.

**References:**

Keywords: e-learning environment, Intelligent Agent, Requirement Engineering

References:

Authors: P. Samundiswary, S. R. Anandkumar

Paper Title: Throughput Analysis of Energy Aware Reactive Routing Protocol for Wireless Sensor Networks

Abstract: Wireless Sensor Networks (WSNs) consist of thousands of small sensor nodes with sensing, computation and wireless communication capabilities. The main challenging task in WSN is routing. There are various types of routing protocols available for WSN. Ad hoc On-demand Distance Vector (AODV) routing protocol is one of routing protocols for mobile sensor networks. AODV avoids the counting-to-infinity problem of other distance-vector protocols by using sequence numbers on route updates, a technique pioneered by Destination Sequence Distance Vector (DSDV). This protocol utilizes the shortest route for communication between nodes. Hence, energy consumption and battery power of nodes is increased by using the same nodes with shortest route for communication several times. Energy efficient Ad hoc On-demand Distance Vector (EAODV) routing protocol is developed by incorporating energy aware algorithm along with the shortest route in the existing Ad hoc On-demand Distance Vector Routing protocol to reduce battery power and lifetime of WSN. In this paper, throughput performance of EAODV and AODV protocols has been examined and compared by varying packet size in CBR traffic, packet rate, coverage area and number of packets with the help of ns-2 simulator.

Keywords: DSDV, WSNs, AODV

References:

Authors: N. Rajasekhar Reddy, R.J.Ramasree

Paper Title: Software Quality Modeling and Current State of the Art

Abstract: Software Quality Assurance plays a key role in software development. The research is mainly aimed at considered prior research, present working status and to restore the gaps between them with present known information. Here, we conduct a review on current state of the art in software quality evaluation and assurance models.

Keywords: SQA, Product metrics, software science, size-defect relationship, measurement applied to SQA, Terms—Software as a service (SaaS), software selection, service utility
References:


