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Abstract: In the Semantic Web, knowledge representation is largely based on ontologies. Ontology should be constructed in a way such that it should meet the requirements of the users. The main difficulty involved in the construction of ontologies is the high cost incurred in building them. Gathering complete knowledge about a specific domain requires more time and it doesn’t guarantee that the resulting ontology will be better than the existing ontologies. Hence, an approach for reusing the existing ontologies to build new ontologies has been proposed. This process makes use of the following steps: identification of existing ontologies, use of combined ranking algorithm (OntoRank+AKTive), segmentation and integration. As a result, best quality ontology can be obtained.

Keywords: AKTive Rank, Extraction, Fragmentation, Onto Rank, Reusability.

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17. OWL Web ontology Language Overview. http://www.w3.org/TR/owl-features/

Authors: Anilkumar T, M.V.Vijayasaradhi

Paper Title: Mpt Technique In Unifacial And Bi Directional Peer To Peer Wlan For Efficient Downlink Performance

Abstract: This paper proposes Multiple Packet Transmission (MPT) to multiple nodes in unidirectional and bi directional peer to peer wireless LAN for efficient downlink performance. This gives users the mobility to move around within a local coverage area and still be connected to the network. In this paper, we study a novel Multiple-Input, Multiple-Output (MIMO) technique called Multiple Packet Transmission (MPT) in unidirectional peer to peer WLAN, with which the sender can send more than one packet to distinct users simultaneously. The existing system was based on the sequence packet transmission method but this will not reduce the downloading time. It depends upon the client-server architecture that network cannot be expanded. The access point can send two packets to two users simultaneously. It depends upon the system hardware requirements. Paper proposes MPT- that is multiple transmission packets. This suggests sending packets to multiple systems simultaneously. In Bi directional P2P WLAN networks are typically used for connecting nodes, largely ad hoc connections. Data, including digital formats such as audio files, and real time data such as telephony traffic, is passed using P2P technology. The security issues in P2P network can be overcome with help of firewalls and TCP ports.

Keywords: Unifacial, MI MO, MPT, MAC, Switching, Collide, Encompassing, Napster.

References:
Authors:  
K.Gupta, P.C. Jana, A.K.Meikap  

Paper Title:  
High Magnetoresistance of the Composite of Polyaniline Nanotubes with La$_{0.67}$Sr$_{0.33}$MnO$_3$. Determination of Stiffness Constant and Range Of Interaction of this composite

Abstract:  
We have synthesized composite of polyaniline nanotubes with Lanthanum strontium manganite (La$_{0.67}$Sr$_{0.33}$MnO$_3$, LSMO) nanoparticles. A huge increase in magnetoresistance (~73%) is obtained in the nanocomposite containing highest amount of LSMO. This increase in magnetoresistance may be explained by evaluating stiffness constant and average range of interaction of the nanocomposite. Average range of interaction among magnetic ions increases from 5 to 7.736 eV(A$_0$) and value of stiffness constant decreases from 2.75 x 10$^{-5}$ to 0.74 x 10$^{-5}$ eV(A$_0$) with increase in LSMO content in the nanocomposites. Increase in average range of interaction and decrease in stiffness constant may be the cause of observed increase in magnetoresistance.

Keywords:  
LSMO, Magnetoresistance, Polyaniline, Range of interaction, Stiffness constant

References:

Authors:  
J.Emmanuel Robin, G.Prabu  

Paper Title:  
Comparative analysis of TOFEL IBT result rate among students using K-Means Clustering

Abstract:  
Data mining technology that blends traditional data analysis methods with sophisticated algorithms for processing large volumes of data. This paper reveals the comparative analysis of the students with UG, PG, Other Students community. Before getting into the picture we have to know the basic concept of clustering technique. What is clustering analysis? Clustering analysis divides data into the groups (clusters) that are meaningful or useful or both. If meaningful groups are the goal, then the clusters should capture natural structure of data. This paper focuses to discover the comparative analysis of reading, writing, speaking, listening skills over the student’s dataset such as PercentileMarkUG (b) PercentileMarkPG (c) PercentileMarkOther

Keywords:  
K-Means Clustering, IBT(Internet Based Test),TOEFL(Test of English as a Foreign Language)

References:  
3. Introduction to Data Mining, Vinip Kumar,Ping-Pang,Michael Stein bench  
4. www.ets.org  

Authors:  
Geeta Nagpal, Moin Uddin, Arvinder Kaur  

Paper Title:  
A Hybrid Technique using Grey Relational Analysis and Regression for Software Effort Estimation using Feature Selection

Abstract:  
Software Estimation Techniques present an inclusive set of directives for software project developers, project managers and the management in order to produce more accurate estimates or predictions for future developments. The estimates also facilitate allocation of resources’ for Software development. Estimations also smooth the process of re-planning, prioritizing, classification and reuse of the projects. Various estimation models are
widely being used in the Industry as well for research purposes. Several comparative studies have been executed on them, but choosing the best technique is quite intricate. Estimation by Analogy (EbA) is the method of making estimations based on the outcome from k most analogous projects. The projects close in distance are potentially similar to the reference project from the repository of projects. This method has widely been accepted and is quite popular as it impersonates human beings inherent judgment skill by estimating with analogous projects. In this paper, Grey Relational Analysis (GRA) is used as the method for feature selection and also for locating the closest analogous projects to the reference project from the set of projects. The closest k projects are then used to build regression models. Regression techniques like Multiple Linear Regression, Stepwise Regression and Robust regression techniques are used to find the effort from the closest projects.

Keywords: Estimation by Analogy, Feature Selection, Grey relational Analysis, Regression.

References:

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

Paper Title: **JPEG Steganography System with Minimal Changes to the Quantized DCT Coefficients**

Abstract: Steganography is the science of invisible communications over an innocuous cover medium. Most steganographic systems defeat both visual and first order statistical attacks however they offer only low capacity embedding. In this paper, a new steganographic system is introduced for message embedding by inverting the LSB of DCT coefficients of JPEG image. This algorithm offers high capacity compared to existing steganographic system.

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

References:

28-33

Authors: Gaurav Chheda, Niket Gajra, Manal Chhaya, Jitesh Deshpande, Saylee Gharge

Paper Title: Real Time Bus Monitoring and Passenger Information System

Abstract: The Real Time Bus Monitoring and Passenger Information bus tracking device is a standalone system designed to display the real-time location(s) of the buses in Mumbai city. This system will enable the tracking device to obtain GPS data of the bus locations, which it will then transfer to centralized control unit and depict it by activating LEDs in the approximate geographic positions of the buses on the route map. Specific softwares will be used to interface the data received to the map.

Keywords: GPS, LEDs

References:
1. (16/10/11) http://www.nextbus.com/corporate

Authors: Monika Arora, Uma Kanjilal, Dinesh Varshney

Paper Title: Efficient and Intelligent Information Retrieval using Support Vector machine (SVM)

Abstract: The information access is the rich data available for information retrieval, evolved to provide principal approaches or strategies for searching and browsing. The search has become the leading paradigm to find the information on World Wide Web. For building the successful information retrieval, there are a number of prospects that arise at the different levels where techniques can be considered. The present investigations explore the Support vector machine identified its level and classifies the documents on web. This paper attempts to develop a model for the efficient and intelligent retrieval. This paper attempts to propose the implement model for efficient and intelligent retrieval. In model it attempted to figure out the important factors for the successful efficient and intelligent retrieval. The proposed model is designed to collate all the differing views on information retrieval so as to construct a holistic theoretical which is considered to be the source of a system. This paper considers the application of Support Vector Machine for designing the model for efficient and intelligent retrieval. This will also consider a proposed model for developing successful retrieval.

Keywords: Information Retrieval, Web Information Retrieval, Support vector machine.

References:
6. Cross, R. A bird’s-eye view: Using social network analysis to improve knowledge creation and sharing, IBM Corporation , 2002

Authors: Parveen Dabur, Naresh Kumar Yadav, Ram Avtar

Paper Title: Matlab Design and Simulation of AGC and AVR For Single Area Power System With Fuzzy Logic Control

Abstract: This paper deals with the combination of automatic generation control (AGC) of thermal system with automatic voltage control (AVR). In this particular work thermal unit is considered with single area concept. The primary purpose of the AGC is to balance the total system generation against system load and losses. Any mismatch between generation and demand causes the system frequency to deviate from scheduled value. Thus high frequency deviation may lead to system collapse. Further the role of automatic voltage regulator is to hold terminal voltage magnitude of synchronous generator at a specified level. The interaction between frequency deviation and voltage deviation is analyzed in this paper. System performance has been evaluated at various loading disturbances. This paper describes the design, implementation and operation performance of fuzzy controller as part of the combined loop of AGC & AVR for single area power system. The fuzzy controller is implemented in the control of ACE calculation in the case of AGC & excitation in case of AVR, which determines the shortfall or surplus generation that has to be corrected. In the case of AVR, fuzzy with PID has been implemented.

