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#### Authors: Pramada Valli, Sudhir Mathur

**Paper Title:** A knowledge-based database on municipal waste in road construction applications

**Abstract:** Municipal Solid Wastes (MSW) are generated /available in huge quantities. Quite a large amount of solid rubbish is contributed by our households in the form of domestic wastes which constitute heaps of municipal refuse poses serious disposal problems. If these wastes are not properly disposed off, this can prove perilous and environmental hazard. Such places often become a home for rats, flies, bacteria, mosquitoes and a large number of vectors, having the potential of causing many human diseases. The damage to the environment by the uncontrolled disposal of solid wastes can be clearly seen. The waste is dumped in the streets awaiting transport to the disposal sites and into the river. The damage to the environment by the uncontrolled disposal of solid wastes can be clearly visualized. Thus it is imperative for a large-scale utilization of MSW or Municipal Waste (MW) in the construction of roads. MSW information is available in the form of research papers, articles, reports etc. However such information is scattered and is not available at one place for the prospective users. Keeping the above in view, it is intended to develop MSW and Municipal Waste Combustor Ash (MWCA) (is the solid residue that remains after the combustion of municipal solid waste) information database which contain detail information in program description file. The program description file on MSW and MWCA provides the user with general information, detailed production and use, engineering and laboratory tests, and environmental information. Developed database is useful in road construction, as well as recommendations for monitoring field trials and also to make the same available to the user at one place which will be Window based and can be used very easily and conveniently.

**Keywords:** Application, engineering properties, program description screens specification, and VISUAL BASIC

**References:**

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### Authors: R. Hari Kumar, T. Vijaya Kumar

**Paper Title:** Performance Analysis of Soft Decision Trees Models for Fuzzy Based Classification of Epilepsy Risk Levels from EEG Signals

**Abstract:** The purpose of this research is to investigate the feasibility of Game theory based Max-Min optimization of fuzzy outputs for the classification of epilepsy risk levels from EEG (Electroencephalogram) signals. The fuzzy pre classifier is used to classify the risk levels of epilepsy based on extracted parameters like energy, variance, peaks, sharp and spike waves, duration, events and covariance from the EEG signals of the patient. Max–Min SDT (Soft Decision Tree) as post classifier with four methods is applied on the classified data to identify the optimized risk level (singleton) that characterizes the patient’s epilepsy risk level. The efficacy of the above methods is compared based on the bench mark parameters such as Performance Index (PI) and Quality Value (QV). A group of ten patients with known epilepsy findings are used for this study. High PI such as 94.56 % was obtained at QV’s of 22.42 in the SDT optimization when compared to the value of 40% and 6.25 through fuzzy classifier respectively. We identified that the SDT provides a better performing tool for optimizing the epilepsy risk levels

**Keywords:** EEG Signals, Epilepsy, Fuzzy Logic, Max-Min Soft Decision Trees, Risk Levels

**References:**


Authors: Dipy Sharma, Parteek Bhatia

Paper Title: Spatial Application of city using Oracle Spatial Database, MapViewer, and Map Builder

Abstract: It was not possible in case of traditional database to store, analyze, visualize, and integrate spatial data in business and government applications. GIS systems store spatial and non-spatial data separately. This split data model has several drawbacks. Oracle spatial provides a completely open and standards-based architecture for the management of spatial data within a database management system. This research paper describes the process of developing a spatial application of Patiala city using Oracle spatial technologies. A simple graph is first created using this graph. A spatial database is then designed by using tables for colleges, roads, banks and Thapar University. MapViewer tool is used to integrate and visualize spatial data with maps. Oracle Map Builder tool is used to define the MapViewer mapping metadata that includes styles, themes and base maps. MapBuilder is used to define line styles for road map of Patiala city. Different color styles are used for representing colleges, roads, banks, Thapar University and main locations of Patiala. Themes are defined by combining different styles and it gives visual representation of data layer. Predefined themes are grouped together to form a base map. This provides a convenient way to include multiple themes in a map request. A base map is generated by putting one or more themes at one place. Data source and Tile layer has been created in MapViewer to connect with the database. The spatial application is developed in HTML and JavaScript code with the use of Map Viewer’s JavaScript mapping library. This application shows the map of Patiala city and is featured with various map options like navigation panel and distance tools etc. Our developed system has the provision to view different locations depicted in the map. It has also a feature to find the distance between two locations in the map.

Keywords: Oracle Spatial, MapViewer, MapBuilder, Spatial application.

References:
11. http://download.oracle.com/docs/cd/B14046_05/web/904/b10559/vis_star.htm

Authors: P.Subashini, N.Sridevi

Paper Title: An Optimal Binarization Algorithm Based on Particle Swarm Optimization

Abstract: Document binarization is an active research area for many years. Binarization algorithms play an important role in the preprocessing phase of any character recognition system. This paper compares several alternative binarization algorithms for handwritten documents, by evaluating their performance. The algorithms evaluated are, global thresholding, Otsu thresholding, Kittler-Illingworth and local thresholding,Niblack algorithm along with the proposed PSO algorithm. From the tests and results, we can wrap up with the assumption that the
proposed algorithm shows improved results.

Keywords: Evaluation, Global thresholding, Image Binarization, Local thresholding, PSO.

