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1.	**Authors:**	**Pranali Dhabekar, Geeta Salunke**
	Paper Title:	**The Examplar-Based Image Inpainting Algorithm Through Patch Propagation**

Abstract: This paper presents a novel and efficient examplar-based inpainting algorithm through investigating the sparsity of natural image patches. Two novel concepts of sparsity at the patch level are proposed for modeling the patch priority and patch representation, which are two crucial steps for patch propagation in the examplar-based inpainting approach. First, patch structure sparsity is designed to measure the confidence of a patch located at the image structure (e.g., the edge or corner) by the sparseness of its nonzero similarities to the neighboring patches. The patch with larger structure sparsity will be assigned higher priority for further inpainting. Second, it is assumed that the patch to be filled can be represented by the sparse linear combination of candidate patches under the local patch consistency constraint in a framework of sparse representation. Compared with the traditional examplar-based inpainting approach, structure sparsity enables better discrimination of structure and texture, and the patch sparse representation forces the newly inpainted regions to be sharp and consistent with the surrounding textures.

Keywords: Image inpainting, patch propagation, patch sparsity, sparse representation, texture synthesis.

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2.	**Authors:**	**Sangeeta Jajoria, Sajjan Singh, S. V. A. V. Prasad**
	Paper Title:	**Analysis of BER Performance of OFDM System by Adaptive Modulation**

Abstract: Orthogonal Frequency Division Multiplexing is an emerging broadband multi-carrier modulation

scheme. The robust high-bandwidth capabilities of orthogonal frequency division multiplexing confer immediate advantages on wireless products that systems are doing so. OFDM is also being considered for use in 4G cellular systems. A well-known problem of OFDM is its sensitivity to frequency offset between the transmitted and received carrier frequencies. This frequency offset introduces inter-carrier interference in the OFDM symbol. This project investigates adaptive modulation & ICI self-cancellation methods for combating the effects of channel fading & ICI respectively. These methods are compared in terms of bit error rate performance, bandwidth efficiency, and computational complexity. We propose an adaptive modulation method in order to combat channel with deep fading through simulations, it is shown that this technique is effective in mitigating the effects of ICI.

Keywords: OFDM, 4G, ICI.

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3.

Authors:	**Manas Kumar Parai, Gautam Das, Banasree Das**
Paper Title:	**A New Technique of Developing a CPLD Based System for Wireless Device Control through Mobile Phone**

Abstract: Sometimes it is very much essential to control the home appliances and different devices from a far distance. This paper gives an idea of developing a system which will enable user to control from a remote using a mobile phone based interface. Within the large coverage area of the service provider mobile phone is used to control the devices which may be located geographically far apart. CPLD is used here to direct the interfacing circuitry either to switch on or off the devices connected with it. CPLD based system is used due to faster implementation and hardware verification facilities. The device is programmable and reconfigurable. This is one of the most powerful advantages of using the device where the program is to be changed frequently for some specific applications. The functions associated with the assigned keys are stored in the CPLD. It processes the data coming from the output of a DTMF decoder and generates the output according to the key pressed from the mobile phone at the transmitting end. Xilinx 9.2i software is used to write the program in VHDL and the hardware is implemented with the help of VLSI trainer kit (Model: UNI-BSX-M1, Manufacturer: Milman).

Keywords: CPLD, DTMF decoder, Mobile phone, TRIAC, VHDL, Zero crossing detector.

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4.

Authors:	**B.N. Shobha, N.J.R. Muniraj**
Paper Title:	**Mathematical Modelling and Analysis of Nanobio-Sensors for Automated Disease Detection and Drug Delivery System**

Abstract: Nano-medicine is the medical use of molecular-sized particles to deliver drugs, heat, light or other substances to specific cells in the human body. Engineering particles to be used in this way allows detection and/or treatment of diseases or injuries within the targeted cells, thereby minimizing the damage to healthy cells in the body. Nanomedicine, it is the innovative combination of nanotechnology and medicine providing us with the most modern cutting edge tool in the field of medicine. It has triggered a whirlwind of medical revolution across the globe. In this paper, the mathematical models required to describe the functionality of nanodevices have been reviewed and mathematical model sensor equivalent circuits have been developed. An experimental setup is developed to analyze the characteristics of IS Field Effect Transistor (ISFET), nanowire and nanosphere devices. The impact of geometrical properties on device performance is estimated based on the experimental setup. Settling time and surface analyte concentration graphs obtained using the experimental setup is used in designing a nanobio-sensor for disease detection. Based on the test results, a mathematical model has been developed in Matlab to model nanodevices. Three different iterations of sensor models are carried out based on the results obtained; curve fitting techniques are adopted to generalize the developed sensor model using Savitzky-Golay Filter (SG Filter). The sensors modeled can be used for automated drug detection and delivery unit

Keywords: Nanobio-sensor, drug delivery, cancer detection, diffusion-capture

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5.