Keywords: Automatic Generation Control (AGC), Automatic Voltage Regulator (AVR), Area Control Error (ACE), Frequency Response, Voltage Response, Governor Action, Power System Operation, Fuzzy logic, Fuzzy
control.

References:


Authors: G R Rajkumar, M Krishna, H N Narasimha Murthy, S C Sharma, K R Vishnu Mahesh

Paper Title: Investigation of Repeated Low Velocity Impact Behaviour of GFRP /Aluminium and CFRP /Aluminium Laminates

Abstract: The objective of this research was to investigate response of repeated low velocity impact tests on glass fibre/ epoxy-Al metal laminates (GEAML) and carbon fibre/epoxy-Al metal laminates (CEAML) at the same location using drop-weight tester. CEAML, GEAML as well as monolithic Al panels of the same thickness were impacted repeatedly up to four impacts. The effect of repeated impacts on specimen is studied on peak load, absorbed energy, decelerated velocity and impact time with respect to deflection at impactor load of 5.2 kg under gravity fall. The result shows the Al plates, GEAML and CEAML exhibit different behaviour for both landing bearing capacity and damage pattern. The maximum load bearing capacity is higher in case of monolithic aluminium but damage spread throughout the specimen, which contribute to the energy-absorbing capacity of these Al plates. In the case of GEAML and CEAML the damage is concentrated only at impact area hence lower energy-absorbing capacity.

Keywords: FML, Low velocity impact, Epoxy, Glass fibre, Carbon fibre.

References:

Authors: C K Bhensdadia, Y P Kosta

Paper Title: An Efficient Algorithm for Mining Frequent Sequential Patterns and Emerging Patterns with Various Constraints

References:
1. An Efficient Algorithm for Mining Frequent Sequential Patterns and Emerging Patterns with Various Constraints.

Authors: C K Bhensdadia, Y P Kosta

Paper Title: An Efficient Algorithm for Mining Frequent Sequential Patterns and Emerging Patterns with Various Constraints

References: An Efficient Algorithm for Mining Frequent Sequential Patterns and Emerging Patterns with Various Constraints.
Abstract: In many cases, sequential pattern mining still faces tough challenges in both effectiveness and efficiency. On the one hand, there could be a large number of sequential patterns in a large database. A user is often interested in only a small subset of such patterns. Presenting the complete set of sequential patterns may make the mining result hard to understand and hard to use. On the other hand, although efficient algorithms have been proposed, mining a large amount of sequential patterns from large data sequence databases is very expensive task. If we can focus on only those sequential patterns interesting to users, we may be able to save a lot of computation cost by those uninteresting patterns. Many types of constraints can be pushed in sequential pattern mining like item constraint, aggregate constraint, length constraint, gap constraint, duration to enhance the performance.

Keywords: Sequential Pattern, Constraints.

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10. Mining Sequential Patterns by Pattern-Growth: The PrefixSpan Approach, Jian Pei, Jiawei Han, Behzad Mortazavi-Asl, Jianyong Wang, Helen Pinto, Qiming Chen, Umeshwar Dayal, and Mei-Chun Hsu, IEEE Transactions on Knowledge and Data Engineering, Vol. 16, No. 10, October 2004.
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Authors: Amit Ganatra, Y P Kosta

Paper Title: In depth Coverage and Analysis of Information Fusion Technique (with Enhanced Algorithm for Feature Selection with Multiple Classifier System) for Data Mining

Abstract: The main objective of Information Fusion techniques in Data Mining is to show that final information generated to be of superior quality and more meaningful, than the information available from the actual (primary) sources. Fusion, by definition, requires a qualitative difference between the final output and the output of the original sources. Information fusion is the process of acquisition, filtering, correlation and integration of relevant information from various sources into one representational format that is appropriate for deriving decisions regarding the interpretation of the information. In theory, the fusion of redundant information from different sources can reduce redundancy and overall uncertainty and thus increase the accuracy of the system. The fusion can be performed on three levels: raw data level, feature level, or decision level. This paper presents a novel idea of a multiple (ensemble)
classification (classifier) system with feature selection where Neural Networks (Multilayer Feed-forward Networks with Back Propagation learning) are boosted for scalable (High Dimensional) datasets. The method uses Genetic Algorithms for Feature Selection with various Evaluation Techniques (Evaluators) like subset evaluation, consistency subset evaluation and wrapper subset approaches to enhance the performance of the feature selection and overall system.

Keywords: Classification, Multiple Classifier Pre-processing, Training, Testing, Feature Selection, AttributeSelectedClassifier (ASC)

References:

Authors: R. Hari Kumar, B. Vinoth Kumar, G. Karthick
Paper Title: Performance Analysis for Quality Measures Using K means Clustering and EM Models in Segmentation of Medical Images

Abstract: The main objective of this paper is to compare the performance of quality measures towards the segmentation of medical images using K-means clustering and EM models. Three types of medical images such as MRI, X-rays and Ultrasonic images are studied. The K-means clustering shows that the non intactness of the clusters. As cluster size increases the edges are brittle and compactness of the clusters get altered. Hence expectation maximization models are utilized to segment the images for better edge perseverance and compactness of clusters at larger size. The quality measures like PSNR, average difference, structural content, image fidelity and normalize coefficients are calculated for both methods. The EM models shows one dB increase in PSNR values than the K-means clustering. At less number of clusters AD value of EM models mitigates the compactness of the cluster centers.

Keywords: Segmentation, K-means clustering, EM models, Quality measures

References:
2. A. Schwaghofer, V. Tresp, P. Mayer, A.K. Scheel and G. Muller, The RA scanner: prediction of rheumatoid joint inflammation based on
Abstract:
Whole electric sub-control area load demand forecasting based on sub-area transformer and neural network that are very significant technique for load prediction. The research used wavelet transform method in preprocessing stage; furthermore, neural network is used to predict in forecasting stage for whole and sub-control area predictions. The comparison results show that sub-control area forecasting has a good prediction than that the whole area forecasting based on two levels of wavelet transform. An accuracy of forecast is an essential
dependent segmentation method in preprocessing stage; furthermore, a neural network is used to predict in forecasting stage for whole and electric sub-control area.

Keywords: Whole area, electric sub-control area, wavelet transform, neural network, forecasting.

References:
contents lead to increasing interest to high speed communications. Recently, space time block codes (STBC) have gained much attention as an effective transmit diversity technique to provide reliable transmission with high peak data rates to increase the capacity of wireless communication systems. In this paper, performance of STBC-OFDM is analyzed under different constraints in Rayleigh fading channels. We have studied the effect of modulation order, antenna selection techniques, slow and fast fading conditions and power conditions on the performance of STBC-OFDM.

Keywords: MIMO, OFDM, STBC, Multipath, fading

References:
4. 3GPP TR 25.996 V6.1.0, “Spatial Channel Model for Multiple Input Multiple Output (MIMO) Simulations.”

Authors: S.V. Saboji, C. B. Akki

Paper Title: Congestion-aware Proactive Vertical Handoff Decision Using Coalition Game

Abstract: In 4G wireless networks, when a mobile host (MH) with multiple wireless interfaces changes its location or needs a network service, the MH will require a switch between different wireless networks (vertical handoff). Proposed congestion-aware proactive vertical handoff scheme uses coalition game. Its main objective is to decide source and target networks for handoff at minimum congestion in 4G wireless networks. Our mechanism is based on the coalition game formulation. It aims at maximizing the utilization of the resources available and meeting QoS requirement of users as much as possible by initiating vertical handoff. This will reduce congestion level. The performance of proposed scheme is evaluated through numerical analysis.

Keywords: congestion, vertical handoff, Heterogeneous networks, and fairness.

References:
15. Ming Chiang “Balancing transport and physical layers in wireless multihop networks: Jointly optimal congestion control and power control” 3GPP TR 25.963 v6.1.0, “Spatial Channel Model for Multiple Input Multiple Output (MIMO) Simulations.”
18. Rupesh S. Shelar, Sachin S. Sapatekar, Prashant Saxena, Xiuming Wang “A Predictive Distributed Congestion Metric With Application to
This paper proposes, a technique which uses chaotic communication system combined with adaptive beamforming, for secure communications and to improve the system performance by mitigating interference. For secure communications, chaotic sequences are used. Many chaotic communication systems have been proposed, but most of them show a poor performance under realistic channel conditions (i.e. noise and multipath fading). This paper proposes a wireless communication structure based on two coupled chaotic systems. In order to enhance the error-rate performance of MIMO-OFDM system, adaptive beamforming is used. Evaluation and comparison of the performances of MIMO-OFDM system in the AWGN (Additive White Gaussian Noise) channel, Rician fading channel and the Rayleigh fading channel are provided. Results are verified and analyzed for two cases, one when adaptive beamforming is used in the proposed system and second when adaptive beamforming is not used in the proposed system. Computer simulations are done to verify the performance of the proposed approach. A simulation tool with a Graphical User Interface (GUI) which implements these algorithms is also developed to provide ease in the execution.

