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1.

Authors: Ahmed Abdulridha Thabit, Hadi T. Ziboon

Paper Title: Improving Probability of Detection using CFAR and Adaptive Threshold for Cognitive Radio (CR)

Abstract: The electromagnetic radio spectrum is a licensed resource is carefully managed by governments. User's needs in wireless services, leads to the scarcity of available spectrum and inefficient channel utilization. The cognitive radio is the optimum solution for these requirements. The abilities to detect a primary user (PU) as well as to avoid any false alarm are of paramount importance for such a system. The Cognitive Radio has the ability to get the unlicensed user (secondary user (SU)) to use the spectrum for while according to the sensing time. In this paper increased the probability of detection (Pd) using the constant false alarm rate (CFAR) and soft decision (adaptive threshold) instead of hard decision was adapted to select the best threshold to improve the detection. The results show a good detection at variable low SNR values.

Keywords: cognitive radio, cfar, energy detector.

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2.

Authors: Vinay Raj Pandey, Shivesh Tiwari, Arun Kumar Shukla, Ashutosh Shukla

Paper Title: An Efficient and Effective Method for Sequential Rule Mining

Abstract: Tremendous amount of data being collected is increasing speedily by computerized applications around the world. Hidden in the vast data, the valuable information is attracting researchers of multiple disciplines to study effective approaches to derive useful knowledge from within. This thesis aims to investigate efficient algorithm for mining including association rules and sequential patterns. Mining sequential patterns with time constraints, such as time gaps and sliding time-window, may reinforce the accuracy of mining results. However, the capabilities to mine the time-constrained patterns were previously available only within Apriori framework. Recent studies indicate that pattern-growth methodology could speed up sequence mining. Current algorithms use a generate-candidate-and-test approach that may generate a large amount of candidates for dense datasets. Many candidates do not appear in the database. Therefore we are introducing a more efficient algorithm for sequential rule mining. The time & space consumption of proposed algorithm will be lesser in comparison to previous algorithms.

Keywords: Sequential rule Mining, Confidence, Support

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3.

Authors: Mahdi Hosseini, Hadi Hosseini, Seyed Amin Ahmadi Olounabadi, Ahmad Hosseini

Paper Title: Earthquake Risks and Effects of Earthquake Load on Behavior of Wood Frame Structure by Using International Residential Code (IRC)

Abstract: This paper discusses the earthquake-resistance implications of additions and alterations and provides recommendations and references for earthquake upgrades. This paper provides information on current best practices for earthquake-resistant house design and construction for use by builders, designers, code enforcement personnel, and potential homeowners at hill regions. It also introduces and explains the effects of earthquake loads on one- and two-family detached houses with wood frame structure and identifies the requirements of the 2003 International Residential Code (IRC) intended to resist these loads. The paper was a timely intervention aiming to strengthen the institutional capacities at all levels for reducing seismic risks, and to plan and implement earthquake risk reduction and disaster recovery preparedness measures in selected municipalities. The paper was greatly contributed to earthquake preparedness planning and safe construction practices for new buildings and retrofitting of existing poorly constructed unsafe buildings in Hilly regions. Post earthquake damage survey revealed that 90% of casualties result directly from the collapse of buildings that had usually no earthquake-resistant features. Mainly the paper enhanced the skills of construction engineers, architects and masons about safe building design and construction.

Keywords: earthquake, construction, hill region, safe constructions, International Residential Code(IRC), wood frame structure

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4.

Authors: **Bandhan V, K Neetish Bhat, Karthik C Borkar, Mamtha HR**

Paper Title: **Handwritten Form Processing**

Abstract: Analysis of document images for information extraction has become vital in the modern day. These days so much variety of information is being conventionally stored on paper. For better storage and accurate processing, the paper is being converted into electronic form. This involves a lot of processing of documents using image processing techniques and other computer vision concepts. Pre-Processing techniques like Gaussian Blur, Otsu Thresholding, Median Filter and morphological operations are adopted to increase accuracy of recognition. Based on contours each fields of form are segmented. Character segmentation is done based on bounding box. MNSIT SD-19 database is used for training of characters. SVM and k-NN techniques are used for classification. Our implementation was tried for 10 requisition for certificate forms. Out of 10 forms 8 forms was correctly generated. So the accuracy of result is found to be 80%.

Keywords: Object Character Recognition; Pre-Processing; Segmentation; Classification; Post-Processing.

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5.

Authors: **Tom Varghese, Jesu Raj, E. Raja, C. Thamotharan**

Paper Title: **Performance and Emission Testing on Algae Bio Fuel using Additives**

Abstract: Due to the depletion of non-renewable fossil fuels there are many alternative fuels introduced today, one of alternative fuel used is Bio-Diesel , but Bio-Diesel has low performance characteristics and not commercially used , Therefore in my experiment I am using algae based biodiesel with blends of Diesel additives and experimental investigation is done to find the engine performance and emission characteristic of a compression ignition engine by using organic materials also some other alcoholic substances as additives to diesel-biodiesel blends .The use of algae as bio-diesel is studied and it has been tested to obtain increased performance and low emission. The Brake thermal efficiency (Bthe) will be increased and the specific fuel consumption (SFC) level will be reduced , The engine emission is noted to have reduced emission of hydrocarbon(HC) emission, Nitrogen oxide(NOx) emission, Carbon monoxide(CO) emission , It is done first by using pure diesel as base fuel, and then by adding nanoparticles to the diesel-biodiesel blends, which is the modified fuel . Both the fuels and compared based on their performance test and Emission test.

Keywords: Bio-Diesel, (Bthe), (SFC), (NOx) (CO), (HC)

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6.

Authors: **Satish Pujari, A. Ramakrishna, K.T Balaram Padal**

Paper Title: **Experimental Investigation of Mechanical Properties of UNI Directional Jute and Banana Fiber Composites**

Abstract: Natural fibers came into exposure from the research community like never before in the history, due to the number of advantages over traditional synthetic fibers, like low cost, low density, high specific strength and modulus, easy availability, renewability and much lower energy requirement for processing. This research deals about the mechanical properties of composites like Jute and Banana as reinforcing materials in epoxy resin based polymer matrix, for making partially green biodegradable material composite via hand lay-up technique. Jute is a rain fed crop, the fibers are extracted by retting. Banana fiber can be obtained easily from the plants, which are rendered as waste after the fruits have ripened. These fibers are exposed to NaOH treatment before reinforcement. The reinforcing of the resin with Jute and Banana fiber accomplished in four different orientations: 0°, 15°, 30° and 45° with reference to horizontal side of the sheet by employing optimized resin. Mechanical properties (Tensile, Impact) of both Jute fiber composites and Banana fiber composites were investigated as a function of fiber orientation. Results showed that the composite properties are strongly influenced by test direction and fabric characteristics. Comparatively, Composites tested along the Jute fabric 0° orientation obtained best overall mechanical properties.

Keywords: Mechanical Properties of Jute fibers, Mechanical Properties of Banana fibers, tensile properties of fibers, Impact properties of fibers, Fiber orientation

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7.