References:

Authors: R. Samuel Rajesh Babu, Joseph Henry

Paper Title: A Comparison of Half Bridge & Full Bridge Isolated DC-DC Converters for Electrolysis Application

Abstract: This paper presents a comparison of half bridge and full bridge isolated, soft-switched, DC-DC converters for Electrolysis application. An electrolyser is a part of renewable energy system which generates hydrogen from water electrolysis that used in fuel cells. A DC-DC converter is required to couple electrolyser to system DC bus. The proposed DC-DC converter is realized in both full-bridge and half-bridge topology in order to achieve zero voltage switching for the power switches and to regulate the output voltage. Switching losses are reduced by zero voltage switching. Switching stresses are reduced by using resonant inductor and capacitor. The proposed DC-DC converter has advantages like high power density, low EMI, reduced switching stresses, high circuit efficiency and stable output voltage. The MATLAB simulation results show that the output of converter is free from the ripples and regulated output voltage and this type of converter can be used for electrolyser application. Experimental results are obtained from a MOSFET based DC-DC Converter with LC filter. The simulation results are verified with the experimental results.

Keywords: DC-DC converter, electrolyser, renewable energy sources, resonant converter, TDR.

References:
Abstract: Service restoration in power distribution system is to restore power in healthy portion of out of service area as much as possible followed by a fault and isolating the faulted zone by operating the line switches connected in the network. In service restoration, not only the final network configuration but also the number of switching operations held for service restoration is important with a number of constraints like node voltage deviation, load balancing and priority customers. Thus the Service restoration problem is a multi objective multi constraint (M.O.M.C) combinatorial optimization problem. This paper proposes an Ant Colony optimization based methodology for minimizing the area energy is not supplied and no of manually controlled and remotely controlled switching operations during the restoration process. A fuzzy membership function is defined for each term in objective under consideration. The design, Internet security and user interface challenges are focused in this paper.

Keywords: Web based remote monitoring system, Remote Terminal Unit, Web based supervisory control, Real-time control about four key words or phrases in alphabetical order, separated by commas.

References:
Audio Signal Enhancement Using Non-diagonal Estimator

Abstract:
Audio signals are often contaminated by background noise and buzzing or humming noise from audio equipments. Audio denoising aims at attenuating the noise while retaining the underlying signals. Removing noise from audio signals requires a non-diagonal processing of time-frequency coefficients to avoid producing “musical noise.” A block thresholding estimation procedure is introduced, which adjusts all parameters adaptively to signal property by minimizing a Stein estimation of the risk. Non Diagonal time frequency coefficients to avoid producing “musical noise.” A block thresholding estimation procedure is introduced, which adjusts all parameters adaptively to signal property by minimizing a Stein estimation of the risk. Non Diagonal time-frequency audio denoising algorithm attenuates the noise by processing each spectrogram coefficient independently. This Estimator is to minimize the error between clean signal and the enhanced signal. Numerical experiments demonstrate the performance and robustness of this procedure through objective and subjective evaluations.

Keywords: Audio Denoising, Block Thresholding, Audio signal processing, STFT Transform, Spectrogram, Time-Frequency Audio Denoising, Adaptive Block Thresholding.

References:
Abstract: Numerical simulation is carried out to determine of first three eigenstates of a multiple quantum well structure for both constant and variable effective mass cases where BenDaniel-Duke boundary condition is introduced for computation of effective mass mismatch along with the consideration of potential barrier dependence on material composition of higher band-gap material. Dimensional asymmetry is introduced to observe the change in eigenvalue, and no. of layers is also varied to observe the same in absence of electric field. GaAs/AlxGa1-xAs material composition is considered for simulation purpose to estimate tunneling probability. Variation of mole fraction provides a shift in eigenenergies for resonance transmission.

Keywords: Multiple Quantum Well Structure, Eigenenergy, BenDaniel Duke Condition, Material composition

References:

Authors: Arpan Deyasi, Swapan Bhattacharyya

Paper Title: Composite Effect of BenDaniel Duke Boundary Condition and Material Composition on Eigenenergy of Multiple Quantum Well Structure

9. 

2004.
Abstract:
Steganography is the science of hiding communication in an innocuous cover medium such as image, audio and video. In this paper, a new steganographic algorithm with optimum segment length and minimum MSE is presented, an algorithm that utilizes the redundant bits of discrete cosine transform (DCT) JPEG images for message embedding. This algorithm offers high capacity with minimum statistical changes and minimum MSE compared to existing steganographic systems.

Keywords:
JPEG images, steganography, steganalysis, information hiding, JPEG hiding.

References:

Authors:
Hamdy A. Morsy, Zaki B. Nossair, Alaa M. Hamdy, Fathy Z. Amer

Paper Title: Optimum segment length for embedding in the LSB of JPEG images with Minimum MSE

Keywords: JPEG images, steganography, steganalysis, information hiding, JPEG hiding.

References:
Abstract: In this paper we introduce an ultra low power CMOS LC oscillator and analyze a method to design a low power low phase noise complementary CMOS LC oscillator. A 1.8GHz oscillator is designed based on this analysis. The circuit has power supply equal to 1.1 V and dissipates 0.17 mW power. The oscillator is also optimized for low phase noise behavior. The oscillator phase noise is -126.2 dBc/Hz and -144.4 dBc/Hz at 1 MHz and 8 MHz offset respectively.