Keywords: Chaotic Communication System, Adaptive Beamforming, LMS (Least Mean Squares), LMS-LMS (LLMS).
References:
5. V. Nagarajan and P. Dananjayan “Performance Enhancement Of MC-DS/CDMA System Using Chaotic Spreading Sequence”
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25. S.W.Varade & K.D.Kulat “Performance Analysis of MVDR Beamformer for Smart Antenna Applications” International Conference on VLSI and Communication(ICYCom-09),Kerala April 16-18, 2009

Authors: J.Hamidi

Paper Title: Control System Design Using Particle Swarm Optimization (PSO)

Abstract: The main purpose of this paper is to select the appropriate weighting matrices for designing of optimal controller using Particle Swarm Optimization (PSO) algorithm as an intelligent procedure. Generally speaking, it is not easy to determine the optimal weighting matrices for a high-dimension control system via analytical methods. There is no direct relation between the elements of weighting matrices and desirable control system characteristics and selecting these weights is performed using time-consuming trial and error method and based on designer experiences. Superior features of PSO method are fast tuning of the parameters, rapid convergence, less computational burden and capability to avoid from local optima. Simulation results demonstrate that our proposed method is more efficient and robust compared with other heuristic method, i.e., the Genetic Algorithm (GA) method.

Keywords: Weighting matrices, Particle Swarm Optimization (PSO), Genetic Algorithm (GA).

References:

116-119
Design of Fault Tolerant Reversible Multiplier

Abstract: In the recent years, reversible logic has emerged as a promising technology having its applications in low power CMOS, quantum computing, nanotechnology, and optical computing. The classical set of gates such as AND, OR, and EXOR are not reversible. This paper proposes a novel 4x4 bit reversible fault tolerant multiplier circuit which can multiply two 4-bit numbers. It is faster and has lower hardware complexity compared to the existing designs. In addition, the proposed reversible multiplier is better than the existing counterparts in terms of delay & power. It is based on two concepts. The partial products can be generated in parallel using Fredkin gates and thereafter the addition is done by using reversible parallel adder designed from IG gates. Thus, this paper provides the initial threshold to building of more complex system which can execute more complicated operations using reversible logic.

Keywords: Reversible logic, Parity, Fredkin gate, IG gate, Constants, Garbage, Delay.

References:

Authors: Santanu Mondal
Paper Title: Two Element Superdirective Array Of Shorted Planar Inverted Cone Antenna
Abstract: The proposed wideband shorted planar inverted cone antenna (SPICA) has been described as a two element antenna array in this paper. The two element array by this antenna with proper phase of excitation and spacing between the elements provide superdirective array characteristic. This array gives peak endfire directivity from 3.502 dBi to 10.3 dBi and radiation efficiency above 98% in the operating frequency band. Also in radiation pattern characteristic, the farfield pattern of the array is more directional than single element array. Thus the proposed SPICA is suitable for wideband antenna array applications.

Keywords: SPICA, wideband, superdirective array

References:

Authors: Subir Kr. Maity, Himadri Sekhar Das

Paper Title: FPGA Based Hardware Efficient Digital Decimation Filter for Sigma-Delta ADC

Abstract: This paper focuses on the design of a FPGA based off chip digital decimation filter for single bit sigma-delta A/D converter with medium oversampling ratio for the processing of audio signal. A second-order single-stage sigma-delta (Σ-Δ) modulator with single bit quantizer with oversampling ratio 96 from FALCON Instrument is used in this work as a reference modulator. To reduce hardware requirement, multiplier less FIR filter architecture used. Total three cascaded comb type filter are used for decimation and filtering purpose. Those filters are designed and simulated with MATLAB Filter Design Toolbox and finally mapped into XILINX SPARTAN-II XC2S50PQ208 series FPGA. The overall ADC gives 14 bit resolution.

Keywords: Oversampling, quantization, SNR, Sigma-Delta, Decimation, CIC Filter, FPGA.

References:

Authors: Gurjit Singh Wallia, Gajraj Kuldeep, Rajiv Kapoor, A K Sharma, Navneet Gaba

Paper Title: FPGA Based Secret System Design-an Overview

Abstract: The implementation of cryptographic algorithm on FPGA is highly addressed in different forums due to its paramount advantages over the other platforms. Most of the secure systems are designed using SRAM based FPGAs with additional security features provided by the manufactures. In this paper, firstly, attempts are made to address different security problems of FPGA based secure systems. The difficulty levels that an attacker may face while implementing an attack are also tabulated. Finally, some constructive recommendation for tackling these security issues are proposed for designing secure systems.

Keywords: Cryptography, FPGA, Secure system, Security, ASIC, SRAM

References:


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Authors: D. Mondal, A. Chakrabarti, A. Sengupta

Paper Title: LMI Based Wide Area TCSC Controller in Mitigating Small Signal Oscillations

Abstract: This paper proposes a Linear Matrix Inequality (LMI) based robust controller design employing Wide Area Measurement (WAM) based stabilizing signals as generator speed. A Three-input, Single-output (TISO) controller is designed for a Thyristor Controlled Series compensator (TCSC) in order to mitigate small signal oscillations in a multimachine power system. The controller design has been carried out based on the mixed-sensitivity formulation in a LMI framework with pole-placement constraint. The small signal performance of the test system has been examined employing eigenvalue analysis as well as time domain response. The designed controller is found to be robust against disturbances like varying generations as well as load power demand.

Keywords: H∞ Robust Controller, Linear Matrix Inequality, Small Signal Oscillations, Thyristor Controlled Series Compensator, Wide Area Measurement

References:


Authors: Arpan Deyasi, Swapan Bhattacharyya

Paper Title: Numerical Evaluation of Junction Temperature Effect on Negative Resistivity at Different Current Densities of Si DDR IMPATT Device at Sub-millimeterwave Region

Abstract: Negative resistivity profile for Si DDR IMPATT device is numerically computed by double-iterative method with incorporation of modified Runge-Kutta method at different junction temperatures and bias current densities for different operating frequency bands in sub-millimeterwave region. Profiles are obtained throughout the depletion layer width for 1-D model consideration and assuming independence of carrier velocities over electric field in avalanche and drift regions; whereas both conduction and displacement current densities are taken into account. Analysis is helpful for comparative study of device performance with different heat sink materials.

Keywords: Current density, Junction temperature, Negative resistivity, Small-signal analysis.

References:
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References:
5. David J. Betowski, Daniel Dywer and Valeriu Beiu “A Novel Segmented Parabolic Sine Approximation for Direct Digital Frequency Synthesizers”
Compact Broad Band Dual Frequency Slot Loaded Microstrip Patch Antenna with Defecting Ground Plane for Wi-MAX and WLAN

Abstract: A dual frequency, compact microstrip patch antenna with enhanced bandwidth is presented in this paper. Microstrip antenna with bandwidth of 31% is also been designed for Wi-MAX application by defecting the ground plane. The single layered antenna has been designed to resonate in dual frequencies for Wi-MAX and WLAN with enhanced bandwidth of more than 12%. Microstrip patch antenna with inset feed is simulated with the method of Moment based standard software.

Keywords: Microstrip antenna, dual-frequency, compact, broad band, Wi-MAX, WLAN.

References:

A Coding based Approach to Load Flow Analysis using Krylov Subspace Methods for well conditioned systems

Abstract: In this work, we propose to apply the conjugate gradient algorithm to the sparse systems; we encounter these in the system admittance matrices, and we will search for a numerical solution to this system using the locally optimal steepest descent method. The system admittance matrices for an IEEE 30-bus or 57-bus system(s) are too large to be handled by direct methods like the Cholesky decomposition method. Hence, we will make use of the flexible preconditioned conjugate-gradient method, which makes use of sophisticated preconditioners, leading to variable preconditioning that change between successive iterations. The Polak–Ribiére formula, a highly efficient preconditioner, is applied to the system, to yield drastic improvements in convergence.

Keywords: Krylov subspace methods, conjugate gradient algorithm, preconditioners, Polak–Ribiére formula, assured convergence.

References:

Comparative study for delay & power dissipation of CMOS Inverter in UDSM range

Abstract: Delay and power are two major issues in design and synthesis of VLSI circuits which depends on different design parameters. In this paper, the relative study of propagation delay and power consumption of UDSM CMOS inverter is found considering the channel length below 100nm. The simulation results are taken for different technology (32nm, 45nm, 65nm and 90nm) with the help of Tanner (T-spice) simulation tool. The values of model parameters are used from current Berkeley Predictive Technology Model (PTM). Also the results are analyzed by varying load capacitance, supply voltage & transistor widths.