Authors: **Praveen S, Jayakumari D, Rajakumar S, Jegan J**

Paper Title: **Issues, Challenges and Risks in Investing Public Water Transportation System of Kochi**

Abstract: This paper attempts to assess the problems ailing in the water transportation sector around Kochi. The major waterways in the location have been designated as National Waterways and State Navigational Canals (State Waterways). The main arterial waterway in the city is Champakara Canal, Udyogamandal Canal, National Waterway and waterways connecting between the city and its various environs islands. Kochi is abundantly blessed with

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waterways of over 1,100 kms. However, only forty kilometres out of these are considered navigable for motor boats, according to the Kerala State Inland Navigation regulation states a minimum 14m width, minimum depth of 1.5m and minimum 5m overboard clearance is mandatory for their operations. Inland Canals plays an important role in the economy of the state water transport department and interconnects the islands on the Kochi environs. It relies upon extensive review of data, people's observations about the water transport system recorded through primary surveys, and perception studies to suggest feasible measures towards addressing those problems... Conclusively, the outlook of inland navigation in Kochi region looks promising, in which issues on infrastructural gaps and institutional support are addressed suitably.

Keywords: problems, Champakara, Navigation, Conclusively, outlook.

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Authors: **Harsh Deep, Varsha**

Paper Title: **Evaluation of Various Data Aggregations Techniques for Energy Efficient Wireless Sensor Networks**

Abstract: The quick growth in network multimedia equipments have allow additional real-time digital services such as video-conferencing, online games and distance education to develop to be the standard internet tasks. WSNs is now major part of research in computational theory because wide variety of applications. But due to limited battery power consumption has become major limitations of WSNs protocols. Though many protocols has been proposed so far to improve the energy efficiency further but still much enhancement can be done. This paper has presented various data aggregation techniques for WSNs. This paper has shown that the among others GSTEB has shown quite significant results.The general objective of this paper is to evaluate the limitations of the earlier techniques of data aggregation. This paper ends up with the suitable future directions to extend GSTEB protocol further

Keywords: WSNs, GSTEB, DATA AGGREGATION, ENERGY.

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9.

Authors: **Naveen S, R.S Moni**

Paper Title: **3D Face Fecognition using Fourier-Cosine Transform Coefficients Fusion**

Abstract: 3D Face recognition has been an area of interest among researchers for the past few decades especially in pattern recognition. The main advantage of 3D Face recognition is the availability of geometrical information of the face structure which is more or less unique for a subject. This paper focuses on the problems of person identification using 3D Face data. Use of unregistered 3D Face data significantly increases the operational speed of the system with huge database enrolment. In this work, unregistered 3D Face data is fed to a classifier in multiple spectral representations of the same data. Discrete Fourier Transform (DFT) and Discrete Cosine Transform (DCT) are used for the spectral representations. The face recognition accuracy obtained when the feature extractors are used individually is evaluated. Fusion of the matching scores proves that the recognition accuracy can be improved significantly by fusion of scores of multiple representations. FRAV3D database is used for testing the algorithm.

Keywords: Point Cloud, Rotation Invariance, Pose Correction, Depth Map, Spectral Transformations, and Principal Component Analysis.

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Authors: **R. Tuksaitova, A. Albekova, G. Omarova, R. Zakiraeva**

Paper Title: **To The Question of Bilingual Situation in Modern Kazakhstan**

Abstract: This article deals with the problem of the language situation in modern Kazakhstan. The authors draw attention to the particular functioning of Kazakh and Russian languages. Interest is the problem of language use in various fields of activity: the field of science, education, the media, in Literature, etc. Due to the multiethnic situation language policy in Kazakhstan is determined to meet the needs of inhabited 130 ethnic groups. Kazakhstan is characterized by the existence of natural bilinguism.

Keywords: Bilinguism, Ethnic Groups, Subordinative, Sociocultural.

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11.

Authors: **Igwe Agu Felix, Eneh I I**

	Paper Title:	**A Panacea To ATM Challenges Using Iris Authentication**	
	Abstract: This paper exposes how iris authentication can be used as a biometric identification in ATM machine, data were collected with the aid of camera, this was achieved by allowing only those NIR wavelength from narrow – band illuminator back into the iris camera. Measurements were taken with the aid of a camera, the data gotten are stored and saved in a database , if the a customer comes, data will be collected with the aid of camera to ascertain whether the person is the rightful owner or not. The data gotten from the customer will be matched with the ones stored in database, if it matches, access is granted to the customer, but if it does not access will be denied. **Keywords:** Database, ATM, Electromagnetic Spectrum NIR spectrum and iris camera **References:** 1. Adler, F.H and Doras,K..L 2010" Physiology of the Eye,"Proceeding of IEEE ,vol.4,no.5, pp.88-94. 2. Doggart, J.H and Helix,G.R 2009 "Introduction To Iris Recognition and its application"Computer control,specilal Issue On ATM Security and Network vol.10,no.5-6,pp 1221-1230. 3. Hosseini,P..k and louis2013:"Simplified Iris Recognition in ATM Security and Control System "Proceeding of IEEE INFOCOM,vol.8,no.6,pp 45-49 4. Hoyos,U.L,Brex,J.K 2002:"Iris Recognition , a Panacea to ATM Security"IEEE Signal Processing Magazine,vol.24,no7,pp 84 5. Manis,U.p and larry,U.U 2007 "Biometric Measurement and Technique " Proceeding of concerned Area Processing,vol. 21,no. 8,pp. 65-80. 6. Larus,P.J and Lakuska,M.P 2009 "Iintroduction To Solution To ATM Problems in third world countries,"Proceeding of CPN vol.20,no.5 pp.68-83.	**60-65**
12.	**Authors:**	**Patil Mounica, Elizabeth P Cheriyan**	
	Paper Title:	**Fault Tolerant Voltage Source Converter for HVDC Transmission System**	
	Abstract: This paper presents Fault Tolerant Voltage Source Converter for HVDC transmission system based on a hybrid multilevel voltage source converter with ac-side cascaded H-bridge cells. The proposed converter offers a unique feature of dc fault blocking capability (ability to block power exchange between the ac and dc sides during the dc side faults, hence no current flows in converter switches), operational flexibility in terms of active and reactive power control, black start capability, in addition to improve ac fault ride through capability. In this paper, four quadrant operation and voltage support, the ac and dc fault ride-through capabilities of the proposed converter will be demonstrated. **Keywords:** AC and DC fault ride through capabilities, DC fault reverse blocking capability, hybrid multilevel converter with ac side cascaded H bridge cells. **References:** 1. Grain Philip Adam, Khaled H. Ahmed, Stephen J. Finney, Keith Bell, and Barry W. Williams, "New Breed of Network Fault-Tolerant Voltage-Source-Converter HVDC Transmission System," IEEE Trans.on Power Sytems, vol. 28, no. 1, pp. 0885-8950, Feb. 2013. 2. G.P.Adam et al., "Network fault tolerant voltage source converters for high voltage applications," in Proc.9th IET Int. Conf. AC and DC Power Transmission., London, U.K., 2010, pp.1-5. 3. Y.Zhang et al., "Voltage source converter in high voltage application: Multilevel versus two-level converters," in Proc.9th IET Int.Conf.AC and DC Power Transmission., London, U.K., 2010, pp. 1-5. 4. G. P. Adam et al., "Modular multilevel inverter: Pulse width modulation and capacitor balancing technique," IET Power Electron., vol. 3, pp. 702–715, 2010. 5. M. M. C. Merlin et al, "A new hybrid multi-level voltage-source converter with DC fault blocking capability," in Proc.9th IET Int.Conf.AC and DC Power Transmission., London, U.K., 2010, pp. 1-5. 6. V. Naumanen et al., "Mitigation of high du/dt –oriented motor over voltages in multilevel inverter drives ," IET Power Electron., vol. 3, pp. 681–689, 2010. 7. H.Khader, A. Massoud, A.Gastli, " Study of Voltage Source Converter-Based HVDC System During DC Side Faults, " IEEE GCC Conf and exhibition, Nov 17-20,Doha,Qatar. 8. G. P. Adam, G. Kalcon, S. J. Finney, D. Holliday, O. Anaya-Lara and B. W. Williams, "HVDC Network: dc fault ride-through improvement," CIGRE Canada Conf on Power Systems Halifax, Sep 6-8,2011. 9. F.Schettler, H.Huang, and N.Christl, "HVDC transmission systems using voltage sourced converters-design and applications," IEEE, pp.715-720,2000. 10. N. Flourentzou et al., "VSC-based HVDC power transmission systems: An overview," IEEE Trans. Power Electron., vol. 24, no. 3, pp. 592–602, Mar. 2009.	**66-71**
13.	**Authors:**	**S.K. Kenzhemuratova, A.A. Akhmetova, R. Abilhamitkyzy, A.S. Nurzhanova, Sh.S. Tleugazina**	
	Paper Title:	**Stages of Development of Kazakh Terminology and Problems of Formation of International Terms**	
	Abstract: Terms formation of Kazakh language is formed along with laws of Kazakh language. It is connected with a period of active implementation of international terms into Kazakh language. If to watch these words from the point of view of modern linguistics, they can not be related to the terms. But it should be noted that they are foreign words, entered in Kazakh language. At present, aforesaid terms have a translation, but some of them are in use in Russian variant. As review of scientific literature shows, research of formation problems of terms of Kazakh language were conducted at the beginning of the 20th century by the scientists of "Alash" party. **Keywords:** culture, formation, history, terminology. **References:** 1. K. Zhubanov Research on Kazakh Language. A, 1966 2. R.A. Urekenova Formation of terms in Kazakh language. Almaty:Nauka, 1980. – 128p. 3. Sh Bilalov Aktual problems of formation of national research language. Almaty: Sanat, 1996. – 426p. 4. Sh.Kurmanbaiuly Alash intelligence and study of terms. Almaty, El-shezhire. 2008.	**72-73**
14.	**Authors:**	**Md. Aleemuddin Ghori, Syed Abdul Sattar**	