Keywords: LC oscillator, Low Power, Low Phase Noise

References:

Authors: Pedram Hajipour, Ali Forotanpour, Leila Mohammad

Paper Title: Performance Evaluation of Noisy Nonlinear QAM and QPSK Systems in the Presence of the Signal Predistortion Linearizer

Abstract: In this paper, the design and simulation process of a TWTA amplifier which is linearized with a signal predistortion method is presented. The aim of the linearizer circuit which is based on the schottky diodes is to compensation-linearity behavior of the amplifier in a noisy channel. The linearizer circuit is optimized to give the best AM-to-AM and AM-to-PM characteristics. In addition, the stability of the TWTA with combination of the proposed linearizer is investigated through computer simulations. The data is modulated by a 4-QAM and QPSK modulator, separately and is applied to the linearized TWTA. The received data after passing through the linearizer TWTA is analyzed by using advanced design system (ADS) and the constellation and eye diagrams are obtained.

Keywords: TWTA, Predistortion, QAM, QPSK, BER

References:

Authors: Mahdi Ebrahimzadeh

Paper Title: Design of an Ultra Low Power Low Phase Noise CMOS LC Oscillator

Abstract: In this paper we introduce an ultra low power CMOS LC oscillator and analyze a method to design a low power low phase noise complementary CMOS LC oscillator. A 1.8GHz oscillator is designed based on this analysis. The circuit has power supply equal to 1.1 V and dissipates 0.17 mW power. The oscillator is also optimized for low phase noise behavior. The oscillator phase noise is -126.2 dBc/Hz and -144.4 dBc/Hz at 1 MHz and 8 MHz offset respectively.

Keywords: LC oscillator, Low Power, Low Phase Noise

References:

Authors: Shao Feng, Hsien Hsu, Li Feng

Paper Title: High Bandwidth 0.13 μm CMOS VCO With Wide Tuning Range

Abstract: In this paper, a wideband voltage controlled oscillator (VCO) with 32% tuning range is presented. It is designed in 0.13 μm CMOS process to be used in a high-speed wireless transceiver. The fabricated 1.8-V VCO has a tuning range of 2.6-2.9 GHz and a phase noise of -104.2 dBc/Hz at 1 MHz and -127 dBc/Hz at 10 MHz. The measured phase noise is -78.7 dBc/Hz at 1 MHz and -94 dBc/Hz at 10 MHz, which is comparable with the state-of-the-art 0.13 μm CMOS VCOs. The oscillator operates with a supply voltage of 1.8 V and consumes 14.5 mW of power when oscillating at 3 GHz.

Keywords: CMOS, VCO, Wideband Tuning Range

References:
Abstract: In this paper we describe design and simulation of a queuing delay model based on M/M/1 and M/D/1 in Next Generation Network of communication over Internet Protocol which satellite in different orbits are a test bed used to test call setup quality and some of the key performance benchmarks such as mean response time to process the Media Gateway Control protocol calls and mean number of jobs was reviewed. The two different call flows simulation process based on registration information situation that can be used as a test bed is described (Single phase or two phases models). The test bed simulation will use for deploying Next Generation Network services in order to verify protocols and features implementation. The call flows of the test bed also allow testing and evaluating over different delays in various signaling way. In our scenarios, satellite is a Media Gateway Controller node in call flows and ground stations are Media Gateway nodes.

Keywords: MEGACO, COPS, single phase, two phases

References:


Authors: Pedram Hajipour, Leila Mohammadi
Paper Title: Measurements and Comparative of Resource Management in Satellite Systems

Authors: Narendra Giradkar, G.M. Asutkar, Abhijit Maidamwar
Paper Title: OFDM based PHY Performance of IEEE 802.11a Using Various practical channel models

Abstract: Today with the advent of wireless communication and need for greater bandwidth and speed requirement with noise free reception, research has opened up a whole new market for wireless solutions. The IEEE 802.11a standards using orthogonal frequency division multiplexing (OFDM) can provide data rates up to 54 Mbps which makes good for high speed communications in wireless local area networks. In this paper, We evaluated the OFDM based PHY performance of IEEE 802.11a using various practical channel models such as Rician Fading, Rayleigh multipath Fading & AWGN. The effects of different transmission modes define in PHY on IEEE 802.11a system performance are studied using MATLAB SIMULINK. The performance is characterized in terms of 802.11a receivers bit error rates and signal to noise ratio for various modulation schemes such as 16 QAM, 64 QAM, BPSK and QPSK for different code rates as defined by the IEEE Standards 802.11a. All the Simulink models were studied using convolutional coder and Viterbi Decoder and standard OFDM format with 48 carriers, 4 pilots and a zero
Publications:

**Abstract:** Security is amongst one of the major issues in Broadband Wireless Access (BWA) Networks. After the launch of the IEEE 802.16 standard (WiMAX), a number of security issues were reported in several articles. Ever since the beginning, work has been in progress for the neutralization of these identified threats. In this paper, the analysis of the authentication protocols implemented in WiMAX has been presented along with the description of the threats posed to them. An approach has also been presented for the neutralization of these threats like the avoidance of replay; suppress replay and man-in-the-middle attacks. The proposed approach enhances the network security.

**Keywords:** Mobile WiMAX, Authentication, Privacy & Key Management.

**References:**

Abstract: Static reliability and dynamic reliability are based on electrical power system parameters. The dual network can work as deadbeat controller for the objective network the mechanical parameters are always coupled, with electrical parameters and they cannot be separated. One can use the Fuzzy logic theory to deal with electrical parameters coupled with mechanical parameters in calculation the reliability and costly depends on electrical built in reliability or material reliability and costly depends on electrical resistivity P. Permittivity. ( r) and magnetic permeability (μr). These specific (D) and represent R,C,L, parameters in macroscopic models, of electrical power system. System parameters are too many and one can take help of thermal conductivity, enthalpy, melting point specific heat capacity, adhesivity, compatibility, hardness, tensile strength, Fatigue Creep, Cracks, brittles and fracture. These are all Fuzzy Parameters. The parameters represent MTBF and MTTF of the systems.