Keywords: UDSM, T-Spice, BPTM, Delay, Power dissipation, PDP, CMOS Inverter.
References:

Authors: S. K. Mandal, G. K. Mahanti, Rowdara Ghatak

Paper Title: Genetic Algorithm for Reducing the Side Lobe Level of Main Beam of Uniformly Excited Time Modulated Linear Array Antenna

Abstract: The Side Lobe Level (SLL) of the main beam of a uniformly excited time modulated antenna array is reduced to less than -55 dB by using Genetic Algorithm (GA). For a uniformly excited linear antenna array the maximum side lobe level is ~ -13.5 dB. In this work the uniformly excited antenna array is first time modulated and then the on-time sequences of each of the array elements are optimized by applying GA to get the desired result.

Keywords: Time Modulated Linear Array (TMLA), Side lobe level (SLL), Side band radiation (SBR), Genetic Algorithm (GA).

References:

Authors: Subhajit Das, Sandip Bhattacharyya, Debaprasad Das

Paper Title: Design of Digital Logic Circuits using Carbon Nanotube Field Effect Transistors

Abstract: The work in this paper designs the basic logic circuits using the carbon nanotube field effect transistor (CNTFET). CNTFET is a novel device that is projected to outperform scaled CMOS technologies. CNTFET-based devices offer high mobility for near-ballistic transport, high carrier velocity for fast switching, as well as better
electrostatic control due to the quasi one-dimensional structure of carbon nanotubes. CNTFET utilizes a semiconducting carbon nanotube (CNT) channel controlled by isolated electrostatic gates. It demonstrates p-type or n-type switching behavior depending upon the polarity-gate voltage. In this paper ambipolar CNTFETS are used to design basic logic circuits. The datapath logic blocks like half and full-adders are designed and their performances have been investigated.

**Keywords:** Carbon nanotube (CNT), CNT field-effect transistor (CNTFET), Transmission gate (TG), Verilog-AMS.

**References:**

**Authors:** Niladri Mandal, Souragyn Ghosh

**Paper Title:** A Modified Fast FFT Algorithm for OFDM Based Future Wireless Communication System

**Abstract:** The limited available spectrum and the inefﬁciency in the spectrum usage in a ﬁxed spectrum assignment policy demands a new communication prototype to exploit the existing wireless spectrum opportunistically. This new networking paradigm is referred to as next generation networks as well as Dynamic Spectrum Access (DSA) and cognitive radio networks. The Fast Fourier Transform (FFT) and its inverse (IFFT) are very important algorithms in signal processing, software-deﬁned radio, and the most promising modulation technique i.e. Orthogonal Frequency Division Multiplexing (OFDM). From the standard structure of OFDM we can find that IFFT/FFT modules play the vital role for any OFDM based transceiver. So when zero valued inputs/outputs outnumber nonzero inputs/outputs, then general IFFT/FFT algorithm for OFDM is no longer efﬁcient in term of execution time. It is possible to reduce the execution time by “pruning” the FFT. In this paper we have implemented a novel and efﬁcient input zero traced FFT pruning (IZTFFT) algorithm based on DIF radix-2 technique. Compare to other algorithms, the results of IZFFT shows that it is independent of the position of the zero valued input and also maintaining a good trade-off between time and space complexity of any system by not only reducing the number of complex multiplication as well as complex additions also. The proposed algorithm is implemented in high level computer program i.e. in C++and this is similar to the Cooley-Tukey radix-2 FFT algorithm, retaining all the key features such as simplicity and regularity, by making some alternation and programming modiﬁcation.

**Keywords:** Cognitive radio, OFDM, FFT, Pruning Techniques, Execution time.

**References:**

**Authors:** Tamasi Moyra, Susanta Kumar Parui, Santanu Das

**Paper Title:** Design of High Quality Factor and Harmonic Reduced Bandpass Filter Using Coupled Resonators and Defected Ground Structures
Abstract: Design of good quality factor and high selective Band pass filter (BPF) is an emerging challenge of microwave engineers in modern RF, microwave and millimeter wave communication systems. Front end of the receiver in a communication system demands high performance BPF to select the required signal from the unwanted adjacent signals with improved selectivity. In this paper one end coupled Band pass filter with centre frequency 2GHz and 30% Fractional Bandwidth (FBW) at -20 dB has been designed with rectangular split ring coupled resonators forming with conventional Microstrip transmission line. This designed BPF has been simulated with the help of MoM based IE3D electromagnetic simulation software. The proposed BPF provides first unwanted harmonic or spurious near to the twice of its passband centre frequency and some other higher harmonics at different higher frequencies. Therefore, in this paper attention also has been given towards the suppression of harmonics with the help of Defected Ground Structures (DGS) in addition with the proposed coupled microstrip BPF. Finally, one novel BPF has been designed for Satellite, GPS and Bluetooth applications of modern wireless communication systems.

Keywords: Microstrip, coupled resonator, defected ground structure, elliptical, bandpass filter, Q-factor, selectivity.

References:

Authors: S. Sarkar, A. Ray, M. Kahar, S. Biswas, D. Sarkar, P. P. Sarkar

Paper Title: Study of Frequency Tuning Characteristic of a Microstrip Patch Antenna Operating at Dual Resonant Frequency, by Modifying the Slot, Loaded in the Ground Plane

Abstract: In this paper, the tuning characteristic of a rectangular microstrip patch antenna has been studied. It has been shown, how the variation of length of the slot embedded in the ground plane results in shifting of resonant frequency. The antenna mentioned in this paper operates at two resonant frequencies. By modifying the length of the embedded slot, the ratio of the higher resonant frequency to the lower frequency can be varied from 2.03 to 1. In actual case it has been found that one of the resonant frequency remains fixed irrespective of the slot length. If the ratio of this fixed frequency to the tunable resonant frequency is considered, then the ratio can be varied from 2.03 to 0.7 by varying the slot length.

Keywords: Antenna, frequency tuning, microstrip, multiband.

References:

Authors: Somnath Maity, Abhik Roy, Tirtha Sankar Das, Subir Kumar Sarkar

Paper Title: OFDM Based High Capacity Information Hiding in Grey Scale Image

Abstract: This paper proposes a robust information hiding method by utilizing the spectrum efficient OFDM technique applied on gray scale image onto another gray carrier image. For simplicity, the data mapping in complex domain we have used 4-QAM. A modified QIM technique for data embedding is used for improving robustness. But the robustness analysis is not a common practice for QIM based data hiding. The result shows a large amount of information hiding capability along with substantial improvement in robustness against intentional impairments. But the possibility of using OFDM technique in robust high capacity data hiding has drawn a very little attention to the researchers even today.

References:
Keywords: OFDM, QIM, QAM, Capacity, Robustness.

References:

Authors: Raj Kumar Maity, Jagannath Samanta
Paper Title: Construction and Performance Studies of a Pseudo-Orthogonal Code for Fiber Optic CDMA Lan

Abstract: A pseudo-orthogonal prime sequence code and a modified prime sequence code using the elements of Galois’s Field (GF) for a particular prime number have been developed. Bit-error rate performances using Gaussian approximation technique have been made. The capacities of the prime sequence codes are determined. Detailed simulation results on the performance of the codes are presented. The codes are useful for medium access in fiber optic CDMA LAN.

Keywords: Galois’s Field, Prime Code, OOC, CDMA, FO-CDMA, S/CDMA.

References:

Authors: D.R.Godara, S.K.Modi, Rupesh Kumar Rawat
Paper Title: Study of Millimeter Wave Scattering from Ground & Vegetation at 35 GHz

Abstract: In the present work, a measurement study is undertaken to quantify the attenuation caused due to tree canopies, at 35 GHz. Now when the frequency is increased the attenuation is increased but there is a less attenuation atmosphere window at 35 GHz. So if the devices having the working frequency near about 35 GHz is taken then communication will be effective. It becomes necessary to study the microwave attenuation & Scattering due to...
Desert foliage & ground. In this investigation, the behavior of wave propagation through coniferous tree, ground & obstacles stands at 35 GHz is characterized both theoretically and experimentally. An outdoor measurement system will be setup and used for characterizing the channel behavior at 35 GHz.

Keywords: 35 GHz.

References:
2. Propagation study of Millimeter Wave Based on Rain Attenuation at 35 GHzMeasured in Western Rajasthan, ICRS-2010, Jodhpur by Dr. M.M.Sharma, D.R.Godara, Sandeep Rankawat.