	Paper Title:	**Security Breaches and their Solutions in WSN**	
	Abstract: Wireless sensor network is an upcoming technology and are getting Popularity quickly and a lot of attention because of their low cost solutions to a number of large sensor arrays, and capable to implement in military as well as for civilians. This technology has many applications including various environmental monitoring; target tracking, scientific exploration, patient monitoring and tracking, and data acquisition in hazardous environments. Sensor nodes are deployed in a hostile locations security becomes extremely important. They have limited data storage and power capacity because of their small size and this is the major limitation to implement the traditional computer security methods. The unpredictable communication channel and unattended operation make the security defenses harder. In this paper we have discussed the importance of security breaches and their solutions. **Keywords:** Popularity quickly, large sensor arrays, various environmental monitoring; target tracking, scientific exploration, patient monitoring. **References:** 1. E. Mykletun, J. Girao, D. Westhoff "Re-visited Public key based crypto schemes for data concealment in Wireless Sensor networks " IEEE ICC, Turkey May 2006 2. D. Westhoff J. Girao M. Acharya "concealed data aggregation for Reverse multicast Traffic in Sensor Networks Encryption "Key Distribution and Routing Adaptation IEEE Transactions on Mobile Computing in 2006 3. A. Becher. Benenson and Dornseif Tampering with motes real-world physical attacks on wireless sensor networks 2006. 4. M. Acharya, J. Girao, D. Westhoff "Secure Comparison of Encrypted Data in Wireless Sensor Networks " 3rd WiOpt, April 2005 5. Chris karlof and David Wagner. Secure routing in wireless sensor networks Attacks and countermeasures. Elsevier's Adhoc Networks Journal, Special Issue on Sensor network applications and Protocols 293_315, Sept 2003. 6. A. Weimerskirch D. Westhoff "Zero-Common Knowledge Authentication for Pervasive Networks 10th Selected areas in Cryptography SAC ' 03 Springer-Verlag LNCS 3006, pp.73-87, Ottawa, Ontario, CA August 2003 7. Y.-C. Hu A. Perrig D.B. Johnson Packet leashes a defense against wormhole Attacks in wireless networks in IEEE Info com, 2003. 8. J. R Douceur. The Sybil attack in 1st International Workshop on Peer-to-peer Systems (IPTPS _02), 2002. 9. Y.C. Hu, A. Perrig, D.B. Johnson Ariadne a secure on demand routing Protocol for adhoc networks in MOBICOM, 2002. 10. D. Dolev A.C. Yao "On the security of Public-Key Protocols " IEEE Transactions on Information Theory 29(2):198-208, 1983 11. S. Rajasegarar, C. Leckie, and M. Palansiwami, "Anomaly detection in wireless sensor networks", IEEE Wireless Communications, vol. 15, no. 4, Aug. 2008, pp. 34-40	**74-76**
15.	**Authors:**	**Syed Moizuddin, Nawaz Baig, Shaikh Subuktageen**	
	Paper Title:	**Design of Plastic Handle for Surgical Applications**	
	Abstract: The paper explains a clip mechanism handle to use for surgical procedures which uses metal clips via a mechanism to transmit the motion from the handle to the jaw at one end which helps inserting the metal clip to patient's vessel. With development in technology; this handle does not operate on a spring mechanism hence it operates in steps, instead of direct and quick movement of arms handle. This also reduces the force required to operate the handle and is better controlled. The rubber grip and ergonomics of the component are carefully selected keeping the operation and use in mind. The delivery mechanism also gets changed than the normal used mechanisms. With the inward movement of the handles, the jaw is moved in inward direction and vice versa. After the jaw is opened, the metal clip is pushed into the tissue for binding the tissues. This ends the operation of the equipment. [1, 2, 4, 5] **Keywords:** clip mechanism, force required **References:** 1. Computer Aided Modeling of a New Endo Biomedical Surgical Instrument by Dr. Jeremy (Zheng) Li. 2. Computer Aided Modeling and Dynamic Analysis of A New Surgical Instrument by Dr. Jeremy (Zheng) Li. 3. https://www.youtube.com/watch?v=pBlqZonLuCs 4. http://www.stryker.com/en-us/products/Endoscopy/Laparoscopy/LaparoscopicInstruments/index.htm 5. Schollmeyer T, Soyinka AS, Schollmeyer M, Meinhold-Heerlein I. Georg Kelling (1866-1945): the root of modern day minimal invasive surgery. A forgotten legend? Arch Gynecol Obstet 2007; 276:505. 6. http://www.uptodate.com/contents/instruments-and-devices-used-in-laparoscopic-surgery	**77-79**
16.	**Authors:**	**Gajanan Vijaykumar Kadam, Aboli Jalindar Jondhale**	
	Paper Title:	**Comparision Between Conventional and Mechanical Concrete Road**	
	Abstract: Mechanical concrete is made by confining aggregates, soils and granular materials inside a thin walled geo cylinder in which we used the waste tires , aggregates and waste concrete. It is a way of binding crushed stone aggregates together into a load bearing cellular building unit which can support compressive loads and resist lateral soil pressure. This tire derived cylinder performs functions similar to the cement or water mixture, the rebar and the formwork in hydraulic cement concrete. Stones confined in this manner can function in load supporting foundations; earth retention structures i.e. walls and dams, slope and channel erosion protection i.e. as ditch and channel liners. It is strength of mechanical cement cylinder that generally defines the overall strength of mechanical concrete and not the crushed stone. The preferred cylinder is made from a recycled auto or truck tire with both sidewalls removed. The tire treated cylinder is no longer a tire but through remanufacturing becomes tire-derived-cylinder, TDS. 78 % of construction waste consists of concrete waste, bricks and tiles. Concrete waste with various fractions was used as coarse aggregate in the research, as well as filler aggregates from the crushed concrete waste were used. Physical-mechanical properties of the samples were analyzed by comparing with reference samples where typical aggregates were used. **Keywords:** waste tires, TDC, geo cylinder, aggregate, waste concrete	**80-82**