Keywords: Magnetic Perability, MTBF, MTTF

References:


Authors: R.N. Yadav, G.P. Chhalotra, R.K. Tiwari, Rajesh Khattri

References:


Authors: R.N. Yadav, G.P. Chhalotra, R.K. Tiwari, Rajesh Khattri

Paper Title: A View Mathematical Analysis of Reliability of Power System Considering RLS Parameters in Fuzzy Logic Space

Abstract: Beside all Engineering Systems Elect. Power System are merely subjected to uncertain failures. The electrical parameters of power system are also responsible for the losses, thermal breakdown and failure rates. The effect of 'R' 'L' and 'C' in failure rates of power system components can be simulated using fuzzy linguistic variables. ‘RLC’ power system may be lower low medium, higher and high, these. Fuzzy linguistic variables may be used to evaluate the failure rates of lower, low medium, higher and high values. The reciprocal of failure rates of different components will give the MTBF’s of those components, along with its membership function or fuzzy grade of truths. The cardinality and relative cardinality of components may be evaluated. Assuming relative cardinality as an average
reliability of the system its reliability may be investigate. Fuzzy relations may be used for analyzing the reliability attributes of power system. The optimized reliable condition may be evaluated.

**Keywords:** Magnetic Perability, MTBF, MTTF

**References:**

**Authors:** A.R. Eskandari, A. Mohammadi

**Paper Title:** Group Delay Variations in Wideband Transmission Lines: Analysis and Improvement

**Abstract:** Although poorly studied in the literature, Group Delay Variations (GDV) versus frequency is an essential factor which causes distortion and degradation in wideband satellite signals specially when using phase modulation and high data rates. In this paper, transmission line is analyzed as a dispersive medium and some kinds of coaxial cables such as RG58U, RG59U, RG213 and ECOFLEX15 are compared as GDV parameter point of view. Then the effect of discontinuities and impedance mismatches at transmission lines, on GDV quantity, is investigated by suggesting a novel network model of transmission line with discontinuity or impedance mismatch, and extracting a new formula for GDV. Graphical data are presented based upon the formula developed, and the simulation results are also given by AWR software which confirms the theory and formula. At last, based on the developed formula, some calculations will be carried out both to predict the values of GDV parameter and to compensate it. In this paper the frequency range of 100-1000 MHz is selected. The main reason of this selection is due to the practical application of coaxial cables for transmitting wideband satellite signals in remote sensing ground stations from down-converter to modem at IF frequencies such as: 140, 375, 720 MHz, etc. In addition, the introduced model and formula are generalizable to upper frequency bands.

**Keywords:** Group delay variations, transmission lines, coaxial cables, dispersion, discontinuity, mismatch.

**References:**

**122-128**
Abstract: Fingerprint verification is one of the most reliable personal identification methods and it plays a very important role in forensic applications like criminal investigations, terrorist identification and National security issues. Some fingerprint identification algorithm (such as using Fast Fourier Transform (FFT), Minutiae Extraction) may require so much computation as to be impractical. Wavelet based algorithm may be the key to making a low cost fingerprint identification system. Wavelet analysis and its applications to fingerprint verification is one of the fast growing areas for research in recent year. Wavelet theory has been employed in many fields and applications, such as signal and image processing, communication systems, biomedical imaging, radar, air acoustics, theoretical mathematics, control system, and endless other areas. However, the research on applying the wavelets to pattern recognition is still too weak. As the ridge structure in a fingerprint can be viewed as an oriented texture pattern. The paper proposes a fingerprint recognition technique based on wavelet based texture pattern recognition method. In view to older fingerprint recognition method; based on Fast Fourier Transform (FFT) and Minutiae Extraction, the proposed wavelet based technique results in high recognition rates.

Keywords: Fingerprint Recognition, Pattern recognition, Wavelet, Texture.

References:
Abstract: Mobile Ad hoc Networks are established for extemporaneous services customized to application. These networks exist for limited period of time based on demands. This infrastructure less networks support data networking services using routing protocols. Reactive routing protocols serve the issue over proactive routing protocols [7]. As the communication is through multiple intermediate nodes, circumstances lead for the attacks lacking security [12]. Existing proactive routing protocols does not endow with security aspects within [1]. In this paper, we introduce an enhanced secured routing protocol and its performance is compared with the existing protocols namely, Ad hoc On demand Distance Vector Routing (AODV), Dynamic Source Routing (DSR) & Zone Routing Protocol (ZRP) in terms of delay, jitter and throughput using Qualnet simulation software.

Keywords: Ad hoc networks, jitter, routing protocols, secured routing

References:

Authors: SarathChand P.V., VenuMadhav K., Arya Bhanu M., Nagamani K., Balaram A.