Authors: Kamini Maheshwar, Sapna Bagde, Deshraj Ahirwar

Paper Title: Application Based Detection Technique for Secure Mobile Ad-hoc Network

Abstract: An ad-hoc network is often defined as an infrastructure less network, meaning a network without the usual routing infrastructure like fixed routers and routing backbones. Typically, the ad-hoc nodes are mobile and the underlying communication medium is wireless. In mobile ad-hoc networks, the data tends to be intercepted by malicious node when using a single path for transmission. Also, the wireless channel in a mobile ad-hoc network is accessible to both legitimate network users and malicious attackers. So, the task of finding good solutions for these challenges plays a critical role in achieving the eventual success of mobile ad-hoc networks. In this paper, we proposed an efficient monitoring technique that uses readily available information from different layers of the protocol stack to detect “malicious packet-dropping”, where a faulty node silently drops packets destined for some other node. A key source of information for this technique is the messages used by the special ad-hoc routing protocols. This technique can be deployed on any single node in the network without relying on the cooperation of other nodes, easing its deployment. Our simulation results show that proposed technique has good detection effectiveness across a wide variety of network mobility models.

Keywords: MANET, Secure Routing Protocol, Monitoring Detection Technique.

References:
Keywords: Breech presentation, Ultrasound transducer

References:

Authors: Nimisha Singla, Deepak Garg

Paper Title: String Matching Algorithms and their Applicability in Various Applications

Abstract: In this paper the applicability of the various strings matching algorithms are being described. Which algorithm is best in which application and why. This describes the optimal algorithm for various activities that include string matching as an important aspect of functionality. In all applications test string and pattern class needs to be matched always.

Keywords: Databases, Dynamic programming, Search engine, String matching algorithms.

References:

Authors: Mohini Ratna Chaurasia, Nitin Naiyar

Paper Title: Stepper Motor Controller using XC9572 CPLD through Mobile As a Remote

Abstract: The theory of motion control has evolved since the late 18th century. Simply, motion control is defined as accurately controlling the movement of an object based on speed, distance, load, inertia or a combination of all these factors. Due to high system complexity and difficult software language implementation, the traditional programmable logic controller based motion control systems have gradually been replaced by CPLD based control systems. In my project, the control to a stepper motor system is accomplished from a mobile and an intuitive and easy to use graphical user interface is designed by using VHDL. My paper presents, a hardware implementation of circuit which is designed for a programmable rotational stepper motor using VHDL as a design tool and the CPLD as a target technology. The design is implemented on a XC9572 kit. The advantage of using reconfigurable hardware (CPLD) instead of a PLC, Microprocessor & Microcontroller is that the designer can make modifications to the design easily and quickly, and the total design represents an embedded system. The total programmable hardware design that make control on the stepper motor movement, occupy an area that did not exceed 12% of the chip resources.

Authors: Mohini Ratna Chaurasia, Nitin Naiyar

Paper Title: Stepper Motor Controller using XC9572 CPLD through Mobile As a Remote

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References:

Keywords: CPLD, DTMF, PLC, Stepper Motor, VHDL.

References:

Authors: Dilip Kumar Sarker, Md. Mortuza Ali, Diponkar Kundu, Pallab Kanti Podder, Md. Galib Hasan

Paper Title: Effect of Waveguide Parameters on the Growth Rates in a Solid Beam Loaded Backward Wave Oscillator

Abstract: This paper contains results of analytical investigation of a solid beam driven plasma loaded backward wave oscillator. Here, an instability leading to microwave generation involves a process of three-wave interaction. The theory of approximate cubic dispersion equation valid near resonance for annular beam driven vacuum backward wave oscillator (BWO), was derived earlier. In this paper, by extending and modifying this theory is used for investigating the effect of variation of SWS size parameters on the oscillation frequency and growth rates for solid beam driven plasma loaded BWO.

Keywords: BWO, SWS, instability, plasma-loaded, dispersion, corrugated structure.

References:
42.

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 fighters lost their lives in the line of duty each year throughout the world. The statistics of the fire fighter fatalities are still maintain at high level every year and it may continue to increase if there is no improvement in fire fighting techniques and technology. The paper describes the water pressure loss analysis of mobile fire fighting machine prototype.

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

References:

Authors: C.Kumar, T.Alwarsamy

Paper Title: Solution of Economic Dispatch Problem using Differential Evolution Algorithm

Abstract: Economic Dispatch is the process of allocating the required load demand between the available generation units such that the cost of operation is minimized. There have been many algorithms proposed for economic dispatch out of which a Differential Evolution (DE) is discussed in this paper. The Differential Evolution (DE) is a population-based, stochastic function optimizer using vector differences for perturbing the population. The DE is used to solve the Economic Dispatch problem (ED) with transmission loss by satisfying the linear equality and inequality constraints. The proposed method is compared with Genetic Algorithm (GA), Particle Swarm Optimization (PSO) and Simulated Annealing (SA).

Keywords: Differential Evolution, Economic Dispatch, Genetic Algorithm, Particle Swarm Optimization, Simulated Annealing.

References:

Authors: J.Hamidi

Paper Title: Application of Multi-Layered Perceptron Neural network (MLPNN) to Combined Economic and Emission Dispatch

Abstract: This paper presents a multi-layered perceptron neural network (MLPNN) method to solve the combined economic and emission dispatch (CEED) problem. The harmful ecological effects caused by the emission of particulate and gaseous pollutants like sulfur dioxide (SO2) and oxides of nitrogen (NOx) can be reduced by adequate distribution of load between the plants of a power system. However, this leads to a noticeable increase in the operating cost of the plants. This paper presents the MLPNN method applied for the successful operation of the power system subject to economical and environmental constraints. The proposed MLP NN method is tested for a three plant thermal power system and the results are compared with the solutions obtained from the classical lambda iterative technique and simple genetic algorithm (SGA) refined genetic algorithm (RGA) method.
Keywords: Economic dispatch, Emission dispatch, the multi-layered perceptron neural network.

References:

Authors: Amit Thakkar, Y P Kosta

Paper Title: Survey of Multi Relational Classification (MRC) Approaches & Current Research Challenges in the field of MRC based on Multi-View Learning

Abstract: An increasing number of data mining applications involve the analysis of complex and structured types of data and require the use of expressive pattern languages. Many of these applications cannot be solved using traditional data mining algorithms. This observation forms the main motivation for the multi-disciplinary field of Multi-Relational Data Mining (MRDM). Unfortunately, existing “upgrading” approaches, especially those using Logic Programming techniques, often suffer not only from poor scalability when dealing with complex database schemas but also from unsatisfactory predictive performance while handling noisy or numeric values in real-world applications. However, “flattening” strategies tend to require considerable time and effort for the data transformation, result in losing the compact representations of the normalized databases, and produce an extremely large table with huge number of additional attributes and numerous NULL values (missing values). As a result, these difficulties have prevented a wider application of multi relational mining, and post an urgent challenge to the data mining community. To address the above mentioned problems, this article introduces a multiple view approach—where neither “upgrading” nor “flattening” is required—to bridge the gap between propositional learning algorithms and relational databases and current research challenges in the field of Multi relational classification based on Multi View Learning.

Keywords: Multi Relational Data Mining, Propositional Learning, Multi Relational Classification, Relational Learning.

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Authors: S. Muthukrishnan, A. Nirmalkumar

Paper Title: Comparison and Simulation of Open Loop System and Closed Loop System Based UPFC used for Power Quality Improvement

Abstract: This paper deals with digital simulation of power system using open loop system and closed loop based UPFC to improve the power quality. The UPFC is capable of improving transient stability in a power system. It is the most complex power electronic system for controlling the power flow in an electrical power system. The real and reactive powers can be easily controlled in a power system with a UPFC. The circuit model is developed for UPFC using rectifier and inverter circuits with the help of IGBT and MOSFET. The control angle of the converters is varied to vary the real and reactive powers at the receiving end. The Matlab simulation results are presented to validate the model. The experimental results are compared with the simulation results.

Keywords: UPFC, Power Quality, Statcom, Compensation and matlab simulink

References:

Authors: M Anul Haq, Kamal Jain, KPR Menon

Paper Title: Change Monitoring of Gangotri Glacier using Remote Sensing

Abstract: Himalayas has one of the largest resources of snow and ice, which act as a freshwater reservoir for all the rivers originating from it. Monitoring of these resources is important for the assessment of availability of water in the Himalayan Rivers. The mapping of Glaciers is very difficult task because of the inaccessibility and remoteness of the terrain. Remote sensing techniques are often the only way to analyze glaciers in remote mountains and to monitor a large number of glaciers in multitemporal manner. This paper presents the results obtained from the analysis of a set of multitemporal Landsat MSS, TM and ETM+ images for the monitoring and analysis of Gangotri Glacier main trunk change. The investigation has shown an overall reduction in glacier area from 63.227 sq km to 62.412 sq km between 1972 and 2010, an overall deglaciation of 1.3% percent. To monitor seasonal snow cover, NDSI based algorithm was used to monitor the Gangotri glacier main trunk.