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Authors: **C. K. Sridhar, S. B. Vanakudre**

Paper Title: **Development of High Performance Concrete Using Nano Silica**

Abstract: Use of high performance concrete in present days is increasing as conventional concrete does not meets the requirement. Hence it is necessary to develop high performance concrete. The high performance concrete is one which has the characteristics like workability, high strength & durability. These characteristics are not found in conventional concrete. From the recent study [1],[2],[4],[6], it is found that the high performance concrete can be developed by using supplementary cementecious materials & high quality superplasticizers. Use of Nano materials is gaining importance due to its vital characteristics, these materials helps in developing high performance concrete[11]. This study aims at developing high performance concrete using Nanosilica. Initially, M60 grade concrete (high strength concrete) is designed and prepared with and without Nano silica. Then it is proposed to make this concrete as high performance concrete by using high quality superplasticizer and a better packing of coarse aggregate(40% 10mm downsize &60% 20mm down size).The test results shows that slump higher than 210mm , strength 68.44 to 75.11MPa and better resistance to water obsorption.

Keywords: Nano Silica, High performance concrete, Supplimentary cementecious Material (SCM), Durability, Workability.

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Authors: **Sushma K. M, Manjula Devi T. H**

Paper Title: **A Spatio-Temporal Correlation Based Routing Technique for Wireless Sensor Network**

Abstract: This paper gives a routing technique for wireless sensor network. In WSNs, the old routing techniques of networking are not applicable because of the various challenges. Hence, many different methods have been devised. Proposed technique is the routing technique with spatial and temporal correlation of data aggregation. This is a technique based on Clustered Aggregation existing in WSN, which is a method to save energy significantly. Energy consumption must be low in WSNs because the sensor nodes are energy constrained devices.

Keywords: Clustering, Data aggregation, Routing, Wireless Sensor Networks.

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Authors: **Navpreet Singh, Navdeep Kaur Brar, Arvind Dhingra**

Paper Title: **A Case Study of Energy Saving Using Energy Efficient Motors in a Process Plant**

Abstract: Energy conservation is a most talked subject in the today's world because energy consumption in various industries in India is a great issue. The standard induction motors in a process plant consume large amount of energy due to low efficiency. To save energy consumption in a process plant, the use of energy efficient motors are chosen over standard induction motor. Energy efficient motors have better efficiency and power factor than standard induction motors. The use of energy efficient motors reduces energy consumption of the plant. The plant under study has 40 motors of different ratings. The work presented in the paper examines the usage of extra energy in various standard induction motors in a process plant and encourage the use of energy efficient motors over standard induction motors. For this objective, a comparison of standard induction motors with energy efficient motors based on efficiency, (kW) motor input power, (kVA) apparent power, power factor, energy consumed (kWh) according to running hours in a year and current. The payback period for energy efficient motors has also been calculated. In the end the study found that replacing standard motors with energy efficient motors is better and overall plant motor load also reduces.

Keywords: Standard induction motor, energy efficient motor, efficiency, kilowatt, power factor, energy conservation

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20.

Authors: **Mushtaq N. Ahmed, Mojgan Hojabri, Ali Mahmood Humada, Hamdan Bin Daniyal, Hatem Fahad Frayyeh**

Paper Title: **An Overview on Microgrid Control Strategies**

Abstract: In response to the ever increasing energy demand, integrating distributed energy resource-based microgrid will be the most promising power system improvement in the near future. Microgrid system implementation provides significant advantages for both electric utility provider and end customer user. This paper performs a comprehensive literature review on the current key issues on control strategies of microgrid islanded mode operation. Brief descriptions are provided for typical microgrid control methods, PQ control, droop control, voltage/frequency control, and current control, which are associated with microgrid mode of operation. This review also covers microgrid control issues such as islanded mode, stability, and unbalanced voltages to provide adequate power quality. In addition, this paper discusses the challenges of microgrid islanded mode issues, such as load sharing, distributed generation losses, and non-linear /unbalanced load. Finally, research conclusions of the important microgrid control requirements for future development are also described.

Keywords: Microgrid control, microgrid structure, microgrid issues.

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Authors: **Molaletsa Namoshe, Oduetse Matsebe, Ngatho Tlale**

Paper Title: **Improved Range-Only Beacon Initialization Towards Localization System**

Abstract: Mobile robot operation in an un-surveyed environment presents a challenging problem, particularly in GPS denied spaces. The complexity of the problem scales up if the sensor used to aid navigation can only provide range information about the features in that environment. In the past, almost all solutions to Localization problems relied on a prior knowledge of feature locations. In this paper however, range measurements, characteristically known to have outliers and unobservable are used to solve the localization problem. Past approaches to this problem have used delayed initialization of newly observed feature(s) until good estimates are available; a process akin to Hough transforms methods. This ratio thresholding approach has shown to be susceptible to system divergence, especially when large environments are explored. In this paper therefore, a pose disambiguating algorithms comprising of outlier rejection, particle swam optimization (PSO) and an area under a probability distribution function (pdf) methods are used to solve the localization system using real data acquired by a mobile robot in an unknown space. To validate the proposed methods, experimental real data sets obtain by Odyssey III during the GOATS'02 experiments are used.

Keywords: Range data, Gaussian distribution, Localization, feature initialization, Beacon (feature/ landmark), and observation sensor.