Paper Title: Sets Sequential Emission By Transmitting Streams

Abstract: The increasing generation and collection of data have been increased rapidly in the last several decades. The contribution in the widespread of commercial products like bar coding, computerization of many business corporations, bank transactions and advancement of data collections ranges from scanned text to image platforms. The popular usage of internet as a global search engine for information system has flooded with a tremendous amount of data. The explosion of data is stored and an urgent need for new technologies and techniques should evolve day by day. The paper is the concepts and techniques for data retrieval method and promising the flourishing mechanism in database systems and new database applications. The SETS is a knowledge discovery mechanism and automated for extraction data sets which are stored in the database. The paper SETS can be viewed as a result of natural evolution of information technology. The SETS makes the user can gain the convenient and flexible data access through the queries on set of data[1]. This technology provides a great boost to the database and information industry and makes a huge amount of databases and information repositories available for transaction management, data analyzing methods and information managements. It can be a powerful tool for the fast growing and tremendous access of data which are collected and stored in large and numerous data bases. The SETS provides the data analysis and covers the important patterns which are contributing to the business requirements.

Keywords: Transaction management, Repositories, flourishing mechanism, information industry, patterns
References:
2. Data Mining by Margaret H.Dunham.Introductory and Advanced Topics Margaret H. Dunham.2002 Publisher: Prentice Hall pp 85-88
3. Data Mining Concepts and Techniques second edition by Jiawei Han and Micheline Kamber pp 494-499
8. M.J.Zaki Efficient Enumeration of frequent sequences. In proc 7th int. conf information and knowledge Management 98 pages 68-75

Authors: H. Abdul Shabeer, R.S.D.Wahidahbnu
Paper Title: Cell Phone Accident Avoidance System While Driving

Abstract: Every year, innumerable road accidents and deaths take place due to distracted driving. Large number of studies shows mobile phone usage while driving was the major reason for distracted driving. With the aim of preventing road accidents due to mobile phone usage while driving, we propose a highly efficient automatic electronic system for early detection of incoming or outgoing call, an antenna located on the top of driver seat used for detecting when the driver uses mobile phone and a low range mobile jammer with its range covers only driver seat which prevent drivers mobile phone from receiving signals from base stations.

Keywords: Mobile Phone Detection, Risk of using mobile phone while driving, Mobile Jammer.

References:

Authors: H. B. Kekre, Tanuja Sarode, Sudeep D. Thepade, Supriya Kamoji
Paper Title: Performance Analysis of Various Window Sizes for Colorization of Grayscale Images using LBG and KFCG Vector Quantization Codebooks in RGB and Kekre's LUV Color Spaces

Abstract: Colorization is a computer aided process of adding colors to a grayscale image or videos. The paper presents use of assorted window sizes and their impact on colorization of grayscale images using Vector Quantization (VQ) Codebook generation techniques in different color spaces such as RGB and Kekre’s LUV. The paper also analyses the performance of Vector Quantization Algorithms Linde Buzo and Gray Algorithm (LBG) and Kekre’s Fast Codebook Generation Algorithm (KFCG) for colorization of grayscale images. Experimentation is conducted on both RGB and Kekre’s LUV color space for the different pixel windows of sizes 1x2, 2x1, 2x2, 2x3, 3x2, 3x3, 1x3, 3x1, 2x4, 4x2, 1x4 and 4x1 to compare results obtained across various grid sizes.

Keywords: Color palette, Color spaces, Vector Quantization, LBG, KFCG.

References:
Abstract: Digital Image Processing has been widely implemented in Medical Imaging. Various branches of medical science are using digital image processing as an extensive process to visualize and extract more details from the image. Quality enhancement of medical images can be performed with the help of various techniques. Contrast enhancement is one of the most acceptable methods for enhancement of medical images. Different contrast enhancement methods like Contrast Stretching, Histogram Equalization, AHE, CLAHE are already available. Method selection depends on characteristics of image. This paper works on low contrast MRI images and presents a hybrid methodology for image enhancement. Results of the proposed algorithm have been compared against the existing major contrast enhancement techniques and Region Based Adaptive Contrast Enhancement (RBACH) on both qualitative and quantitative basis.

Keywords: Histogram Equalization, Adaptive, Convolution, Mask, X-Ray, Neighborhood, RBACH.

25. References:

Authors: Thiyagajaran, GS, Umakanth P. Kulakarni

Paper Title: Design and Implementation of Context Program Compiler for developing Context Aware Applications in Pervasive Computing Environment

Abstract: With the advancement of pervasive computing, sensors technology and the wide deployment of wireless communication, there is an increasing demand for the context aware computing application. Contextual presentation is an emerging technique that has huge commercial possibilities. The theory behind the applications is complex and this makes the implementation non-trivial. Although some good applications / devices have been built but general solutions are available. There is no programming language or scripting language available to find solutions to context based problems. In this direction we are developing a generic context compiler and generic context programming language using which one can write and execute programs to develop any context aware applications. In this paper we are presenting the design and implementation of context program compiler for developing context aware applications.
Applications in pervasive computing environment.

Keywords: ubiquitous environment, Context script, pervasive, compiler, bnf.

References:
6. CONTEXT-ORIENTED PROGRAMMING by M.I.Gassanenko SPIRAN, St.Petersburg, Russia mlg@forth.org, mlg@ias.spb.su.

Authors: Sumit Kumar Banchhor, S.K.Dekate

Paper Title: Comparison of text-dependent method for Gender Identification

Abstract: Differences of physiological properties of the glottis and the vocal tract are partly due to age and/or gender differences. Since these differences are reflected in the speech signal, acoustic measures related to those properties can be helpful for automatic gender classification. Acoustics measures of voice sources were extracted from 10 utterances spoken by 20 male and 20 female talkers (aged 19 to 25 year old). The difference of speech long term features, including zero crossing rate, short time energy, and spectrum flux between male and female is studied. The result shows that the estimation of short time energy reflects more effectively, the difference in male and female voice than zero crossing rate and spectrum flux.