Authors:	**P SasiKiran, M.Sailaja**
Paper Title:	**Automatic Detection of Sinusitis and Analyzing the Severity with Preventive Measures using GUI MATLAB Tools**

Abstract: Sinusitis is treated with medications or surgery for severe cases. Imaging techniques are popular in detecting sinusitis as they are less intrusive. Current imaging techniques used to detect sinusitis are the X-ray, CT scan and MRI scan. Images taken with these imaging techniques have to be interpreted by doctors manually and this gives room for inconsistency or in some cases, inaccuracy. Image segmentation is important as the results of segmentation are used for diagnosis and surgical planning. At present, manual segmentation and semi-automatic segmentations are used. Another approach is the Discrete Curvelet Transform which is a new image representation. This approach is based on the idea of representing a curve as superposition of functions of various length and width obeying the lam: width ~ length2, this called the Curvelet Scaling Law. Due to the high ability of the Curvelet transform in representing the edges, modification of Curvelet transform coefficients to enhance the sinusitis image

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edges better prepares the image for the segmentation part. The software used for simulations is Image processing tools in MATLAB using GUI. Simulations are performed on images of healthy sinuses and sinuses with sinusitis.

Keywords: Curvelet Transforms, Sinusitis, GUI.

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6.

Authors: **Nibha Tiwari, Sheela Verma**

Paper Title: **An Innovative Approach for Solving Clock Drift Management Problem using Differential Evolution Algorithm**

Abstract: Like distributed systems, wireless sensors networks often require a synchronization of time for consistency and coordination of data. Time synchronization is a critical piece of infrastructure in any distributed system. Time synchronization is mostly required in wireless sensor network. Having time synchronization in sensor network it allows collective signal processing, and helps in efficient sharing of the communication channel. Time synchronization is a critical piece of infrastructure for any distributed system. Distributed, wireless sensor networks make extensive use of synchronized time, but often have unique requirements in the scope, lifetime, and precision of the synchronization achieved, as well as the time and energy required to achieve it. The protocol which was developed for time synchronization of wireless sensor networks was Flooding Time Synchronization Protocol (FTSP) In this paper, FTSP is taken under the consideration for clock drift management using differential evolution (DE) algorithm. The paper calculates clock skew and the clock offset, generates linear line and optimizes the value of average time synchronization error using Genetic and DE algorithm. This paper dictates implementation and experimental results that produce reduced average time synchronization error optimized using DE, compared to that of linear regression used in FTSP.

Keywords: Differential evolution (DE), Flooding Time Synchronization Protocol (FTSP).Time Synchronization, Average Time Synchronization Error, Clock Drift, Wireless sensor network.

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Authors:	**N.Anil Kumar, M. Satya Anuradha, Prakash.SSVD.Vepa, Ravuri Daniel**
Paper Title:	**Active Contours Techniques for Automatic Detection of Glaucoma**

Abstract: The inadequate fluid flow between the iris and cornea of eye leads to glaucoma. The important technique to asses patients effected with glaucoma is analyzed by ultra sound images of the eye, For the detection of the structural changes an algorithm is proposed to focus on automatic detection and determining the exact location of the apex point of the anterior chamber region for efficient angle calculation from the various live ultra sound images. It is very important to detect glaucoma in its early stages for diagnosis and hence this algorithm addresses the importance of precise results with effective immunity towards speckle noise.

Keywords: Active contours, Angle calculation, AOD-500 (Angle open distance), Apex point determination, masking, UBM (Ultrasound bio-microscopy)

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Authors:	**Mohammed Sarvar Rasheed, A. M. Al-Ahmari, A. M. El-Tamimi, Mustufa H. Abidi**
Paper Title:	**Analysis of Influence of micro-EDM Parameters on MRR, TWR and Ra in Machining Ni-Ti Shape Memory Alloy**

Abstract: In the micro-machining and MEMS industry, micro-Electrical discharge machining (µ-EDM) is an important process. In this paper, the Taguchi design approach has been employed to investigate the micro-EDM parameters in order to achieve the highest Material Removal Rate (MRR), good surface quality and low Tool Wear Rate (TWR) while machining Ni-Ti based Shape Memory Alloy (SMA). Based on these investigations, it has been observed that MRR is highly influenced by capacitance, discharge voltage and depends upon electrode material. TWR and Ra were found to be better at low energy levels. Tungsten electrode is recommended for better surface roughness and brass electrode for better MRR. SEM images have been used to observe the dimensional accuracy of micro-holes produced.