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Authors: **Premanand Shenoy, K. S. Babu Narayan, Katta Venkataramana**

Paper Title: **Optimum Design of 2D Trusses Using Controlled Directional Movement of Nodes**

Abstract: Optimization of structures has always been a subject of continuous interest in the field of structural engineering. The amount of research work and publications in this field show various mathematical approaches adopted to effectively use materials used for construction. A novel iterative Node Based Smoothing Method for the evolution of optimum design of trusses is presented.

Keywords: Structural Optimization, Topology, Sizing, Shape, Trusses, Iterative Process, nodal position.

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23.

Authors: **Naser Samadi, Reza Ansari, Bakhtiar Khodavirdilo**

Paper Title: **A Simple and Rapid Method for Removal Fe (II) ions from Aqueous Solutions by Using Synthesized Copolymer Derivative of Poly (Styrene –Alternative- Maleic Anhydride) (SMA)**

Abstract: This study is considered simple and cheap method for removal heavy ions from aqueous solutions. Chelating resins have been introduced to be appropriate materials for the recovery of heavy metals in water remedies. A chelating resin based upon modified poly(styrene-alt-maleic anhydride)(SMA) with Melamine was synthesized. This modified resin was further reacted with 1,2-diaminoethan in the attendance of ultrasonic irradiation for the provision of a tridimensional chelating resin on the nanoscale for the recovery of heavy metals from aqueous solutions. The adsorption behavior Iron (II) ions was explored by the synthesis of chelating resins at variouspH's. The gotten resins shown a good inclination for the elimination the Iron (II)ions from aqueous solution, even at acidic pH. The resin was characterized by Fourier transform infrared spectroscopy, scanning electron microscopy, X-ray diffraction analysis. The adsorption process of Iron (II)on SMA, SMA-M and SMA-M-P were tested with Langmuir isotherm model and the isotherm constants were deduced from this.

Keywords: SMA, Iron (II) ions, adsorption, chemical remedies, isotherm

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24.

Authors: **S. G. Galande, G. H. Agrawal, Surdikar Pradnya**

Paper Title: **Implementation of Watermarking System to Embed the Information within Video Streams for Security Purpose**

Abstract: Now a day's security is main concern when we entered into digital world but the steps to develop such security system and how we take optimum use of available or rather advanced techniques for developing such systems that can also fulfils our requirement are much important. As we are discussing about digital world we must take into account about the multimedia object such as text, image, audio and video. In above all form of data, video data security is challenging issue so dealing with digital watermarking in video for security is focus of paper. Technology can be carried out by various algorithms like DWT, DCT in frequency domain. In this paper, combined DWT and DCT transforms are used to watermark data in video with minimum quality loss. Combined approach makes system robust as making use of multi-resolution DWT with energy compaction DCT. Results are evaluated for every frame in video by three parameters PSNR, MSE and NC. Design of proposed scheme is using MATLAB R 2013a.

Keywords: DWT and DCT transform MSE, NC, PSNR, Watermark.

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Authors: **Igwe Agu Felix, Ene I. I**

Paper Title: **Improving ATM Security Checks Using Finger Recognition**

Abstract: This paper x-rays how ATM security can be checked and improved by using finger Recognition.This was achieved by sending fingerprints to finger sensor which converts patterns and signals from analogue to digital form through an analogue-to-digital converter(ADC).In this paper,a programming language known as VisualDsp++ was used to enable fingerprint sensor to generate data.The data gotten from an individual is stored in the database of the system, if a customer of a particular bank comes to withdraw money from the ATM machine,it crosschecks whether the owner's data stored in the database matches with the data of the person that wants to make withdrawal,if it matches with the one in the database,access is granted to the preson,if it does not match, access is denied from the person who wants to make withdrawal.

Keywords: VisualDsp, Fingerprint Sensor, Blackfin processor's SPI port,arch pattern, loop pattern.

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26.

Authors: **Madhura M. Kalbhor, Sudeep D. Thepade, Sanjay R. Sange**

Paper Title: **Video Classification using Thepade's Sorted Block Truncation Coding using Bayes, Function, Lazy, Rule and Tree Classifiers**

Abstract: Video classification is a process of grouping the relevant videos under the predefined set of categories. With the advance technology there is significant growth of video data. To properly manage this data there is need of efficient system. To store the video data in an efficient manner, video classification plays a vital role. This paper proposes a video classification system that uses Thepade's sorted block truncation coding method to fetch the attributes from the videos. The fetched attributes are supplied to twelve different classifiers belonging to Bayes, Function, Lazy, Rule and Tree classifier families. With the proposed classification system Simple Logistic classifier have given the best classification accuracy of 89.83%.

Keywords: Content based video classification, Thepades sorted block truncation coding, data mining classifiers.

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Authors: **Neena Tom, Rini Jones S. B**

Paper Title: **Controller Design for Z Axis Movement of STM Using SPM Control Software**

Abstract: Scanning probe microscopy is a branch of microscopy that forms images of surfaces using a physical probe. This paper is devoted to the control system design for high performance scanning tunneling microscope (STM). The distance between tip and sample should be kept constant at every point of sample for better scanning results. Note that many samples have roughness, curvature and tilt that deviate from a flat plane .So it is necessary to move the probe in z-axis to maintain the height of probe from sample constant. But a sudden change in probe position can damage the probe. SPM feedback loops usually employ a proportional-integral (PI) controller to control the vertical movement of tip (z-direction). Our aim is to implement an accurate tuning algorithm that can find PI values that gradually change the position of the probe for higher safety and precision. Moreover, better sample topography image can be obtained after auto-tuning the control gains during different scanning speed. The square wave is given as input to the PI controller which represents the sudden change of surface that cause damage to the system, and the output should be triangular wave in nanometer range by proper tuning of PI controller. Triangular wave represents the tip being moved by the controller in z direction at the time represented by the square wave input.

Keywords: Scanning tunneling microscope, feedback loops, PI controller, tuning algorithm.

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Authors: **S. Radeva, R. Chuturkova, M. Stefanova**

Paper Title: **Assessment of Measures for Reducing Harmful Emissions in Air from Soda Ash Producing Plant in Devnya, Bulgaria**

Abstract: The research has been done at Solvay Sodi JSC plant for the production of synthetic soda ash situated in the industrial region of Devnya. The paper deals with the assessment of emissions of harmful substances (CO, CO2, NH3, NOx/NO2, SOx/SO2, H2S and PM10) from the Soda Ash plant(Solvay Sodi JSC) after coming into force of the Integrated Pollution Prevention and Control (IPPC) Permitin 2006. Significant emission reduction is registeredforsome pollutants (CO, NH3, SOx/SO2) during the period from 2006 to 2013, despite the fact that some annual emission levels considerably exceed the emission threshold established by the European Pollutant Release and Transfer Register (E-PRTR). The concentrations of pollutants do not exceed the limit values during the monitoring period. Appropriate measures for reducing the emission levels were appliedpursuant to the IPPC Permit for the Soda Ash plant.It isascertainedthat applying best available techniques (BAT) andstrictly complying the requirements of the IPPC Permit contribute to the low levels of emissions and improve the ambient air quality in the region.

Keywords: Air pollution, best available techniques (BAT),emission,industrial region Devnya,IPPC Permit, plants.

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Authors: **Kesini Krishnan V, Smitha P. S**

Paper Title: **A Statistical Model for Shadow Removal of Man-Made Objects and Change Detection in Satellite Images**

Abstract: In this paper shadow detection and removal done as the pre processing steps for change detection beacause the presence of shadow causes mistakes in change map. For shadow detection there is a convexity analysis which are multiphase object segmentation and thresholding for suspected and false shadow removal also considering the object properties such as shape area perimeter ,average gray scale value and standard devitaion for more perfection. Shadow removal is employed by the method IOOPL (Inner Outer Outline Profile Lines) matching and relative radiometric correction. For IOOPL generation, first forms the object boundaries,then form two additional boundaries by expanding and contracting object boundaries. Build a graph,grayscale versus no of points. When doing a similarity test in IOOPL graphs secton by section, matching coefficient become high, that region treated as homogeneos and data reconstructed compared to non shadow area. Removal is done by relative radio metric correction. In Change analysis find the binary descriptors of each pixel in the two images and find hamming distance as similarity measure between binary descriptors of each pixel at the same location in two images. After there is a ranking system in change analysis and which is done by Lloyd-Max Quantization. Here in this paper we employed M=2, M=3 quantization levels In shadow treatment validation is done by comparing the gray scale average and standard deviation of non shadow area,shadow area and shadow removed area. The results are shown that it is very efficient compared to existing methods. . Shadow detection and removal is 93% accurate compared to existing methods. Average running time of change detection is better compared to previous works. Also most of the previous works are dealing with two levl quantization. Here more than 2 levels can be done with in seconds.

Keywords: multiphase segmentation, histogram, thresholding, Inner Outer Outline Profile Lines (IOOPL), shadow detection, shadow removal, change detection, binary descriptor, hamming distance, Lloyd Max quantization

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30.

Authors: **Archa A. B, Kumar G. S**

Paper Title: **Automatic Line Scratch Detection and Restoration in Films**

Abstract: Line scratches are the most common defects in old films. They are caused by the abrasions of the film material as it passes through the projection mechanism. Once an image is digitized, its defects become part of that image .So scratch detection and removal is important subject for video restoration. This work presents a technique for detecting and removing these line artifacts .Using A Contrario line scratch detection, we detect and locate line scratches accurately, after that a new digital image inpainting algorithm based on directional median filter is used to remove these scratches. In Contrario line scratch detection method along with Spatial detection algorithm, a Temporal filtering algorithm is used for filtering false detections. As a result we can detect and remove original scratches. This work discuss about frame conversion from a digital video of specific length. Pre-process the frame in order to enhance image quality and then perform scratch detection and removal. Final video is once again formed from the processed frames. The overall system is developed in matlab and results are analyzed .Results shows that the proposed method can detect more line artifacts with less false detection and remove the line scratches effectively.

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Keywords: Scratch detection, A Contrario method, inpainting, spatialdetection, Temporal filtering algorithm, Directional median filter, video restoration.

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31.

Authors: **Aswathy S. Nair, Jisu Elsa Jacob**

Paper Title: **Automatic Lung Nodule Detection on CT Image Using Region Growing**

Abstract: Computer aided detection and diagnosis (CAD) has been widely used for detecting Lung disorders. Lung nodule is an abnormality that may leads to lung cancer characterized by a small round or oval shaped growth on the lung which appears as a white shadow in the CT scan. Lung nodule detection can be done by performing nodule segmentation through thresholding and morphological operation. The segmentation process consists of four stages: Thorax extraction, Lung extraction, morphological operation and structure identification. In the thorax extraction stage all the artifacts external to the patient's body are discarded and is performed using region growing algorithm to separate the thorax from full CT image. Lung extraction stage is responsible for the identification of lung parenchyma. Morphological operation is done to separate the structure within the parenchyma. Finally the nodule is identified in the structure identification stage using 2-D geometrical features and texture features.

Keywords: Computer Aided Diagnosis (CAD), Segmentation, Computed Tomography (CT), Region Growing.

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32.

Authors: **Sneha Sara Thomas, Sheeja M. K**

Paper Title: **Simulation of a Spatial Light Modulator for Holographic Data Storage System**

Abstract: Holographic data storage is regarded as a potential technique for the next generation optical data storage with extremely high capacity and ultrafast data transfer rate. In holographic data storage system, page wise data are stored as holograms within the recording media. In this paper, Spatial Light Modulator (SLM) is simulated. The SLM is a device which is used to encode digital data pages onto a laser beam and it spatially modulates the coherent beam

of light according to the electronic data pages. The spatial filtered laser beam falls on the panel of the SLM and gets intensity modulated. Thus the electronic data pages are converted into optical data pages. This modulated data pages are interfered with the reference beams to produce holograms. Multiple data pages can be stored on a single location using various multiplexing techniques such as angle multiplexing, wavelength multiplexing which results in a high density data storage system. The stored data pages are reproduced by illuminating the hologram with the corresponding reference beam. The data is read in parallel over one million bits at once, thus resulting in fast data transfer rate.

Keywords: Interference pattern, holographic data storage system, object beam, reference beam, Spatial Light Modulator

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Authors:	**Walaa Mohammed, Elkhatib Kamal, Abdul Azim Sobaih**
Paper Title:	**Fuzzy MPPT Control of Photovoltaic Energy System**

Abstract: This paper displays an exhaustive comparison of the Perturb-and-Observe (P&O) and Mamdani fuzzy implementation methods for achieving high performance, stability of the system and energy usage of Photovoltaic energy (PV) systems. Comparison with the present approaches, larger stability can be recorded. PV has been showing the presented fuzzy controllers robustness and stability property. For verifying the execution of the proposed controller, we make comparison with P&O method and we can confirm that controller can track the maximum power point. The performance of the proposed controller design methodology is finally proved by photovoltaic array to maximize the Photovoltaic (PV) system.

Keywords: Perturb-and-Observe, Mamdani Fuzzy, Fuzzy Control System, the PV Power.

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Authors: **Adarsh S, Asha S**

Paper Title: **Human Action Recognition Using Joint Positions from Depth Videos**

Abstract: Human Action Recognition using visual information in a given image or sequence of images, has been an active area of research in computer vision applications. The image captured by conventional camera does not provide the suitable information to perform comprehensive analysis. However, depth sensors have recently made a new type of data available. Most of the existing work focuses on body part detection and pose estimation. A growing research area addresses the recognition of human actions based on depth images. In this paper, the following contributions are made: the proposed method makes an efficient representation of human actions by constructing a feature vector based on the human's 3D joint positions. These locations are extracted fromdepth videos which are taken with the help of Microsoft Kinect sensor. Experiments were performed on a new dataset Kinect Action Dataset (KAD-10). The data set consists of 3D sequences of 10 indoor activities performed by 10 individuals in varied views. Then these feature vectors are given to K-Nearest Neighbour (KNN) classifier to perform the action classification task which results in action labels.

Keywords: Video surveillance, Depth sensor, Body part labeling, Depth image features, Randomized decision forest, joint position estimation, k-nearest neighbour algorithm

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35.

Authors: **Ruben C. Martinez, Roberto L. Avitia, Marco A. Reyna, Miguel M. Bravo**

Paper Title: **Implementation of a Novel Powered Ankle-Knee Prosthesis for Lower Limb Amputees and a Control Strategy Proposal**

Abstract: In this work we present the second stage of a powered ankle-knee prosthesis design and construction for individuals with a lower limb amputation. The prosthetic leg is composed of two modules; the knee module and ankle module, they can operate independently or in conjunction. The ankle module is comprised of a unidirectional spring configured in parallel with a linear actuator. This spring is intended to store energy in dorsiflexion, and then released it to assist power plantar flexion. The knee module consists of a series elastic actuator and a linear solenoid actuator attached to the actuators transmission. Also we are presenting a control strategy of the prosthesis, using techniques of force, position and impedance.

Keywords: Powered Prosthesis, Mechanical Design, Lower Limb Amputees.

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	Authors:	**Gayathri R, Smitha P. S**
	Paper Title:	**Bandlet Based Video Completion Scheme After Selective Text Removal**

36.

Abstract: This paper presents a semi-automatic video text detection and removal along with a video completion scheme. In the video text detection stage, accurate edge locations are detected using a new type of image representation called as bandlets. Text locations are found by taking Stroke Width Transform (SWT) of the edge map and are grouped using Connected Components (CCs). Motion analyses of the video frames are done in order to preserve the spatial and temporal consistency of the video. After removing the unwanted text regions, an automatic inpainting scheme is employed to fill in the regions with appropriate data. The proposed inpainting scheme takes advantage of both structural and hybrid inpainting techniques. Evaluation of the approach is done using the user prepared video dataset along with ICDAR competition results. The experimental results demonstrate the effectiveness of both video text detection approach and completion technique, thereby the entire video.

Keywords: Bandlets, Connected Components, Spatial and temporal consistency, Stroke Width Transform

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	Authors:	**Linta Raj, Ancy S. Anselam, Sakuntala S. Pillai**
	Paper Title:	**Performance Analysis of Speech Enhancement Techniques in Code Excited Linear Prediction Coders**

37.

Abstract: Emerging digital speech applications in various fields like wireless and multimedia created a demand for high quality speech. Speech in uncontrolled environment contains degradation components like background noise, thus the ultimate aim of speech enhancement algorithm is to reduce the noise or to improve the quality and intelligibility of corrupted speech. Different methods have been proposed for enhancing the speech quality. These enhancement methods can be used to improve the quality of speech coded using low bit – rate speech coders like Code Excited Linear Prediction (CELP) coder. This paper reports the performance evaluation of Spectral subtraction and Wiener noise reduction methods in CELP coder. The obtained results explain the performance evaluation of the speech enhancement algorithms and show improvements both qualitatively and quantitatively.

Keywords: CELP Coder, Noise reduction, Spectral subtraction, Speech enhancement.

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	Authors:	**Minu Maria Joseph, Nandan S**
	Paper Title:	**Uncoordinated Cooperative Jamming with Phase Shift Beam Forming for Physical Layer Security**

38.

Abstract: Wireless networks are widely popular because of its broadcast nature, which makes it easily accessible. This ease of accessibility also makes it vulnerable to eavesdropping, thus raising security concerns. An information-theoretic viewpoint has found conditions for reliable and secure communication and overcomes the disadvantages of traditional cryptographic techniques. One method that ensures such perfect secrecy is by cooperative jamming. The jamming signal is such that it degrades the eavesdropper's channel without affecting the channel of the legitimate receiver, thus ensuring security in communication. An uncoordinated jamming approach such as local nulling does not require any public information and makes use of only the helper-receiver channel information. This paper proposes a scheme which is a hybrid combination of local nulling and phase shuft beamforming such that the secrecy rate achievable with local nulling is maximized.

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Keywords: Beam forming, physical layer security, secrecy rate, uncoordinated cooperative jamming.

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39.

Authors:	**Nimisha Susan Jacob, Ancy S. Anselam, Sakuntala S. Pillai**
Paper Title:	**Performance Analysis of CS-ACELP Speech Coder**

Abstract: In modern communication systems, number of users to access the wired and wireless networks has increased rapidly. Consequently, the use of channel capacity has to be increased. Speech compression aims to compress the speech signal to attain maximum channel capacity with lower bit rate and highest quality. G.729 is one of the widely used standard in ITU-T for speech compression. This paper presents the analysis of CS-ACELP coder based on the objective measurements. Also the perceptual quality of the reconstructed speech was analyzed from the spectrogram based on the parameters pitch, intensity and formants.

Keywords: Conjugate Structure Algebraic Code Excited Linear Prediction (CS-ACELP), International Telecommunications Union-Telecommunications (ITU-T), Linear Predictive Coding (LPC), Speech coding

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40.

Authors:	**Anju Krishna V, Paul Thomas**
Paper Title:	**Classification of EMG Signals Using Spectral Features Extracted from Dominant Motor Unit Action Potential**

Abstract: In this paper, disease classification of electromyogram (EMG signal) based on the spectral features extracted from the dominant motor unit action potential (MUAP) is discussed. This scheme provides an improved accuracy and reduces the computational complexity to a great extend. The MUAPs are extracted from the EMG signal using a matlab program known as EMGLAB and the highest energy MUAP is selected as dominant MUAP. The main goal of this study is to extract the relevant spectral features for the classification so that the redundant features can be eliminated. For spectral feature extraction direct and DWT based methods are used. K-nearest neighborhood (KNN) classifier is used for the classification purpose. The performance is evaluated using three clinical dataset in terms of specificity sensitivity and accuracy. The results show that the classification based on the proposed method gives better accuracy than the existing methods for disease classification.

Keywords: Electromyography (EMG), motor unit action potential (MUAP), EMGLAB, amyotrophic lateral sclerosis(ALS), Myopathy, K-nearest neighborhood (KNN) classifier.

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41.

Authors: **Wasim Akram Mandal, Sahidul Islam**

Paper Title: **Fuzzy Inventory Model for Weibull Deteriorating Items, with Time Depended Demand, Shortages, and Partially Backlogging**

Abstract: In this paper fuzzy inventory model for deteriorating item with time depended demand rate, shortages under partially backlogged is formulated and solved. The backlogging rate is taken to be inversely proportional to the waiting time for the next replenishment. Fuzziness is applying by allowing the cost components (holding cost, shortage cost, etc). In fuzzy environment it considered all required parameter to be triangular fuzzy numbers. The purpose of the model is to minimize total cost function.

Keywords: Inventory, Deteriorating, Fuzzy number, Shortages, Partially backlogged, Triangular fuzzy number.

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Authors: **Harinandan Tunga, Diya Saha**

Paper Title: **Graphical User Authentication Techniques for Security: a Comparative Study**

Abstract: Nowadays, user authentication is one of the important topics in information security. Strong text-based password schemes could provide with certain degree of security. However, the fact that strong passwords are difficult to memorize often leads their owners to write them down on papers or even save them in a computer file. Graphical User Authentication (GUA) has been proposed as a possible alternative solution to text-based authentication, motivated particularly by the fact that humans can remember images better than text. In recent years, many networks, computer systems and Internet based environments try used graphical authentication technique for their user's authentication. All of graphical passwords have two different aspects which are usability and security. Different techniques for GUA have been proposed in literature over the past few years such as-Recognition Based Technique[2], Recall Based Technique[2]. This paper presents a survey of comparative study between different techniques of GUA.

Keywords: Graphical User Authentication, Recognition Based Techniques, Recall Based Techniques.

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43.

Authors: **Pankaj Deep Kaur, Gitanjali Sharma**

Paper Title: **Performance of Scalable Data Stores in Cloud**

Abstract: Cloud computing has pervasively transformed the way applications utilized underlying infrastructure like systems and software. System designers are in fast track pursuit of deploying applications/services over cloud to benefit from its elastic, scalable and pay-as-you-go model. Owing to the fact that many applications on cloud are extensively data driven, data management systems, hosting these applications, embody a vital component in cloud software store. However, maintaining performance of database read/write operations under fluctuating workloads, both regionally and globally, is quite challenging. In this context, distributed scalable data stores in cloud have promised high performance and reliable services through rapid partitioning, replication, elasticity and automated manager for self-management. Thus, the success of cloud computing paradigm critically depends on scalable, elastic and automated DBMSs. This paper discusses state-of-art of techniques and technologies utilized for cloud databases. It presents concepts of partitioning, replication, elastic scalability and automatic manager for management. The paper also addresses challenges faced by DBMSs designers.

Keywords: Amdahl’s Law, Elasticity, Scalability.

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Authors: **Jianguo LIANG, Hiroyuki NARAHARA, Hiroshi KORESAWA, Hiroshi SUZUKI**

Paper Title: **Verification Experiment on Cooling and Deformation Effects of Automatically Designed Cooling**

		Channels for Block Laminated Molds	
	Abstract: In plastic injection molding process, poor mold cooling conditions will cause the molding defects such as deformation, warpages of the products. An efficient cooling design can significantly reduce the cooling time, and in turn increase the productivity of the injection molding process. On the other hand, severe warpage and thermal residual stress in the product may result from non-uniform cooling. Warpage and sink marks can significantly affect product quality, especially in terms of appearance and precision. In this study, the uniformity of cooling and the deformation effect were observed in the injection mold with the automatically designed cooling channel through a verification experiment. Based on the molding experiment, the cooling and deformation effects were investigated. Results of resin cooling uniformity, temperature distribution of molding parts and deformation of mold were demonstrated. **Keywords:** Injection molding process, Cooling channel, Automatic design, Verification experiment, Rapid prototyping, Block laminated molds **References:** 1. Park, S. J., and Kwon, T. H., Thermal and Design Sensitivity Analyses for Cooling system of Injection Mold, Part 1: Thermal Analysis, Journal of Manufacturing Science and Engineering, Vol.120, No.5 (1998), pp.287-295. 2. Sachs, E., Wylonis, E., Allen, S., Cima, M., and Guo, H., Production of Injection Molding Tooling with Conformal Cooling Channels Using the Three Dimensional Printing Process, Polymer Engineering and Science, Vol.40, No.5 (2000), pp.1232-1247. 3. Koresawa, H., Sakashita, M., and Suzuki, H., Automatic design for parting line on injection mold, ANTEC, (2001), pp.937-941. 4. Matsumoto, T., Tanaka, M., and Yamamura, A., Optimization of cooling channels of injection mold using GA and BEM. Journal of the Japan Society of Mechanical Engineers (A), Vol.66, No.641 (2000), pp.14-19. 5. YAO, D., Development of Rapid Heating and Cooling Systems for Injection Molding Applications, POLYMER ENGINEERING AND SCIENCE, Vol.42, No.12 (2002), pp.2471-2481. 6. Matsumori, T., and Yamazaki, K., A study on Optimal Layout Design of Cooling Channel for Plastic Injection Molding Die, Journal of the Japan Society of Mechanical Engineers (C), Vol.74, No.3 (2008), pp.239-246. 7. Yoneyama, T., Kagawa, H., Ito, T., Iwane, A., Kuramoto, Y., Nishimoto, K., and Yan, C., Effective Cooling and Accuracy Improvement in Injection Molding Using a Metal Mold with Cooling Channels Composed by Laser Sintering (1st Report): Fabrication of a Mold with Cooling Channel and Verification of a Basic Effect, Journal of the Japan Society for Precision Engineers, Vol.67, No.12 (2001), pp.1991-1995. 8. Liang, J., Narahara, H., Koresawa, H., Suzuki, H., Automatic Design of Cooling Channels for Block Laminated Molds: A Resolution Study, International Journal of Engineering and Advanced Technology, Vol.2, No.6 (2013), pp.52-60.	**217-222**
45.	**Authors:**	**M. Thirupathi, N. Madhavi, K. Simhachalam Naidu**	
	Paper Title:	**Design and Analysis of a Fuel Injector of a Liquid Rocket Engine**	
	Abstract: The performance and stability of liquid rocket engines is determined to a large degree by atomization, mixing and combustion process. Control over these processes is exerted through the design of the injector. Injectors in Liquid Rocket Engines (LREs) are called upon to perform many functions. They must first of all mix the propellants to provide suitable performance in the shortest possible length. Suitable atomization and mixing must be followed, so that the size and weight of pressure vessels can be minimized. The injector implementation in Liquid Rockets determines the percentage of the theoretical performance of the nozzle that can be achieved. A poor injector performance causes unburnt propellant to leave the engine, giving unpleasant and poor efficiency. Injectors can be as simple as a number of small diameter holes arranged in carefully constructed patterns through which the fuel and oxidiser travel. The speed of the flow is determined by the square root of the pressure drop across the injectors, the shape of the hole and other details such as the density of the propellant. The performance of an injector can be improved by either using a superior propellant combustion, increasing the mass flow rate or by reducing the size & increasing the number of orifices on the injector plate. In the current project, the last method is applied. The first two methods are not applied due to exceptionally high cost of superior propellants & because the feed system is pressure feed and not pump feed. **Keywords:** The speed of the flow is determined by the square root of the pressure drop across the injectors. **References:** 1. Rocket Propulsion Elements, George P. Sutton, Oscar Biblarz. 7th Edition. Wiley-Interscience, 2001 2. http://en.wikipedia.org/wiki/Proton_rocket 3. http://en.wikipedia.org/wiki/Liquid_rocket_propellants#Bipropellants 4. http://en.wikipedia.org/wiki/Specific_impulse 5. http://en.wikipedia.org/wiki/RD-275 6. http://mysite.du.edu/~jcalvert/tech/fluids/orifice.htm 7. http://en.wikipedia.org/wiki/Discharge_coefficient 8. http://www.nakka-rocketry.net/th_thrst.html 9. http://www.risacher.org/rocket/eqns.html 10. https://engineering.purdue.edu/~propulsi/propulsion/flow/thrcoef12.html 11. http://heroicrelics.org/info/f-1/f-1-injector.html	**223-229**