Keywords: gender classification gender identification, voice source.

References:
Abstract: The thirst of better and faster retrieval techniques has always fuelled to the research in content based image retrieval (CBIR). The paper presents innovative content based image retrieval (CBIR) techniques based on feature vectors as fractional coefficients of row mean of column transformed images using Discrete Cosine, Walsh, Haar, Slant, Discrete Sine, and Hartley transforms. Here the advantage of energy compaction of transforms in low frequency coefficients in transform domain is taken to greatly reduce the feature vector size per image by taking fractional coefficients of row mean of column transformed image. The feature vectors are extracted in six different ways from the transformed image, with the first being considering all the coefficients of row mean of column transformed image and then six reduced coefficients sets (as 50%, 25%, 12.5%, 6.25%, 3.125%, 1.5625% of complete row mean of column transformed image) are considered as feature vectors. The six transforms are applied on the colour components of images to extract row mean of column transformed RGB feature sets respectively. Instead of using all coefficients of transformed images as feature vector for image retrieval, these six reduced coefficients sets for RGB planes are used, resulting into better performance and lower computations. The proposed CBIR techniques are implemented on a database having 1000 images spread across 10 categories. For each proposed CBIR technique 40 queries (4 per category) are fired on the database and net average precision and recall are computed for all feature sets per image transform. The results have shown performance improvement (higher precision and recall values) with fractional coefficients compared to complete transform of image at reduced computations resulting in faster retrieval. Finally Discrete Cosine Transform (DCT) surpasses all other discussed transforms in performance with highest precision and recall values for 50% of fractional coefficients.

Keywords: CBIR, Cosine Transform, Walsh Transform, Haar Transform, Sine Transform, Slant Transform, Fractional Coefficients, Row Mean.

References:


Authors: Anubhuti Khare, Manish Saxena , Shweta Tiwari

Paper Title: Edge Detection Method for Image Segmentation – A Survey of Soft Computing Approaches

Abstract: Soft Computing is an emerging field that consists of complementary elements of fuzzy logic, neural computing and evolutionary computation. Soft computing techniques have found wide applications. One of the most important applications is edge detection for image segmentation. The process of partitioning a digital image into multiple regions or sets of pixels is called image segmentation. Edge is a boundary between two homogeneous regions. Edge detection refers to the process of identifying and locating sharp discontinuities in an image. In this paper, the main aim is to survey the theory of edge detection for image segmentation using soft computing approach based on the Fuzzy logic, Genetic Algorithm and Neural Network.

Keywords: Image Segmentation, Edge Detection, Fuzzy logic, Genetic Algorithm, Neural Network.

References:

Authors: S. S. Ranjit, S. A. Anas, C. F. Tan

Paper Title: Off-Grid System Development for House Car Pouch Lighting

Abstract: Practically to electrify lighting system electricity supply is a necessity to power the light. Thus, solar energy is known as an alternative source to provide electricity. This paper presents an off-grid system development for house car porch lighting system. Development of the system is composed of photovoltaic panel, environmental sensors, charge controller, battery and lighting loads such as florescent lamp. The off-grid system focuses to supply electricity in small scale which is integrated with some energy saving characteristics. An auto timer and smart charge controller is integrated into the off-grid system to turn-on and turn-off the lighting at the house car pouch. Integration of some smart functions is an ideal solution for small scale electricity supply or particularly for location which cannot be accessed by grid supply.

Keywords: Off-Grid System, Car Pouch Lighting, Florescent Lamp, Timer Controller, Distribution Off-Grid.

References:
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Abstract: In industrial control systems the liquid level is carrying its significance as the control action for level control in tanks containing different chemicals or mixtures is essential for further control linking set points. The three level control models are considered in our work. The conventional control algorithm is difficult to reach required control quality with more strict restriction on overshoot. Design a parameter self-tuning PID-controller based on fuzzy control, which can adjust PID-parameters according to error and change in error. Biological immune system is a control system that has strong robusticity and self-adaptability in complex disturbance and indeterminacy environments. The artificial intelligence technique of fuzzy logic and immune controller is adopted for more reliable and precise control action which incorporate the uncertain factors also. In this work the comparison of the conventional model, fuzzy model and immune feedback mechanism is clarified.

Keywords: Fuzzy logic, PID, immune controller, artificial control, three level vertical tank.

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Authors: Dipali Koshti, Supriya Kamoji

Paper Title: Comparative study of Techniques used for Detection of Selfish Nodes in Mobile Ad hoc Networks

Abstract: A MANET (Mobile Ad-hoc Network) is a self configuring system of mobile nodes connected by wireless links. MANETs are self-configuring and decentralized without having a fix infrastructure. In such a network each node acts as an end-system as well as a relay node (or router). Most of the routing algorithms designed for MANET such as AODV and DSR are based on the assumption that every node forwards every packet. But in
practice some of the nodes may act as the selfish nodes. These nodes use the network and its services but they do not cooperate with other nodes. Such selfish nodes do not consume any energy such as CPU power, battery and also bandwidth for retransmitting the data of other nodes and they reserve them only for themselves. The original AODV and DSR routing algorithms can be modified to detect such selfish nodes. This paper discusses two techniques namely Reputation based technique and Credit based technique used to detect selfish nodes in MANET. This paper discusses two algorithms that are based on reputation based technique and one algorithm based on credit based technique. Finally all three techniques have been compared.