Keywords: Ablation, Digital Elevation Model, Glacier, NDSI, Snow.

References:

Authors: Rajeshwar Lal Dua, Himanshu Singh, Neha Gambhir

Paper Title: 2.45 GHz Microstrip Patch Antenna with Defected Ground Structure for Bluetooth

Abstract: In this paper, a rectangular microstrip patch antenna with DGS has been analyzed and simulated for the wireless applications. The proposed antenna has been simulated at 2.45 GHz frequency. This compact antenna fed by Quarter Transformer feeding. This type of feeding is mostly used for impedance matching purposes. The antenna is simulated by the software HFSS. HFSS, high frequency structure simulator is employed to analyze the proposed structure.
antenna and simulated results on return loss, the E and H plane radiation pattern and polar plot gain is presented. The resultant antenna with Defected Ground Structure has improved in parameters performance.

**Keywords:** DGS, HFSS, Microstrip, Quarter.

**References:**

**Authors:** Vinay Kumar S.B, Manjula N Harihar

**Paper Title:** Diameter-based Protocol in the IP Multimedia Subsystem

**Abstract:** The Diameter protocol was initially developed by the Internet Engineering Task Force (IETF) as an Authentication, Authorization, and Accounting (AAA) framework intended for applications such as remote network access and IP mobility. Diameter was further embraced by the Third Generation Partnership Project (3GPP) as the key protocol for AAA and mobility management in 3G networks. The paper discusses the use of Diameter in the scope of the IP Multimedia Subsystem (IMS) as specified by 3GPP. This paper presents a solution for the problem of how to provide authentication, authorization and accounting (AAA) for multi-domain interacting services by referring open diameter. We have studied the case of ‘FoneFreez’, a service that provides interaction between different basic services, like telephony and television. The involvement of several parties like television provider, telephony provider etc., secure interaction between multiple domains must be assured. A part of this security issue can be resolved using AAA. In this paper the AAA protocol Diameter is used for that purpose, which is the successor of the RADIUS protocol. The authors have taken a look at open diameter can be used for AAA in multi-domain service interaction.

**Keywords:** Diameter protocol, IP Multimedia Subsystem, AAA, CSCF, HSS, SIP

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**Authors:** Pallavi Sharma, Vijay Singh Rathore

**Paper Title:** Regulating Bandwidth Flow Estimation and Control for Wired/Wireless Networks

**Abstract:** In this topic, an analysis will be made on the problems faced by bandwidth constrained applications which come under networking domain. For bandwidth constrained applications, a proper monitoring of available bandwidth is an important factor to avoid degradation in performance while execution. Such application example could be video or voice chat on Internet, which consumes more bandwidth and its overall performance is bandwidth constraint. After the implementation of 802.11e Wireless Sensor Networks are capable to provide good level of QoS but research works are not much for improving performance of bandwidth constraint applications by checking efficiency of bandwidth available in transmission route. We propose to design and develop a system for 802.11 based ad-hoc networks, which estimate the network traffic bandwidth and control the flow of traffic on given channels. Our research would be capable to work on both wired and wireless ad-hoc network, On top of it, It would be able to show the simulation results on multiple computers.

**Keywords:** Bandwidth, Estimation, Control, Wired/Wireless Networks

**References:**

Authors: Sanjeev Kumar, Somnath Chattopadhyaya, Vinay Sharma

Paper Title: Green Supply Chain Management: A Case Study from Indian Electrical and Electronics Industry

Abstract: This study aims to investigate the green supply chain management practices likely to be adopted by the manufacturing industry of electrical and electronics products in India. The approach of the present research includes a literature review, in depth interviews and questionnaire surveys. The relationship between green supply chain management practices and environmental performance is studied. The industries in the electrical and electronics products industry in India were sampled for empirical study. The data were then analyzed using “mean score”. The results indicate that performance of eco procurement, eco accounting, eco logistics design, eco product design, eco manufacturing, economic performance, etc practices in response to the current wave of national & international green issues and also environmental performance of the electrical and electronics industry.

Keywords: Indian industry, electrical and electronics, green supply chain, environmental performance, case study.

References:

Authors: M Anul Haq, Kamal Jain, KPR Menon

Paper Title: Development of New Thermal Ratio Index for Snow/Ice Identification

Abstract: Existing methods and newly developed method of monitoring snow-covered areas by optical remote sensing were evaluated using the ASTER Satellite data of Satopanth and Bhagirathi Kharak Glaciers, and Landsat satellite data of Gangotri glacier, one of the largest ice bodies in the Indian Himalayas. Snow-covered areas were identified using two methods: (1) Normalized Difference Snow Index (NDSI) which uses visible and shortwave-infrared reflectance’s, and (2) a newly proposed snow index called NDSTI which uses visible, thermal-infrared reflectance’s. NDSTI can be achieved by the ratioing of significantly distinguishing bands and normalizing those values to a standardized range will provide a sensitive and comparable test of thermal character. The NDSTI is useful for the identification of snow and ice and for separating snow/ice and most water bodies. The NDSTI is a measure of the relative magnitude of the characteristic reflectance difference between the visible and TIR reflectance of snow. A comparison between NDSI vs. NDSTI has been attempted in current investigation.

Keywords: Accumulation, Classification, processing, Snow, Thermal

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The job scheduling problem is the problem of assigning the jobs in the system in a manner that will optimize the overall performance of the system. Particle swarm, Ant colony, Bee colony are examples of swarm intelligence systems. Artificial bee colony (ABC) algorithm is a powerful and efficient algorithm for solving the job scheduling problem. ABC algorithm is based on the intelligent foraging behavior of honey bee swarm. Particle swarm, Ant colony, Bee colony are examples of swarm intelligence systems. The ABC algorithm is a relatively recent term, defines the paths ahead in computer science world. Being built on decades of research it utilizes all recent achievements in virtualization, distributed computing and utility computing. This paper is about the definition of cloud, architecture and security issues of cloud.

Keywords: Cloud, virtualization, security, infrastructure.

References:


**Authors:** Govind Sharma, Manish Gupta

**Paper Title:** Black Hole Detection in MANET Using AODV Routing Protocol

**Abstract:** Mobile Ad-hoc network (MANET) has become an individual part for communication for mobile device. Therefore, interest in research of Mobile Ad-hoc network has been growing since last few years. Due to the open medium, dynamic network topology, autonomous terminal, lack of centralized monitoring and lack of management problems, Mobile Ad-hoc network are highly vulnerable to security attacks compared to wired network or infrastructure-based wireless network. In this paper, we analyze the black hole attack. In this attack, a malicious node falsely advertise shortest path to the destination node. The intensity of malicious node could be to intercept all data packets being sent to the destination node concerned. We proposed our approach to detect the black hole attack in Mobile Ad-hoc network. This approach is based on the AODV (ad-hoc on demand distance vector) routing algorithm. In this paper we are enhancing the secured AODV routing algorithm. Here we are making more secure AODV routing algorithm and using promiscuous mode of the node in promiscuous mode node can learn about the neighbouring routes traversed by data packets if operated in the promiscuous mode.

**Keywords:** Secured Routing, AODV, Ad-hoc network, Black Hole Attack, Malicious node, MANET.

**References:**


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Authors: Manish Gupta, Govind Sharma
Paper Title: An Efficient Face Recognition System Based on Sub-Window Extraction Algorithm

Abstract: In this paper, an efficient face recognition system based on sub-window extraction algorithm and recognition based on principal component analysis (PCA) and Back propagation algorithm is proposed. Our proposed method works on two phases: Extraction phase and Recognition phase. In extraction phase, face images are captured from different sources and then enhanced using filtering, clipping and histogram equalization. Enhanced images are converted into edge images using Sobel operator and then converted into binary images. Finally sub windows from extracted using proposed sub windows extraction algorithm and extract different features (mouth, eyes, nose etc.) from these sub windows. In recognition phase, back propagation algorithm (BPA) and PCA algorithm is used. The experiments are carried out using IIIM Gwalior database, IIT Kanpur database and Face_94 database.

Keywords: Sub-windows extraction, principal component analysis (PCA), Back propagation algorithm (BPA), Face recognition, Neural Network.

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Authors: Sarin CR, Manu R Krishnan
Paper Title: Growing Self Organized Maps for Radiographic Non Destructive Testing of Metallic Products

Abstract: Manual inspection of metallic products can only be a time-consuming and is less reliable to find microscopic and internal defects, therefore is an expensive task; it can also suffer from operator performance. The proposed system apply image processing techniques to automatically inspect radiographic images and evaluate the data to find faults and is based on Improved Growing Self organized Maps Segmentation. The number of false detections is still high and will be addressed in future research. Monitoring the defect or damage at an early stage is a very important as it allows to implement operations to classify and correct defects and improves the safety, reliability, accuracy, and high throughput of the structure. This paper presents an improved intelligent methodology for Radiographic automated visual quality inspection and, which provides many advantages over traditional methods. The accuracy of conventional systems is very much depending on the selected features, which are extracted from defect images. Growing Self Organized Maps for Radiographic Non Destructive Testing is an advanced method...
suitable for crack detection, which gives a smoothed image to obtain uniform brightness, followed by removing isolated points to remove noise and morphological operations with fast operation.