Keywords: micro-EDM, micro-holes, Ni-Ti Shape Memory Alloy.

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Authors: **Sauvik Das Gupta, Souvik Kundu, Abhishek Mallik**

Paper Title: **A MEMS based Carbon Nanotube–Field Effect Transistor as a Gas Sensor**

Abstract: This paper deals with the sensing and detection of harmful and toxic industrial gases which are posing a huge threat to the existence of life on earth. In this paper, we hypothise the fabrication of a MEMS based Carbon Nanotubes(CNT)- Field Effect Transistor(FET) which will act as a gas sensor having almost threefold sensitivity andefficiency than the other metal oxide gas sensors such as Tin oxide (SnO2) sensors, which are available in the market.The Field effect transistor of (CNTs) are of great interest for various application including chemical andbiologicalsensing.CNTs canbe designed to have specific properties by changing the ratio of the diameters of linearly joined CNTs, which in turn can be used in the fabrication of FETs.The fabricated devicesexhibigoodlectrical characteristics showing high Transconductance even at low levels of Gate voltage.With the increasing demand of CNTs in many applications due to its unusual properties, we propose that the fabrication of these CNT- FETs will also be quite economical. In this respect, it is also estimated that with the advent of large scale synthesis methods like Chemical Vapor Deposition (CVD), Carbon Arc methods, Laser evaporation etc for CNTs, its cost is also expected to come down in future.

Keywords: CNT-FET, Economical, Gas sensor, MEMS, Transconductance

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Authors: **Sauvik Das Gupta, Souvik Kundu, Abhishek Mallik**

Paper Title: **Monitoring of Sag & Temperature in the Electrical Power Transmission lines**

Abstract: For proper transmission of power in overhead transmission lines temperature control and sag monitoring are the two major parameters to be kept in mind. Electrical load variation and environmental changes affect the temperature in the transmission lines. For proper safety measurements these monitoring should be done on a continuous basis. Some of the ongoing temperature and sag monitoring methods that can be sited are the usage of stainless steel temperature probes, glass based sensors, thermocouples, RTDs, and Infrared sensors. However, all these methods have a disadvantage of having loosening of contacts. Cross sensitivity may also arise due to environmental contaminations. The disturbances caused by the different parameters can be stated as follows:-High temperature due to climate changes decreases the efficiency of electrical transmissions. Extreme weather conditions would increase the chances of failure rate of power lines. Temperature rise also results in an increase in thunder storms and results in the lightning strike of power lines. 2 degrees Celsius of temperature rise increases network losses by 0.04%. It is also found that operation of the conductors on high temperature reduces the mechanical integrity of the overhead systems. It is also clear that cumulative damage occurs to the Aluminium metal in the overhead conductors. Hence, in order to overcome these disadvantages, we hypothise the introduction of MEMS (Micro Electro Mechanical Systems) technology through PLZT(L. This is a temperature sensor, which has numerous advantages over the existing ones. The thin film of Lead Lanthanum zirconate titanate (PLZT) will be coated on nickel foil by chemical solution deposition and this will be fabricated as sensor using MEMS technology. The sensor in turn will be embedded in the transmission line at selected point wherefrom monitoring of temperature and sag is quite feasible. This sensor will be having high chemical stability , high mechanical and thermal resistances , good piezoelectric coefficients and enhanced sensitivity for which it will be reckoned to be a more accurate and versatile one.

Keywords: MEMS, PLZT, sag, temperature control

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Authors:	**B.V.S.N.Lakshmi, C.Prakasa Rao**
Paper Title:	**Managing P2P Reputation System Using Decentralized Approach**

Abstract: In Peer-to-Peer networks, many security mechanisms are based on specific assumptions of identity and are vulnerable to attacks when these assumptions are violated. The traditional security techniques developed for the centralized distributed systems like client-server networks are insufficient for P2P networks by the virtue of their centralized nature. The absence of a central authority in a P2P network poses unique challenges for reputation management in the network. These challenges include identity management of the peers, secure reputation data management, Sybil attacks, and above all, availability of reputation data.

In this paper, we present a cryptographic protocol for ensuring secure and timely availability of the reputation data of a peer to other peers. The past behavior of the peer is encapsulated in its digital reputation, and is subsequently used to predict its future actions. As a result, a peer's reputation motivates it to cooperate and desist from malicious activities. The cryptographic protocol is coupled with self-certification and cryptographic mechanisms for identity management and countering Sybil attack. We illustrate the security and the efficiency of the system analytically and by means of simulations in a completely decentralized P2P network.

Keywords: Peer-to-Peer networks, security, identity management, reputation system.

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Authors:	**N. S. Bakde, A. P. Thakare**
Paper Title:	**Morse Code Reader**

Abstract: Whilst a cursory scan through the wave¬bands on a modern "normal" domestic radio receiver may reveal little in the way of Morse code transmission, this commu¬nications technique is still very much in use. Tuning in via a "communications receiver" or an older domestic receiver on the short wave (SW) bands will reveal Morse activity. At that time PICs were probably not even a twinkle in the eye of any semicon¬ductor manufacturer. They were certainly not reality. Consequently, the EE design was based on a hardware mark-space ratio detector which fed separate Morse dots, to a pre-PC computer (Commodore PET 32K). This compiled the incoming logic into a binary format, matched it against a lookup table and displayed the results on screen. The design presented here is physically simpler, although the software is consider¬ably more complex. The aspects of this design are different. A handheld unit that can receive Morse code, via audio input (internal microphone) or direct signal connec¬tion, and translate it for display on an in-built liquid crystal (LCD) alphanu¬meric screen. It consists of a PIC microcontroller which provides the interface between the Morse code input and the display unit.

Keywords: Major components and requirements, Translation requirements, Binary format, International Morse code, reception rate, circuit diagram, PIC processing, Message display

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Authors:	**P K Srivastava, T R Sontakke**
Paper Title:	**Cognitive Radio and Management of Spectrum in a Multi Radio Access Technology Environment**

Abstract: Cognitive radio capabilities will lead to the ubiquitous availability of a great variety of innovative

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services, delivered via a multitude of Radio Access Technologies (RATs). To achieve this vision, heterogeneity in wireless access technologies; including the requirements and capabilities of different services, mobility patterns, devices, and so forth. Since the demand for spectrum gradually increases and will continue to do so in future systems, this paper present some key-issues with respect to efficiently managing spectrum and brought into view the relevant regulatory perspectives. Moreover, the usage of spectrum will not fluctuate between extreme limits, but be constantly at a rather satisfactory level, giving the opportunity to stakeholders to create, introduce and experience innovative services and applications.

Keywords: Cognitive radio, Radio Access Technologies (RATs), Cognitive Pilot Channel (CPC), Dynamic Spectrum Allocation (DSA).

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14.

Authors: **M.Nireesh Kumar, J.Hemanth, K.Durga Prasad**

Paper Title: **VLSI Implementation of DWT Using Systolic Array Architecture**

Abstract: This work presents an implementation of Discrete Wavelet Transform (DWT)using Systolic architecture in VLSI .This architecture consist of Input delay unit, filter, register bank and control unit. This performs the calculation of high pass and low pass coefficients by using only one multiplier. This architecture has been simulated and implemented in VLSI. The hardware utilization efficiency is more compared to the referred due to FBRA Scheme. The systolic nature of this architecture corresponding to a clock speed of 115.9 MHz has its advantage in Optimizing area, time and power. The architecture is simple, modular, and cascadable for computation of one, or multi-dimensional DWT.

Keywords: DWT, Six tap FIR Filter, Systolic Array Architecture, Decomposition, FBRA.

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15. **Authors:** **Kuldeep Niranjan, Sanjay Srivastava, Jaikaran Singh, Mukesh Tiwari**

Paper Title:	Comparative Study: MOSFET and CNTFET and the Effect of Length Modulation	

Abstract: Carbon nanotubes (CNTs) provide a number of unique feature and special properties that offers a great promise for nanoelectronic applications. In particular, the high electrical conductivity of quantum wires provides a potential solution for on-chip interconnect metals and transistors of future integrated circuits (IC's). Carbon nanotubes (CNTs) are envisioned to be used as the basic building blocks in future electronics application due to their excellent electronic properties such as high mobility, compatibility with high dielectric constants (K) and small diameters resulting in advantageous electrostatics. The purpose of this study was to develop a complete current transport model for carbon nanotube field effect transistors (CNT-FETs) applicable in the analysis and design of integrated circuits. The model was derived by investigating the electronic structure of carbon nanotubes and using basic laws of electrostatics describing a field effect transistor. Traditional MOSFET have the limitation after 60nm, So In this paper we theoretically change the channel material of traditional MOSFET with carbon nano tube (CNT) and compare the characteristics parameter. Here we found a great result like as mobility, device size Switching speed, current capacity. We compare the performance of CNTFET and MOSFET with respect to different type of gate material, effective length, and gate to source voltage. The I-V characteristic of the CNTFET is similar to MOSFET.

Keywords: Anisotropy, CNT-FET, Lateral Growth Work Function

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