Keywords: MANET, Selfish nodes in MANET, Misbehaving nodes in MANET, Cooperative system in MANET.

References:

Authors: G. Ranganathan, R. Rangarajan, V. Bindhu

Paper Title: Evaluation of ECG Signals for Mental Stress Assessment using Fuzzy Technique

Abstract: This paper presents the evaluation of mental stress assessment using heart rate variability. The activity of the autonomic nervous system (ANS) is studied by means of frequency analysis of the Electrocardiography (ECG) signal. Spectral decomposition of the Heart Rate Variability before smoking and after smoking was obtained. Mental stress is accompanied by dynamic changes in ANS activity. ECG signal analysis is popular for assessing the activities of autonomic nervous system. The approach consists of 1) Recording the ECG signals, 2) Signal processing using wavelets, 3) Fuzzy evaluation techniques to provide robustness in ECG signal analysis, 4) Monitoring the function of ANS under different stress conditions. Our experiment involves 20 physically fit persons under different conditions. Fuzzy technique has been used to model the experimental data.

Keywords: Adaptive Neuro Fuzzy Inference System (ANFIS), Non-linear System, Electrocardiogram (ECG), Autonomic Nervous System(ANS)

References:

Authors: L. Savadanamuthu, S. Muthu, P. Vivekanandan

Paper Title: Quality Improvement in Turning Process using Taguchi’s Loss Function

Abstract: This paper presents a advanced technique for quality improvement in turning operations. In this study, the Taguchi method is used to find the optimal cutting parameters in turning operations. The orthogonal array, the signal-to-noise ratio, and analysis of variance are employed to study the performance characteristics in turning operations of AISI 1030 steel bars using TiN coated tools. The model was developed initially for unidiameter case and then adapted to other workpiece geometries. An Adaptive Neuro Fuzzy Inference System (ANFIS) is proposed in this paper to control a constant cutting force turning process under various cutting conditions. The ANFIS consists of two parts: predictor and the fuzzy logic controller. The step size of the predictor, and the scaling factors of the fuzzy controller are adjusted for ensuring stability and obtaining optimal control performances. The Taguchi-genetic method is applied in this paper to search for the optimal control parameters of both the predictor and the fuzzy controller such that the ANFIS controller is an optimal controller. Computer simulations are performed to verify the
effectiveness of the above optimal fuzzy control scheme designed by the Taguchi-genetic method. Experimental results are provided to illustrate the effectiveness of this approach.

**Keywords:** Adaptive Neuro Fuzzy Inference System (ANFIS), Taguchi-genetic method, Fuzzy controller

**References:**

**Authors:** R. Hari Kumar, M. Balasubramani

**Paper Title:** FPGA Synthesis of Soft Decision Tree (SDT) for Classification of Epilepsy Risk Levels from Fuzzy Based Classifier Using EEG Signals

**Abstract:** The objective of this paper is to design, simulate, and synthesize a simple, suitable and reliable Soft Decision Trees for classification of epilepsy risk levels from EEG signals. The fuzzy classifier (level one) is used to classify the risk levels of epilepsy based on extracted parameters like energy, variance, peaks, sharp and spike waves, duration, events and covariance from the EEG signals of the patient. Soft Decision Tree (post classifier with max-min and min-max criteria) of three models is applied on the classified data to identify the optimized risk level (singleton) which characterizes the patient’s risk level. The efficacy of these methods is compared with the benchmark mark parameters such as Performance Index (PI), and Quality Value (QV). A group of twenty patients with known epilepsy findings are analyzed. High PI such as 95.88 % was obtained at QV’s of 22.43 in the SDT model (16–4–2–1) with Method-II (min-max criteria) when compared to the value of 40% and 6.25 through fuzzy classifier respectively. It was observed that the simulated and synthesized Field Programmable Gated Array (FPGA) SDT models are good post classifier in the optimization of epilepsy risk levels which is closely follows the mat lab version. The deterministic character of dynamics of the underlying system.

**Keywords:** EEG Signals, Epilepsy, Fuzzy Logic, Soft Decision Trees, Risk Levels, FPGA synthesis

**References:**

**Authors:** Manoj Kumar, Mohammad Hussain

**Paper Title:** A Framework for Performing Mutation Analysis and Deviants

**Abstract:** The development of framework for safety critical area what happens, when some part of a system deviates from the intentions of designer is a critical research issue. When we apply, HAZOP technique using UML, then, we check the object-oriented design with a fault-free analysis and design. By mutation analysis and HAZOP.
we find a better optimum result. The mutation method is a fault-based testing strategy that measures the quality/adequacy of testing by examining whether the test set (test input data) used in testing can reveal certain types of faults. This paper describes the UML-HAZOP technique with mutation based operator or analysis. Using this, we find more and more optimum result and solution, when we design our system with UML.

**Keywords:** Mutation Analysis, Mutation Testing, UML-HAZOP, Object-Oriented.

**References:**

**Authors:** Tirtharaj Sen, Pijush Kanti Bhattacharjee, Debamalya Banerjee, Bijan Sarkar

**Paper Title:** Noise Dose Emitted from Different Electrical Machines Compared

**Abstract:** This paper deals with the study and comparison of noise dose emitted from different electrical machines. The study has been done in an electrical machine laboratory. Readings of noise parameters are taken from different machines using a noise dosimeter and the different noise related variables such as Leq (Equivalent continuous A-weighted sound level), LAV (Average sound level), LAE (Sound exposure level), TWA (Time weighted average) are compared for different ac and dc machines. Nomographic technique based on graphical analysis is used for finding out percentage noise dose and comparing that with the data collected from dosimeter. This study gives a complete measurement of noise levels and its parameters for different electrical machines ac and dc types, and hence it is a source to detect mechanical faults of the machines which are causing the noise produced. Also mechanical faults of the electrical machines are identified by analysis the frequency of noise emitting sound from the machines. These techniques are used for safeguarding the machines as well as environmental pollution.

**Keywords:** Electrical Machines, Frequency of Noise Emitting Sound, Noise Dose, Noise Dosimeter, Noise Related Parameters, Peak Exceedence Level.

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Paper Title: Networks-on-Chip is getting established as a communication infrastructure for future advance and complex SoC plateforms, composed of a large number of homogenous or heterogeneous processing resources. Application specific SoC design presents the prospects for incorporating custom NoC architectures that are more suitable for a specific application, and may not be suitable for regular topologies. The precise but often different communication requirements among IP-cores of the SoC call for the design of application-specific topology of SoC for better performance with respect to communication energy, latency, and throughput. In the presented work, a methodology for the design of customized irregular topology for SoC with complex communication behavior is proposed. The proposed methodology uses the aforementioned knowledge of the application’s communication attribute to produce an power optimized network and corresponding routing tables.

Keywords: SoC, on-chip networks, application specific NoC, interconnection network.

References:

Authors: D.Srinivasa Rao, B.J.M. Ravi Kumar

Paper Title: Performance Evaluation of Genetic Based Dynamic Clustering Algorithm over LEACH Algorithm for Wireless Sensor Networks

Abstract: A wireless sensor network (WSN) is a wireless computing devices network consisting of spatially distributed autonomous devices using sensors to cooperatively monitor physical or environmental conditions, such as temperature, sound, motion, intrusion or pollutants, at different locations. The purpose of designing these networks is gathering information from the environment and sending them to the sink node. One of the most important issues in these kinds of networks is energy efficiency. The longer the communication distance, the more energy will be consumed during transmission. So, clustering is a way to reduce energy consumption. In this paper, we propose a dynamic clustering algorithm using genetic algorithm. This algorithm takes different parameters into consideration to increase the network lifetime. The results of the conducted simulations show the high efficiency of the proposed algorithm.

Keywords: Wireless Sensor Networks, Clustering, Genetic algorithm, Energy Consumption.

References:

Authors: B. Bag, A. K. Jana, M. K. Pandit

Paper Title: A Novel Dynamically Optimized Embedded Video Burst Scheduler to Enhance the System QoS

Abstract: Real-time video processing is still now a formidable task for the strict requirement on latency control and packet loss minimization. Burst processing has come to the rescue by offering buffer less operation and separation of control and data information. In this paper a novel dynamically-optimized embedded burst scheduling method suitable for processing class-differentiated video channels has been proposed. The method is based on statistical Markov chains where the initial scheduled Markov transition probabilities are subsequently adaptively reconfigured by the central scheduler to maintain the best system Quality of Service (QoS).

Keywords: Embedded systems, QoS, Markov process, Reconfigurable computing, Video communication.

References:

Authors: Manish Kansal, Vijay Kumar, Dinesh Arora, Hardeep Singh Saini


Abstract: An ECG is a simple and useful test which records the rhythm and electrical activity of the heart of the patient that suffers from any heart disease. An ECG can detect problems you may have with your heart rhythm. It can help doctors tell if you are having a heart attack or if you’ve had a heart attack in the past. Sometimes an ECG can indicate if your heart is enlarged or thickened

Digital Filter Design problem involves the determination of a set of filter coefficients to meet a set design specifications. These specifications typically consist of the width of the pass band and the corresponding gain, the width of the stop band(s) and the attenuation therein; the band edge frequencies (which give an indication of the transition band) and the peak ripple tolerable in the pass band and stop band(s). There are many techniques for selecting coefficients. We can use a spreadsheet like Microsoft Excel, or there are many design packages which will do the job. I have used MATLAB for this purpose as it is the most advanced tool for DSP applications. Also it helps to verify the design and results that comes from the hardware.

Keywords: FIR, IIR, Matlab, VHDL.
References:

Authors: Gulfishan Firdose Ahmed, Raju Barskar

Paper Title: A Study on Different Image Retrieval Techniques in Image Processing

Abstract: With the popularity of the network and development of multimedia technology, the traditional information retrieval techniques do not meet the users’ demand. Recently, the content-based image retrieval has become the hot topic and the techniques of content-based image retrieval have been achieved great development. In this paper, the basic components of content-based image retrieval system are introduced. Image retrieval methods based on color, texture, shape and semantic image are discussed, analyzed and compared. The semantic-based image retrieval is a better way to solve the “semantic gap” problem, so the semantic-based image retrieval method is stressed in this paper. Other related techniques such as relevance feedback and performance evaluation also discussed. In the end of paper the problems and challenges are proposed. In many areas of commerce, government, academia, and hospitals, large collections of digital images are being created. Many of these collections are the product of digitizing existing collections of analogue photographs, diagrams, drawings, paintings, and prints. Usually, the only way of searching these collections was by keyword indexing, or simply by browsing. Digital images databases however, open the way to content-based searching. In this paper we survey some technical aspects of current content-based image retrieval systems.

Keywords: Image retrieval, content-based image retrieval, color, texture, shape and semantic-based image retrieval.

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