Keywords: Automatic Quality Inspection, GSOM, NDT, Object detection

References:

Authors: D.Kishore Babu, Y.Nagasatish, P.M.Prasuna

Paper Title: Mining Train Delays by Using Frequent Itemsets

Abstract: The Indian railway network has a high traffic density with Vijayawada as its gravity center. The star- shape of the network implies heavily loaded bifurcations in which knock-on delays are likely to occur. Knock-on delays should be minimized to improve the total punctuality in the network. Based on experience, the most critical junctions in the traffic flow are known, but others might be hidden. To reveal the hidden patterns of trains passing delays to each other, we study, adapt and apply the state-of-the-art techniques for mining frequent episodes to this specific problem.

Keywords: Train delays, Data Analysis, Pattern mining, frequent itemsets, Hidden trains.

References:

Authors: R. HariKumar, V.K. Sudhaman, C.Ganesh Babu

Paper Title: FPGA Synthesis of Fuzzy (PD and PID) Controller for Insulin Pumps in Diabets Using Cadence

Abstract: This paper emphasizes on a FPGA synthesis of Fuzzy PD and PID Controller in biomedical application. We aim at identifying a proper methodology for the infusion process of insulin to diabetic patients using an automated fuzzy logic PD and PID controller. A synthesis of FPGA model of the above automatic controller is analyzed and synthesized. In Type I and Type II diabetes the patient is dependent on an external source of insulin to be infused at an appropriate rate to maintain blood glucose concentration. Hypoglycemia has short term effects which can lead to diabetic coma and possibly death, while hyperglycemia has a long term impact that has been linked to nephropathy, retinopathy and other tissues damage. In this process insulin is administrated through an infusion pump as a single injection. The pump is controlled by the automatic control Fuzzy PD Controller which is more efficient
signed controller is implemented with low power multiplier and
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-architectures have emerged as a promising alternative to address the problems associated with on-chip busses by employing a packet-based micro-network for inter-IP communication. Some of the most important phases in designing the NoC are the design of the topology or structure of the network and setting of various design parameters (such as frequency of operation, link-width, etc.) This paper surveys the various topological structures for NoC proposed in the research domain

Keywords: NoC, SoC, Topology, Routing, Buffers, Virtual Channel.

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Abstract: Lossless compression of a sequence of symbols is important in Information theory as well as today’s IT field. Huffman coding is lossless and is most widely used. However, Huffman coding has some limitations depending on the stream of symbols appearing in a file. In fact, Huffman coding generates a code with very few bits for a symbol that has a very high probability of occurrence and a larger number of bits for a symbol with a low probability of occurrence [1]. In this paper, we present a novel technique that subdivides the original symbol sequence into two or more subsequences. We then apply Huffman coding on each of the subsequences. This proposed scheme gives approximately 10-20% better compression in comparison with that of straightforward usage of Huffman coding.

Keywords: Huffman decoding, Table lookup

References:

Authors: Panchakshari H.V., Girish D.P., M Krishn

Paper Title: Effect of Deep Cryogenic Treatment on Microstructure, Mechanical and Fracture Properties of Aluminium-Al2O3 Metal Matrix Composites

Abstract: The aim of this research work was to focus on the effect of deep cryogenic treatment on the microstructure, mechanical and fracture properties of Al6061/Al2O3 metal matrix composites (MMCs) at -196 °C for different time duration. Al/Al2O3 metal matrix composites containing 5, 10, 15 and 20% of Al2O3 are produced by liquid metallurgy technique. After deep cryogenic treatment of samples at liquid nitrogen temperature, the microstructure of specimens shows the change in distribution of precipitates. The precipitate particles almost dissolved in the matrix and obtained very fine grain boundaries. The modification of microstructure of MMCs due to cryogenic treatment shows significant improvement in mechanical properties of the MMCs. The preferred orientation of grains was sufficiently corroborated by XRD results of Al/Al2O3 composite before and after cryogenic treatment.

Keywords: Metal Matrix Composites, Cryogenic treatment, microstructure, microhardness

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Authors: Naveen Choudhary

Paper Title: Bursty Communication Performance Analysis of Network-on-Chip with Diverse Traffic Permutations

Abstract: To satisfy the increasing communication demands of complex VLSI circuits, Network on Chip (NoC) has been introduced as a new paradigm, where processing and communication can be independently catered by communication infrastructure design. Network on Chip proposes to establish a communication infrastructure for the complex VLSI circuit in such a way that communication between any nodes in the circuit is possible even if the circuit blocks are not directly connected by a direct channel. Each circuit block of the whole circuit can be assumed as an Intellectual Property (IP) which may be a microprocessor, memory or ASIC, etc. In this paper the performance of standard 2D mesh NOC is analyzed for bursty communication traffic for various traffic or topology mapping patterns such as butterfly, transpose etc over a NOC simulation framework. The routing for the NoC is assumed to be XY and OE.

Keywords: NoC, Simulation, VLSI, Transpose, Traffic latency

References:

Authors: Gururaja M N, A N Hari Rao

Paper Title: A Review on Recent Applications and Future Prospectus of Hybrid Composites

Abstract: Hybrid composite Materials have extensive engineering application where strength to weight ratio, low cost and ease of fabrication are required. Hybrid composites provide combination of properties such as tensile modulus, compressive strength and impact strength which cannot be realized in composite materials. In recent times hybrid composites have been established as highly efficient, high performance structural materials and their use is increasing rapidly. Hybrid composites are usually used when a combination of properties of different types of fibres have to be achieved, or when longitudinal as well as lateral mechanical performances are required. The investigation of the novel applications of hybrid composites has been of deep interest to the researchers for many years as evident from reports. This paper presents a review of the current status of hybrid composite materials technology, in terms of materials available and properties, and an outline of some of the trends, obvious and speculative, with emphasis on various applications including some details of smart hybrid composites.

Keywords: Hybrid composites, strength, stiffness, tensile modulus, smart hybrid composites

References:

Authors: Pratibhadevi Tapashetti, A.S Umesh, Ashalatha Kulshrestha

Paper Title: Design and Simulation of Energy Efficient Full Adder for Systolic Array

Abstract: Full adder is an essential component for the design and development of all types of processors viz. digital signal processors (DSP), microprocessors, Microcontrollers, ARM processors etc. Full adder is the basic building block for all arithmetic and logical operations. For the speed improvement the systolic array using the full adders is involved in almost all the processors. Adders are the core elements of complex arithmetic operations like addition, subtraction, multiplication, division, exponentiation etc. In most of these systems adder lies in the critical path that affects the overall speed of the system. So enhancing the performance of the 1-bit full adder cell is a significant goal. The present study proposes an efficient full adder cell design and simulation using the simulation software Edvin XP which considerably increases the speed.

References:

Authors: R . Jayanthi, I.A.Chidambaram

Paper Title: Power System Restoration Index for Load Frequency Control Assessment Using Artificial Bee Colony Algorithm in a Two-Area Reheated Interconnected Power System Co-ordinated with SMES Units

Abstract: This paper proposes evaluation of Restoration Indices for the Load-Frequency Control assessment of a Two-Area Two Unit Interconnected Power System (TATURIPS) coordinated with Superconducting Magnetic Energy Storage (SMES) units. As Proportional Integral (PI) type controller is still widely used for the solution of the Load Frequency Control (LFC) problem, in this paper also PI controllers are used. The optimal gain tuning of PI controllers for various case studies for the LFC problem is proposed and obtained using Artificial Bee Colony (ABC) algorithm. These controllers are designed and implemented in a TATURIPS coordinated without and with SMES units. The system was simulated and the frequency deviations, tie line power deviations, control input deviations and additional mechanical power generation required for step load disturbance of 0.01 p.u.MW and 0.04 p.u.MW without and with outage condition in area-1 are presented. The simulation results and the evaluation of the Restoration Indices shows that the TATURIPS coordinated with SMES units ensures a better transient and steady state response and improved Restoration Indices than that of TATURIPS without SMES Units.

References:

Authors: S. Rajkumar, V. Narayani, S. P. Victor
Paper Title: Epidemic Analysis of uncertainty in Deception Detection under Fuzzified Anomalies
Abstract: Nowadays in this competitive world of job seekers, the necessity of job makes many recruiters to provide more caution on their selection process. The recruitment process is definitely a fuzzified anomaly for all the components available in the environment. The art of deception also changes its face with a modern artistic fashion. This paper deals with the uncertainty features which play the major role of Deception in a fuzzified environment of Recruitment process. We deal with the impacts of uncertainty in deception detections and also with the underlying environment of fuzzification. In this paper we proposed a Research Model which considers the linkage of fuzzification and uncertainty in Deception Detection. In this paper we implement our proposed model with an experiment which includes warning and lack of warning to the recruiters upon the competitors. Enumerated results and discussions mould the impact of uncertainty and fuzziness in Deception Detection.

Keywords: Deception, Fuzzy logic, Randomization, Uncertainty.

Authors: R.Valli, P. Dananjayan
Paper Title: Power Control with MIDRS Codes in VMIMO WSN Using Game Theoretic Approach
Abstract: Improvements in electronic and computer technologies have tilted the path for explosion of wireless sensor networks (WSN). A fundamental component of resource management in WSN is transmitter power control and an efficient power control technique is essential to support system quality and efficiency. The data transmitted from the sensor nodes is highly susceptible to error in a wireless environment which increases the transmit power. Error control coding (ECC) schemes can improve the system performance and has an impact on energy consumption. Further the adverse impacts caused by radio irregularities and fading increases the energy consumption and thereby reduces the WSN lifetime. To reduce the fading effects in wireless channel, multi-input multi-output (MIMO) scheme is utilised for sensor network. This paper proposes a power control solution considering Multivariate Interpolation Decoding RS (MIDRS) Code in Virtual MIMO (VMIMO) WSN using game theoretic approach. The game is formulated as a utility maximizing distributed power control game while considering the pricing function. VMIMO utilising space time block code (STBC) along with MIDRS code enables to achieve higher energy savings and longer network lifetime by allowing nodes to transmit and receive information jointly. The performance of the proposed power control scheme with MIDRS code for the virtual MIMO wireless sensor network is evaluated in terms of utility, power efficiency, energy consumption and network lifetime.

Keywords: Game theory, MIDRS code, Space time block code, Virtual MIMO, Wireless sensor network
Abstract: In a typical wireless mobile ad hoc network (MANET) using a shared communication medium, every node receives or overhears every data transmission occurring in its vicinity. However, this technique is not applicable when a power saving mechanism (PSM) such as the one specified in the IEEE 802.11 is employed, where a packet advertisement period is separated from the actual data transmission period. When a node receives an advertised packet that is not destined to it, it switches to a low-power state during the data transmission period, and thus, conserves power. However, since some MANET routing protocols such as Dynamic Source Routing (DSR) collect route information via overhearing, they would suffer if they are used with the IEEE 802.11PSM. Allowing no overhearing may critically deteriorate the performance of the underlying routing protocol, while unconditional overhearing may offset the advantage of using PSM. This paper proposes a new communication mechanism, called Random Cast or Rcast, via which a sender can specify the desired level of overhearing, and collect route information for future use. Rcast improves not only the energy efficiency, but also the energy balance among the nodes, without significantly affecting the routing efficiency.

Keywords: Energy balance, energy efficiency, mobile ad hoc networks, network lifetime, overhearing, power saving mechanism.

References:

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<th>G. Sunil Kumar, C.V.K Sirisha, Kanaka Durga,R, A.Devi</th>
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<tr>
<td>Paper Title:</td>
<td>Robust Preprocessing and Random Forests Technique for Network Probe Anomaly Detection</td>
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<td>Abstract:</td>
<td>During the past few years, huge amount of network attacks have increased the requirement of efficient network intrusion detection techniques. Different classification techniques for identifying various real time network attacks have been proposed in the literature. But most of the algorithms fail to classify the new type of attacks due to lack of collaborative filtering technique and robust classifiers. In this project we propose a new collaborative filtering technique for preprocessing the probe type of attacks and implement a hybrid classifiers based on binary particle swarm optimization (BPSO) and random forests (RF) algorithm for the classification of PROBE attacks in a network. PSO is an optimization method which has a strong global search capability and is used for fine-tuning of the features whereas RF, a highly accurate classifier, is used here for Probe type of attacks classification.</td>
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<td>Keywords:</td>
<td>Random forest, self organizing map, intrusion detection, filtering, Normalization.</td>
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<td>Paper Title:</td>
<td>Web Users Session Analysis Using DBSCAN and Two Phase Utility Mining Algorithms</td>
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<td>Abstract:</td>
<td>One of the important issues in data mining is the interestingness problem. Typically, in a data mining process, the number of patterns discovered can easily exceed the capabilities of a human user to identify interesting results. To address this problem, utility measures have been used to reduce the patterns prior to presenting them to the user. A frequent itemset only reflects the statistical correlation between items, and it does not reflect the semantic significance of the items. This proposed approach uses a utility based itemset mining approach to overcome this limitation. This proposed system first uses Dbscan clustering algorithm which identifies the behavior of the users page visits, order of occurrence of visits. After applying the clustering technique High Two phase utility mining algorithm is applied, aimed at finding itemsets that contribute high utility. Mining web access sequences can discover very useful knowledge from web logs with broad applications. Mining useful Web path traversal patterns is a very important research issue in Web technologies. Knowledge about the frequent Web path traversal patterns enables us to discover the most interesting Websites traversed by the users. However, considering only the binary (presence/absence) occurrences of the Websites in the Web traversal paths, real world scenarios may not be reflected. Therefore, if we consider the time spent by each user as a utility value of a website, more interesting web traversal paths can be discovered using proposed two-phase algorithm. User page visits are sequential in nature. In this paper MSNBC web navigation dataset is used to compare the efficiency and performance in web usage mining is finding the groups which share common interests General Terms Web session mining, log analysis.</td>
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<td>Keywords:</td>
<td>Websusage Mining, Itemset, DBScan, Association rules.</td>
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72. 391-395
73. 396-401
Abstract: Convergence of wireless local area network (WLAN) and third generation (3G) wireless network is expected to create new markets for service providers and tender enhanced services to the integrated network users. In this paper, call admission control (CAC) schemes viz., throughput (TP) based CAC and dynamic partitioning (DP) CAC with service differentiation for WLAN coupled to 3G network have been analysed. The 3G/WLAN convergence network with TP based admission control is developed for loose, tight and hybrid coupled network. DP scheme, a resource allocation mechanism is also implemented, in which the differentiation between the data and voice calls are made by using different thresholds. The performance parameters such as delay, throughput, voice and data call blocking probabilities are analysed for different coupled networks.

Keywords: 3G/WLAN convergence network, call admission control, inter-networking.

References:
are used to make the classification process by generating the fuzzy rules using extracted features. Five features are extracted from the MRI images: they are two dynamic statistical features and three 2D wavelet decomposition features. In Segmentation, the normal tissues such as WM (White Matter), GM (Gray Matter) and CSF (Cerebrospinal Fluid) are segmented from the normal MRI images and pathological tissues such as Edema and Tumor are segmented from the abnormal images. The non-cortical tissues in the normal images are removed by the preprocessing stage. The implementation result shows the efficiency of proposed tissue segmentation technique in segmenting the tissues accurately from the MRI images. The performance of the segmentation technique is evaluated by analyzing a used defined set of MRI brain image and compared against K-means clustering and Fuzzy ANN based segmentation methods.

**Keywords:** MRI, FFBNN, FIS

**References:**
cost effective and desired QoS. The proposed Hybrid Ad-hoc Network (HANET) topology is a combination of static nodes of grid topology of SANET and the mobile nodes of random topology of MANET. In the recent past, many researchers have shown interest in the development of directional antenna based MAC protocols. Although directional antenna brings in advantages of higher transmission range, spatial reuse and so on but equally suffers from typical problems of hidden/exposed terminals, head-of-line blocking and deafness etc. In this paper, we have proposed a novel protocol based on the directional smart antenna to exploit the advantage of spatial reuse in terms of multiple concurrent transmissions while ensuring collision avoidance. Simulation results demonstrated that the throughput and end-to-end delay performances of the proposed MAC protocol with HANET model is significantly better than the legacy MANETs with IEEE 802.11-MAC.

Keywords: (MANETs), (HANET).

References:
3. C. Ng, and S. C. Liew, “Offered load control in IEEE 802.11 Multi-hop Ad hoc
6. L. Bao and J. Gracia-Luna-Aceves, “Transmission scheduling in ad hoc

Authors: Santanu Roy

Paper Title: Some New Type of Fuzzy I-Convergent Double Difference Sequence Spaces

Abstract: In this paper we introduce some new classes of double difference sequence spaces of fuzzy numbers. We study different topological properties of these sequence spaces like completeness, solidity etc. Also we obtain some inclusion relation involving these sequence spaces.

Keywords: Fuzzy real number, Difference sequence, Solid space, Monotone, Sequence algebra.

References: