## WICT 2012

2012 World Congress on Information and Communication Technologies

> 30 October — 02 November 2012 Trivandrum, India









FEEE Systems, Man and Cybernetics Society







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October 30-31, November 1-2, 2012





**2nd World Congress on Information Communication Technologies WICT-2012** 

Venue: IIITM-K, Technopark Campus, Trivandrum





**Co-organized by** 

**Machine Intelligence Research Labs** (MIR Labs), USA &

Indian Institute of Information Technology and Management - Kerala

Technopark Campus, Trivandrum-695581, Kerala, India (IIITM-K) Ph. +91-471-2700777 (Extn: 117), Fax: +91-471-2527568



Welcome to Thiruvananthapuram (Trivandrum), India and to the World Congress on Information and Communication Technologies (WICT 2012) during October 30- November 02, 2012. In the past century, our society has been through several periods of dramatic changes, driven by innovations such as transportation systems, telephone etc. Last few decades have experienced technologies that are evolving so rapidly, altering the constraints of space and time, and reshaping the way we communicate, learn and think. Rapid advances in information technologies and other digital systems are reshaping our ecosystem. Innovations in ICT allow us to transmit information quickly and widely, propelling the growth of new urban communities, linking distant places and diverse areas of endeavor in productive new ways, which a decade ago was unimaginable. Thus, the theme of this World Congress is "Innovating ICT for Social Revolutions".

The four day World Congress is expected to provide an opportunity for the researchers from academia and industry to meet and discuss the latest solutions, scientific results and methods in the usage and applications of ICT in the real world. WICT 2012 is Co-Organized by Machine Intelligence Research Labs (MIR Labs) and Indian Institute of Information Technology and Management – Kerala (IITM-K). WICT 2012 is technically co-sponsored by IEEE Systems, Man & Cybernetics Society – Spain and Czechoslovakia Chapters and Technically Supported by IEEE Systems Man and Cybernetics Society, Technical Committee on Soft Computing.

Many people have collaborated and worked hard to produce a successful WICT-2012 conference. First and foremost, we would like to thank all the authors for submitting their papers to the conference, for their presentations and discussions during the conference. Our thanks to Program Committee members and reviewers, who carried out the most difficult work by carefully evaluating the submitted papers. WICT'12 received over 500 submissions from over 30 countries. The themes of the contributions and scientific sessions range from theories to applications, reflecting a wide spectrum of coverage of the ICT topics. Each paper was reviewed by at least five reviewers in a standard peer-review process. Based on the recommendation by five independent referees, finally 200 papers were accepted for publication in the proceedings published by IEEE.

We hope that you will find this program interesting and thought-provoking and that the conference will provide you with a valuable opportunity to share ideas with other researchers, students, developers, and practitioners from institutions around the world. We look forward to your participation in the conference.

We greatly thank the organizing committee members for taking care of the registration, logistics, and local arrangements. It is due to their hard work that the conference was made possible. We are really grateful to the co-sponsoring societies including IEEE and Computer Society of India. We would also like to express our sincere thanks to all those who contributed to the success of WICT-2012 but whose names may not be listed.

#### **General Chairs**

Ajith Abraham, Machine Intelligence Research Labs (MIR Labs), USA? Sabu M. Thampi, Indian Institute of Information Technology and Management - Kerala, India? Sankar Pal, Indian Statistical Institute, Kolkata, India??

#### **Program Chairs**

Emilio Corchado, University of Salamanca, Spain? Vaclav Snasel, Technical University of Ostrava, Czech Republic **Venue Information** 

IIITM-K is located amidst the serene and lush green landscape of Technopark Campus in Thiruvananthapuram. The park is on the National Highway (NH 47) to Ernakulam, adjacent to the University of Kerala's Kariavattom campus and is about 8 kms from the Thiruvananthapuram International Airport. Situated on the National Highway, regular bus services link Technopark with commercial centres, research institutions and other urban centers.

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Technopark runs its own bus service, the Technopark Express in a ring route connecting the National highway NH 47, Technopark, and the Kovalam - Kazhakuttam bypass road. The bus service runs between Kerala University Kariavattom campus, through Technopark to Kazhakuttam railway station both in the morning and evening. The Technopark Express bus service also runs continuously between the two ends of the Technopark campus, from Kerala University main gate to Kazhakuttam.

#### Internet Access

There will be limited wireless internet access available at the conference rooms. This service is supplied free of charge by the Conference for its participants during the time of the conference. Please be considerate of your colleagues and limit your time spent online. There are no guarantees of speed and connectivity. Hardwire connections and computers are not provided. If your laptop does not have wireless capability, you will need to access the internet through other means on your own.



The WICT2012 Registration area is located on the THIRD FLOOR of the IIITM-K. Pre-registered participants must pick up their badges and conference materials in this area. On-site registration for the Conference (subject to availability)/Tutorials is located here as well.



Conference information, publications, CDs will be available at the Registration Desk. The desk is staffed by Local Arrangements Members and Student Volunteers who can answer your WICT2012 questions and assist with special needs.



Your safety is our primary concern. In case of an emergency, please contact the conference Registration Desk immediately for assistance. There is also a First Aid office located in the ground floor of the main building.



Please turn all lost and found items in to the Registration Desk



Your WICT2012 name badge serves as your admission pass to conference sessions and events. Please wear your name badge at all times while inside the conference venue. Conference organisers reserve the right to deny admission to any persons not wearing the WICT2012 name badge.



Please be considerate in your cell phone use. WICT2012 requests that all cellular phones, pagers, and other equipment with audible alarms of any kind be turned off in all sessions as a courtesy to the presenters and to the attendees.



WICT2012 is smoke-free and the meeting centre is a non-smoking facility.



Electricity in India is 240 Volts, alternating at 50 cycles per second. If you are traveling from outside India, you will require a voltage converter if you are carrying a device that does not accept 240 Volts at 50 Hertz. WICT2012 does not provide power converters, extension cords, power strips or other electric accessories. However, the staff at the Registration Desk may be able to assist with some needs.

#### IMPORTANT NOTES

Most Presentations are scheduled for a maximum time of 15-20 minutes, including Q&A. Presentations can only be in electronic Power Point formats. Files should be Microsoft Powerpoint 2003 compatible.

There will be a laptop and an LCD available for all presenters in the conference rooms. Upload all presentations one hour prior to their presentations at the laptop provided in the conference hall where your session is scheduled. Please have your presentation file named using session-Id and Paper-Id (xx-xxxxx). You may bring your file on a CD or a USB flash stick.

#### **Program at Glance**

October 30, 2012

	October 30, 2012	
08:30 - 17:00	Registration	
08:40 - 09:00	Opening Ceremony	
09:00 - 09:45	Plenary Talk 1 – Dr. Mohamed Chawki, International Association of Cybercrime Prevention, France Arab Spring and Social Networks: An Egyptian Case Study	
09:45 - 10:30	Plenary Talk 2: Dr. Marimuthu Palaniswami, The University of Melbourne Australia Image Texture Classification: From Spatial Domain to Special-Frequency Domai Creating a sustainable smart city through internet of Things and CI tools	
10:30 - 11:00	Tea Break /Poster Sessions	
11:00 – 13:00	Parallel Sessions	
13:00 - 14:00	Lunch Break	
14:00 – 16:30	Parallel Sessions	
16:30 - 17:00	Tea Break /Poster Sessions	/
	08:40 - 09:00 09:00 - 09:45 09:45 - 10:30 10:30 - 11:00 11:00 - 13:00 13:00 - 14:00 14:00 - 16:30	08:30 - 17:00 Registration  08:40 - 09:00 Opening Ceremony  09:00 - 09:45 Plenary Talk 1 - Dr. Mohamed Chawki, International Association of Cybercrime Prevention, France Arab Spring and Social Networks: An Egyptian Case Study  09:45 - 10:30 Plenary Talk 2: Dr. Marimuthu Palaniswami, The University of Melbourne Australia Image Texture Classification: From Spatial Domain to Special-Frequency Domai Creating a sustainable smart city through internet of Things and CI tools  10:30 - 11:00 Tea Break /Poster Sessions  11:00 - 13:00 Parallel Sessions  13:00 - 14:00 Lunch Break  14:00 - 16:30 Parallel Sessions

#### October 31, 2012

08:30 - 17:00	Registration
09:00 - 09:45	Plenary Talk 3: Magda El Zarki, University of California, Irvine, USA Online Game Systems - A Networking Perspective?
09:45 - 10:30	Plenary Talk 4: Dr. Sivaramakrishnan Senthatty, Tata Consultancy Services, India IPv6 - Why do we need it?
10:30 - 11:00	Tea Break /Poster Sessions
11:00 – 13:00	Parallel Sessions
13:00 - 13.45	Lunch Break
13:45 - 14.30	Talk 5: Image Texture Classification: From Spatial Domain to Special-Frequency Domai
14:30 – 16:30	Dr. S. Ramakrishnan, Mahalingam College of Engineering & Technology, India Parallel Sessions
16:30 – 17:00	Tea Break /Poster Sessions
17:15 – 18:30	Cultural Event
18:45 – 19:15	Gala Dinner

October 31, 2012, 5PM - Cultural Event
IIITM-K Arts & Sports Club



# November 1, 2012 08:30 - 12:00 Registration 09:00 - 12:30 Parallel Sessions 12:30 - 12:45 Closing Ceremony 12:45 - 13:30 Lunch Break 10:50 - 11:00Tea Break

November 2, 2012

Local Tourism

#### Plenary Talks

#### Talk 1 : Arab Spring and Social Networks: An Egyptian Case Study

#### Dr. Mohamed Chawki, International Association of Cybercrime Prevention - Paris, France

Abstract: In light of the Arab Spring revolutions of early 2011, Egyptians have managed, to topple a dictatorship that ruled the country for 30 years. One of the most interesting aspects of the revolution is that ICTs played a very important role. During the first week of the revolution, social networks became the primary arm for the protesters to spread the world about what was happening in Egypt. This presentation will look closely at the extent to which Egyptians used social media networks as tools for organizing and generating awareness of political mobilization in the revolution that took place in Egypt in January and February 2011.

## Talk 2: Image Texture Classification: From Spatial Domain to Special-Frequency Domai Creating a sustainable smart city through internet of Things and CI tools

Dr. Marimuthu Palaniswami, The University of Melbourne, Australia

Abstract: By 2050, 70% of the world's population - over 6 billion people - is expected to live in cities and suburbia. To survive as platforms that enable economic, social and environmental well-being, a city needs to be smart. A smart city is aware, interactive and efficient with respect to its services. It is built on ubiquitous sensing capabilities that reach across numerous areas of modern living, offering the ability to measure and understand the condition of the urban environment This is technologically predicated on the emergent Internet of Things (IoT) - a radical evolution of the current Internet into a network of interconnected 'objects' that not only harvests information from the environment (sensing) and interacts with the physical world (actuation/command/control), but also uses existing Internet standards to provide services for information transfer, analytics, applications and communications. The evolution of the next generation mobile system depends on the creativity of the users in designing new applications. IoT is an ideal emerging technology to influence this domain by providing new evolving data and the required computational resources for creating revolutionary apps. This emerging area will deliver smart new ways of urban monitoring using ubiquitous sensing and data analysis for city management and sustainability by developing a common operating picture for city management. Gartner Inc., in its 2011 report on emerging technologies, has projected IoT to peak in the next 10 years making the world smarter in terms of maximizing wisdom from the information available through ubiquitous (anytime, anywhere, anything) sensing, loT cuts across many faculties including engineering (sensing, networking, web services, transportation, critical infrastructure, visualization), land and environment (urban monitoring), architecture, building and planning (urban landscapes and design), law (legal aspects), social and political science (privacy and ethics), and economics (cost issues). As a result, large multinational consultancy firms have played a major role in the development of this area considering the market potential for this interdisciplinary field. The new solutions are bound to create more space for innovation and revenue that will in turn influence the growth of this niche area. The talk focuses on creating a cyber ecosystem for creating a common operating picture used in city management

## Talk 3: Online Game Systems - A Networking Perspective Dr. Magda El Zarki, University of California, Irvine, USA

Abstract: This talk covers the concepts underlying networked games (NGs) and networked virtual environments (NVEs), from their definition, to distributed systems, to networking fundamentals, quality of experience and game design needs.

- the challenges of networked games
- the origins of networked games technology
- communications architectures
- managing dynamic shared state and game playability
- systems design client server vs peer to peer
- resource management for scalability and performance

#### Talk 4: IPv6 - Why do we need it?

Dr. Sivaramakrishnan Senthatty, Tata Consultancy Services, India

Abstract: Internet Protocol version 6 (IPv6) is the next-generation Internet Protocol designated to be the successor to IPv4. The need for IPv6 has been building for a while now and basically arises due to the inherent limitations of IPv4. We assume that IPv6 will be deployed together with current IPv4 networks, so that the network engineering team will have to consider both the protocols. IPv6 is getting more attention within the networking industry. Where only a few years ago there was widespread doubt as to whether IPv6 would ever be adopted, the meetings of network operators forums such as the North American Network Operators' Group (NANOG), the Asia Pacific Regional Internet Conference on Operational Technologies (APRICOT) and Réseaux IP Européens (RIPE) now devote substantial portions of their agendas to discussions of how to best implement the new protocol.

1. The session begins by examining the current key drivers for IPv6, which includes

An explosion of Internet Applications, Games, Information Sources and Business transaction

Movement of traditional services such as voice and video from legacy circuit-based infrastructures to IP networks Expanding economies in populous countries

- 2. An overview of IPv6 deployment status around the world
- 3. How to create a successful IPv6 Implementation Plan and Design
- 4. Understanding the Inventory details of the Enterprise network
- 5. The three different approaches to IPv6 Implementation

Core to Edge, Edge to Core, IPv6 Islands

6.Design and Interoperability testing

7. Different type of Implementation Mechanisms which includes

Dual Stack, Manually Configured Tunnels, Automatic Tunnels, Translators

8.Cost and Risk Analysis

#### Talk 5: Image Texture Classification: From Spatial Domain to Special-Frequency Domai

Dr. S. Ramakrishnan, Mahalingam College of Engineering & Technology, India

Over a past few decades research on "image texture classification" is gaining momentum and found application in many fields such as industrial and biomedical surface inspection, ground classification and segmentation of satellite or aerial imagery, segmentation of textured regions in document analysis, and content-based access to image databases, crop image analysis, food processing, etc. Over the years, numerous methods have been proposed for the classification of image textures. These methods are broadly divided into two categories, namely feature-based methods and model based methods. These two methods can be employed either in spatial domain or in frequency domain or in spatial-frequency domain. This plenary talk will include the following issues:

What, why and where are Image Textures? Overview of Image Texture Classification Spatial Domain Methods Frequency Domain Methods Journey from Spatial to Spatial-Frequency Methods Spatial-Frequency Methods

#### Parallel Sessions

	Time	Session ID	Sessio Title	Hall
30th October 2012	11:00 -13:00	S1	Communication and Networking - I	301
	11:00-13:00	<b>S</b> 2	Data Management and Mining - I	201
	14:00 - 16:30	S3	Nature Inspired Optimization	210
	14:00 - 16:30	<b>S</b> 4	Advanced Communication Networks Technologies - Architecture, Applications and Services	219
	14:00 - 16:30	<b>S</b> 5	Novel ICT Approaches & Applications	209
	14:00 - 16:30	S6	Bioinformatics	110
31st October 2012	11:00-13:00	<b>S</b> 7	Communication & Networking II	301
	11:00 -13:00	S8	Novel ICT Approaches & Applications II	201
	14:00 - 16:30	S9	Artificial Intelligence	210
	14:00 - 16:30	S10	Computer Network Security	219
	14:00 - 16:30	S11	Design Issues in Wireless Sensor Networks	209
	14:00 -16:30	S12	Data Management & Mining-II	110
1st November 2012	09:00-11:00	<b>S</b> 13	Communication & Networking III	219
	09:00-11:00	S14	Web and E-Services I	210
	09:00-11:00	S15	Special Session on Image Processing and Imaging Technologies	110
	11:00-12:30	S16	Advances in Document Image Analysis (ADIA)	210
	11:00-12:30	S17	Web and E-Services II	219
	11:00-12:30	S18	Special Session on Image Processing and Imaging Technologies	110

10:30 - 11:00 & 16:30 - 17:00 Poster Presentations (During Tea Breaks on the first two days)

October 30, 2012 & October 31, 2012

#### **S1**: Communication and Networking - I

	<u> </u>			
Date	e: 30th October 2012; Time: 11:00 -13:00	Session Chair: Dr. Asoke Nath, St.		
	Xavier's College(Autonomo	ous), Kolkata, India		
35	Simulation Study of Comparative	Praveen Goyal		
	Performance of AODV, OLSR, FSR & LAR,			
	routing Protocols in MANET in Large Scale			
	Scenarios			
45	Modeling Two Way Concurrent Buffer	Sanjay Singh, Rohit Mishra and Md		
	System using Timed Automata in UPPAAL	Zeeshaan		
70	On Modeling the Multirate sensor array	Neenu P A		
	-			
335	Bit Level Encryption Standard (BLES) :	Gaurav Bhadra, Tanya Bala, Samik		
	Version-II	Banik, Joyshree Nath and Asoke Nath		
265	Modern Encryption Standard(MES)	Somdip Dey and Asoke Nath		
	version-I: An Advanced Cryptographic			
	Method			
253	Design and Performance Analysis of 1 bit	Jayram Shrivas, Shyam Akashe and		
	Full Adder using GDI Technique in	Nitesh Tiwari		
	Nanometer Era			

## **S2**: Data Management and Mining - I

Da	Date: 30th October 2012; Time: 11:00-13:00 Session Chair: Dr.				
	Dharavath Ramesh, Indian School of Mines, India				
73	A Secure Image Steganography	Hemalatha S, U. Dinesh Acharya,			
	Technique Using Integer Wavelet	Renuka A and Priya R Kamath			
400	Transform	Dhama a Cianh Daine			
108	Fuzzy Association Rule Mining based	Dharmen a Singh Rajput,			
	Frequent Pattern Extraction from Uncertain Data	Ramjeevan Singh Thakur and			
126		Ghanshyam Singh Thakur			
120	Design of a Transaction Recovery	Dharavath Ramesh and Chiranjeev Kumar			
	Instance Based on Bi-directional Ring Election Algorithm for Crashed	Kulliai			
	Coordinator in Distributed Database				
	Systems				
127	A Grid Clustering Algorithm Using	Damodar Edla and Prasanta K. Jana			
	Cluster Boundaries				
149	Dual tree wavelet transform based	Sneha Latha and Anburajan M			
	watershed algorithm for image				
	segmentation in hand radiographs of				
	arthritis patients and classification				
	using BPN neural network				
152	An approach to personalize the web	Vigneshwari S			
110	using XML based ontologies				
112	Performance analysis of MapReduce	Mahesh Maurya and Sunita			
	Programs on Hadoop cluster	Mahajan			
323	A Comparative study for Image	Md Iqbal Quraishi, J Paul			
	Enhancement using soft computing	Choudhury, Mallika De, Goutam Das			
275	models	and Anirban Bhattacharjee			
375	Application of Support Vector Machine in Continuous Authentication	Tribhuvanesh Orekondy, Soumya Gosukonda and K. G. Srinivasa			
197	Detection of DoS attack Time interval	Alpa Reshamwala and Sunita			
191	Sequences on Network Traffic	Mahajan			
355	Greedy Polynomial Neural Network	Bijan Misra and Rasmita Dash			
333	for Classification Task in Data Mining	Dijan wisia anu Kasiina Dasii			
	TOT Classification Task III Data Milling				

## **S3**: Nature Inspired Optimization

Date: 30th October 2012; Time: 14:00 - 16:30 Session Chair: Dr. Alpa					
	Reshamwala, SVKM's NMIMS MPSTME, India				
116	Recognition of the State of Mind	Ramakrushna Swain, Bijan Bihari			
	using Hamming Swarm Net	Misra and Naren a Kumar Kamila			
272	NSBBO for Gain-Impedance	Satvir Singh, Etika Mittal and Gagan			
	Optimization of Yagi-Uda Antenna	Sachdeva			
	Design				
277	A MetaHeuristic Approach For	Madhu Nalluri and Diptendu Sinha			
	Optimal Reliability Assessment of	Roy			
	Software Systems Incorporating				
	Redundancy				
285	Evolutionary Performance of BBO	Satvir Singh, Shelja Tayal and			
	and PSO Algorithms for Yagi-Uda	Gagan Sachdeva			
246	Antenna Design Optimization	Ourse Cohe Nichest Konses Deith			
316	Optimal Linear Phase FIR High Pass	Suman Saha, Nishant Kumar, Rajib			
	Filter Design using PSOCFIWA-WM	Kar, Durbadal Mandal and Saktiprasad Ghoshal			
318	Optimal Digital Stable IIR Band Stop	Suman Saha, Joydeep Rakshit, Rajib			
310	Filter Optimization using Craziness	Kar, Durbadal Mandal and			
	based Particle Swarm Optimization	Saktiprasad Ghoshal			
	Technique	Samprasaa Siissiiai			
354	Competency mapping in academic	Bijan Misra, Sushri Rout and Sasmita			
	environment: A multi objective	Samanta			
	approach				
367	Automatic Image Annotation via	Mohamed Sami, Nashwa El Bendary			
	Incorporating Naive Bayes with	and Aboul Ella Hassanien			
	Particle Swarm Optimization				
371	Finding Consensus by Sequence	Jyotshna Dongardive and Siby			
	Evolution: An application of	Abraham			
	Differential Evolution				
289	Evaluation of Normalization methods	Sarat Chandra Nayak, Bijan Bihari			
	on Neuro-Genetic models for Stock	Misra and Himanshu Sekhar Behera			
	Index Forecasting				

## **S4**: Advanced Communication Networks Technologies - Architecture, Applications and Services

Date	Date: 30th October 2012; Time: 14:00 - 16:30 Session Chair: Dr.				
Hema	na Singh, CSIR-National Aerospace Laboratories, Bangalore				
95	FPGA Implementation of Optimum	Sesham Srinu			
	Distributed Sensing for Cognitive				
	Radio Network				
202	Implementation of High Performance	Shyam Akashe, Gunakesh Sharma,			
	and Low Leakage Half Subtractor	Vinod Rajak and Richa Pandey			
	Circuit using AVL Technique				
218	Modelling of High Speed Low Power	Shaym Akashe, Rajeev Sharma,			
	Decoder in Nanometer Era	Nitesh Tiwari and Richa Pandey			
242	A Cognitive Based Context-aware	Kiran Kumari Patil and Vijaya Kumar			
	Personalized Medical Assistance, A	BP			
	Mobile Application				
259	Power analysis of 3T DRAM Cell	Ambrish Mudgal, Shyam Akashe and			
	using FinFET at 45nm Process	Shyam Babu Singh			
	Technology				
301	Performance Analysis of Routing	Sumer Singh, Chakshu Goyal and			
	Protocols Under Varying Degree of	Gagan Sachdeva			
	Misbehaviour in MANET				
313	A Cryptographic Approach to Prevent	Ravi Hosur, Sanjeevakumar Hatture			
	a Spoof Attack for Secure Information	and Rashmi Karchi			
	Retrieval in a Biometric System				
380	Delay Modelling of On-Chip RC	Vikas Maheshwari, Samir Jha, Rahul			
	Global VLSI Interconnect for Step	Bhadauria, Rajib Kar, Durbadal			
	Input	Mandal and Anup Kumar			
		Bhattacharjee			
383	Subspace Projection Based Analysis	Sumitra Shukla, Samaren Dandapat			
	of Speech Under Stressed Condition	and S. R. Mahadeva Prasanna			
161	A Comparative Study between	Ambika Vijayakumar and Radha V			
	Discrete Wavelet Transform and				
	Linear Predictive Coding				
332	Achieving Energy Efficiency by Self-	B. B. Misra, A. K. Nayak and S. C.			
	adjusting Sensing Range and	Rai			
	Positioning in Wireless Sensor				
	Networks				

## **S5**: Novel ICT Approaches & Applications

	30th October 2012; Time: 14:00 - 16:30 Session Chair nology, India	: Dr. Satyananda Champati Rai, Silicon Institute of
16	Estimation of high speed Encoder with MTCMOS Technique in 45 Nanometer Era	Shyam Akashe, Vinod Rajak, Gunakesh Sharma and Richa Pandey
17	Impact of Technology Scaling and Supply Voltage Variation on Half Adder Design in Nanometer Era	Shyam Akashe, Nitesh Tiwari, Rajeev Sharma and Jayram Shrivas
18	Analysis of Power in 3T DRAM and 4T DRAM Cell design For Different Technology	Shyam Akashe, Ambrish Mudagl and Shyam Babu Singh
65	VIMPY & A Yapper for the Visually Impaired	Charu Chaudhari, Amruta Rodrigues, Avanish Pathak and Amiya Tripathy
80	Thjerapeutic Video Tagging System Model	Hima Bindu Maringanti, Krishna Asawa, Naman Agrawal and Radhika Agrawal
154	Drought Information Mining from Satellite Images for Improved Climate Change Mitigation	Getachew Berhan Demisse
158	Fusion of 4-Slap Fingerprint Images with Their Qualities for Human Recognition	Kamlesh Tiwari, Aditya Nigam, Nishant Singh and Phalguni Gupta
172	A Cascaded High Step-Up DCĐDC Converter for Micro-Grid	Ryali Kameswara Rao, Bandaru Satya Vara Prasad and k.bapayya naidu
192	Autonomous computing architecture for Business Applications	Devasia Kurian and Pethuru Raj Chelliah
296	A comprehensive Study on Digital Divide in School, College and Adult Education from Indian Perspective	I. Maria Joseph and Asoke Nath

## **S6**: Bioinformatics

Date	: 30th October 2012; Time: 14:00 - 16:30 Session	Chair: Dr. Bijan Misra, Silicon Institute of Technology,		
Bhul	Bhubaneswar, India			
47	Hybrid clustering method for optic disc segmentation and feature extraction in retinal images	Jude Hemanth and Anitha J		
121	A new algorithm for Quantitative deciphering of pre-mature MRNAs using some Statistical Parameters	Joyshree Nath and Asoke Nath		
138	Tumor Demarcation by VQ based clustering and augmentation with KMCG and KFCG codebook generation algorithms	H. B. Kekre and Pravin Shrinath		
144	DWT-DCT-SVD Based Intravascular Ultrasound Video Watermarking	Nilanjan Dey, Anamitra Bardhan Roy, Poulami Das, Achintya Das and Sheli Sinha Chowdhury		
180	Lifting Wavelet Transformation Based Blind Watermarking Technique of Photoplethysmographic Signals in Wireless Telecardiology	Nilanjan Dey, Shouvik Biswas, Poulami Das, Achintya Das and Sheli Sinha Chowdhury		
232	Interactions among MARM binding factors	Bishwajit Das and Durjoy Majumder		
248	Compressed Sensing for Multi-lead Electrocardiogram Signals	L. N. Sharma and S. Dandapat		
300	Analysis of Graph Centrality Measures for Identifying Ankyrin Repeats	Broto Chakrabarty and Nita Parekh		
378	Rotated Object Recognition-based on Hu Moment Invariants using Artificial Neural System	Amitabh Wahi, C Palanisamy and S. Sundaramurthy		

## **S7**: Communication & Networking II

Date:	Date: 31st October 2012; Time: 11:00-13:00 Session				
Chair	Chair: Dr. Narahari Sastry, Chaitanya Bharathi Institute Of Technology				
Hyder	Hyderabad				
120	PN, Codes Vs Chaotic	Sangeetha Manoharan and			
	sequences:BER Comparison	Vidhyacharan Bhaskar			
	Perspective				
123	Outage Probability Analysis in	Sangeetha Manoharan,			
	multiuser MIMO Systems under	Vidhyacharan Bhaskar and James			
	Weibull Fading Environment	Albert Pushparaj,			
124	Spectrum Efficiency Analysis of	Subhashini Janarthanan and			
	Adaptive Transmission with Selection	Vidhyacharan Bhaskar,			
	Diversity in Rayleigh Fading Channels				
	with Branch Correlation Impairments				
129	Trust based Dynamic Distributed IP	Reshmi Tr and Murugan K,			
	Addressing protocol for MANETs using				
	Fuzzy Rule Sets				
157	Improved Decoder Design for LDPC	Sachin Khati, pooja bisht and			
	Codes based on selective node	subhash pujari,			
	processing				
312	Capacity Analysis of Highly Correlated	Subhashini Janarthanan and			
	Rayleigh Fading Channels for Maximal	Vidhyacharan Bhaskar,			
	Ratio Combining Diversity				
57	Differentiated QoS with Modified C/I	Sanjay Singh and A Divya			
	Based Scheduling Algorithm				
206	Performance Analysis of Unified	Rajesh Anbazhagan and Nakkeeran			
	Power Saving Mechanism for IEEE	Rangaswamy			
	802.16m Networks				

## S8: Novel ICT Approaches & Applications II

Date:	Date: 31st October 2012; Time: 11:00 -13:00			
Sess	Session Chair: Dr. Anindita Paul, IIM Kozhikode, India			
199	Multi-Camera Based Surveillance System	Reena Behera, Pallavi Kharade, Suresh Yerva, Pranali Dhane, Ankita Jain and Krishnan Kutty		
215	Active Cancellation of Probing in Phased Array using Modified Improved LMS Algorithm	Hema Singh and Rakesh Mohan Jha		
315	Curve fitting and Regression line method Based Seasonal Short Term Load Forecasting	M. Babita Jain, Manoj Kumar Nigam and Prem Chand Tiwari		
49	Case study on KVM and Xen	Sneha Kolhe and Sudhir Dhage		
71	An Analysis of Cloud Computing Security Issues	Akhil Behl and Kanika Behl		
241	Cloud Security Management Suite - Security as a Service	Deepa Krishnan and Madhumita Chatterjee		

## S9: Artificial Intelligence

Dr. A	Date: 31st October 2012; Time: 14:00 - 16:30 Session Chair: Dr. Amitabh Wahi,Bannari Amman Institute of Technology, Sathyamangalam, Tamilnadu		
143	An Efficient Colouring of Graphs Using Less Number of Colours	Gend Lal Prajapati, Amit Mittal and Neha Bhardwaj	
150	On-line Handwritten Character Recognition System for Kannada using Principal Component Analysis Approach	Keerthi Prasad, Imran Khan, Naveen R Chanukotimath and Firoz Khan	
183	Multi-Robot Cooperative Box-pushing Problem Using Multi-objective Particle Swarm Optimization Technique	Arnab Ghosh, Avishek Ghosh, Arkabandhu Chowdhury, Amit Konar and Ramadoss Janarthanan	
200	Performance Analysis of Hybrid Feature Extraction Technique for Recognizing English Handwritten Characters	Pradeep Jayabala	
216	Reconfigurable Cognitive Networks	Alex James and Raji CR	
225	Result Merging Using Modified Bayesian Method for Meta Search Engine	K Srinivas, V Valli Kumari and Aliseri Govardhan	

## **S10**: Computer Network Security

	Date: 31st October 2012; Time: 14:00 - 16:30		
137	Session Chair: Dr. Tony Thomas, IIITM-K  137 Gesture based sensor encryption Joy Bose and Tasleem Arif		
163	MAWSN - Manifold Authentication in	Ambika Nagaraj,	
103	Wireless Sensor Network	Allibika Nagaraj,	
201	CHAKRA: A New Approach for	P Ramesh Kumar, S S Dhenkaran,	
	Symmetric Key Encryption	K L Sailaja and P Sai Kishore,	
226	SD-C1BBR: SD-Count-1-Byte-Bit	Somdip Dey	
	Randomization: A New Advanced		
	Cryptographic Randomization		
	Technique		
303	BOKHARI: A New Software Oriented	M. Ubaidullah Bokhari and Faheem	
	Stream Cipher. A proposal	Masoodi	
314	An Improved Wavelet Domain Image	M S Keerthi, Nair S Preethi and M	
	Watermarking with Varying Embedding	Jayamohan	
	Strength	_	
44	Erroneous State Detection in Piecewise	Sanjay Singh, Sharath Kumar A and	
	FIFO System	Vishesh H V	

## **S11:-** Design Issues in Wireless Sensor Networks

Date: 31st October 2012; Time: 14:00 - 16:30 Session Dr. Sanjay Singh, Manipal Institute of Technology, Manipal, India		
240	Securing Wireless Sensor Network based Solutions	Rajarathnam Nallusamy, Vijayaraghavan Varadharajan and Sunil Kumar Vuppala
284	Characterization of Reliability in WSN	Dhanashri Wategaonkar and Vivek Deshpande
336	An Energy Efficient Wireless Sensor Network using Spatial Correlation Based Iterative Node Selection Algorithm with Routing Protocols for Multiple Sensor Nodes	P.T. Kalaivaani
363	Congestion Control in Wireless Sensor Networks by using Differed Reporting Rate	Vivek Deshpande, Pratibha Chavan, Vijay Wadhai and Jagdish Helonde
366	Achieving reliability in Wireless Sensor Networks by Differed Reporting Rate Control	Vivek Deshpande Deshpande, Archana Dhoke, Vijay Wadhai and Jagdish Helolde
368	Handling Fairness in Wireless Sensor Network	Meera Thorat and Vivek Deshpande
369	Analysing Parameters Of Loss Recovery	Shilpa Badarayani and Vivek Deshpande

## **S12**: Data Management & Mining-II

Date:	Date: 31st October 2012; Time: 14:00 -16:30		
Sess	Session Chair: Dr. Manjunath Aradhya, SJCE, Mysore, India		
229	Satellite Cloud Image Processing And	Mahendra Kumar Gurve and Jyoti	
	Information Retrieval System	Sarup	
261	Comparison between analytic and	Madhu Sudan Kumar, Shom Prasad	
	Numerical solution of linear	Das and Motahar RezaA	
	Black DScholes equation governing		
	option pricing: Using Bank Nifty		
321	Application Of Hippocratic Principles	Rajnishkaur Bedi, Nitinkumar Gove	
	For Privacy Preservation In Social	and Vijay Wadhai	
	Network		
299	Path-Planning of Mobile Agent using Q-	Dhrubojyoti Banerjee, Pratyusha	
	Learning and Real-Time	Rakshit, Amit Konar and Ramadoss	
	Communication in an Unfavourable	Janarthanan	
	Situation		
356	Performance Evaluation of Ad hoc	Rakesh Sahu and Narendra	
	Network Under Black hole Attack	Chaudhari	

## **\$13**: Communication & Networking III

	1st November 2012; Time: 09:00-11:0 . Ramakrishnan, Mahalingam College o	
281	Cloud computing security schemes:- TGOS and TMS	Aaradhana Deshmukh, Albena Mihovska and Ramjee Prasad
255	Maximizing Range of Signal Strength by Home-made Wi-Fi Booster Antenna	Vrushali Kadu and Datta Adane
266	Traffic Prioritization in MPLS Enabled OSPF Network	Anupkumar Bongale, Nithin N and Swarna Jyothi
267	Performance Analysis of IEEE 802.11e over WMNs	Tritva J Kiran Pinjarla and Kavitha Athota
171	Efficient Route Discovery using Stable Connected Dominating Set for Mobile Ad Hoc Networks	Revathi S. and T.R. Rangaswamy
279	Performance of AODV , DSR and DSDV Protocols under varying node movement	Veena Anand and Suresh Chandra Gupta
293	VLDD: Vindictive Link detection in Distance Vector Routing for ad hoc network	Kutala Sreenivasulu, E V Prasad and A Subramanyam
63	Efficacy of 16-APSK Modulation for Multiband Pulsed-OFDM UWB- Communication Systems	Manimegalai C.T.
118	Performance of Comparison Metrics on M-QAM OFDM systems with High Power Amplifier	Deepa T and Kumar R
227	Staggered Clustering Protocol: SCP an Efficient Clustering Approach for Wireless Sensor Network	Asis Kumar Tripathy and Suchismita Chinara

#### **S14**: Web and E-Services I

Date	Date: 1st November 2012; Time: 09:00-11:00 Session		
Chai	Chair: Dr. Tony Thomas, IIITM-K		
51	Semantic Based Image Retrieval of an Image Crawler Using Multi-DAgent Model By Searching and Filtering Replicated Web Images.	Shashi Shekhar	
58	An Experience with Measuring Multi- User Online Task Performance	Anindita Paul, Borchuluun Yadamsuren and Sanda Erdelez	
79	Defense Response of Search Engine Websites to Non Cooperating Crawlers	Rishabh Dev Chandna, Prabhakar Chaubey and Suresh Chandra Gupta	
94	XBMRSA: A New XML Encryption Algorithm	Nithin N and Anupkumar Bongale	
128	Spatio Concept Relation Accompanied Interface to Bridge Semantic Gap of Video Search and Retrieval	Lochandaka Ranathunga, Nor Aniza Abdullah and Roziati Zainuddin	
145	The e-Government Interoperability through Enterprise Architecture in Indian Perspective	Anu Paul and Varghese Paul	
176	Survey of QoS Based Web Service Discovery	Rashmi Phalnikar and Pradnya Khutade	
208	Real-time Mobile Learning using Mobile Live Video Streaming	Moumita Majumder and Debarshita Biswas	

# **\$15:** Special Session on Image Processing and Imaging Technologies (WICT-IPIT 2012)

	: 1st November 2012; Time: 09:00-11:0 pachan James, IIITM-K	0 Session Chair: Dr. Alex
151	Reconstruction of PET Brain Image using Conjugate Gradient Algorithm	Thiyagarajan Arunprasath, Murugan Pallikonda Rajasekaran, Subramanium Kannan and Venkatesan Adithiyaa
159	First Order Neighborhood Decision Based Median Filter	Aswini Kumar Samantaray and Priyadarshi Kanungo
164	Statistical analysis of surface roughness measurements using Laser Speckle images	T Jeyapoovan, M Murugan and B Clemend Bovas
207	An Effective Direction based Filter for the Restoration of Images Corrupted by Random Valued Impulse Noise	Justin Varghese, Saudia Subash, Mohamed Samiulla Khan, Mohammed Ghouse, Omer Bin Hussain and Lotus R
251	Image Compression using Multilayer Feed Forward Artificial Neural Network with Conjugate Gradient	Shantikumar Yumnam, Pushpa Bishnulatpam and Manglem Khumanthem

## **\$16:** Advances in Document Image Analysis (ADIA)

Date	: 1st November 2012; Time: 11:00-12:3	30 Session Chair: Dr.
Siby	Abraham, University of Mumbai	
222	Isolated Telengu Palm leaf character recognition using random transform -	Panyam Narahari Sastry and Ramakrishnan Krishnan
	A novel approach	Namakiisiinan Kiisiinan
286	Handwritten Character Segmentation for Kannada Scripts	Naveena C and V. N. Manjunath Aradhya
290	Character Recognition of Kannada Text in Low Resolution Display Board Images using Zone Wise Statistical Features	Shanmukappa Angadi, Mallikarjun Kodabagi and Markandeshwar Jerabandi
370	Discrimination of Handwritten and Machine Printed Text in Scanned Document Images based on Rough Set Theory	Surabhi Narayan and Sahana D. Gowda
185	Channel estimation and equalization for the time varying OFDM system using Kalman filter	Chukka Sekhar, Dasari Srinivas Rao and Chundru Satvik
210	An Ameliorated Methodology for the Design of Product Data Flow Diagram	Shivanand Handigund and Pushpa C.
263	An Automated Methodology for the Design of Usecase Package Diagram	Shivanand M. Handigund, Kavitha H. B. and Aphoorva A.
31	Segmentation of Breast MRI Using Effective Fuzzy C-Means Method based on Support Vector Machine	Sathya Arumugham

#### **\$17**: Web and E-Services II

	Date: 1st November 2012; Time: 11:00-12:30 Session Chair: Dr. S. Ramakrishnan, Mahalingam College of Engineering & Technology, India	
302	Text Watermarking Algorithm Using Structural Approach	Bharati Patil and Nitin Patil
305	Case Study: Affordance of using Multi- HD Technology for Distanced Co- Teaching in Hong Kong Secondary Schools	Boris Chan, Alan Lam and Louis Li
352	A Model for Assessing the Strategic Value of e-Learning Initiatives	Mehdi Asgarkhani
358	Wireless communications for Nomadic and Pervasive Computing: Using of NOMOHi Networks to Unify e-university Educational Platforms.	Juan Jose Martinez Castillo, Karina Aviles, Johnny Martinez, Claret Gonzales and Franklin Arzolay
381	A Quality of Service (QoS) Model and Learner Centric Selection Mechanism for E-Learning Web Resources and Services	Demian Antony D'Mello, Raghavendra Achar and Shruthi M
212	A Novel Methodology for Security and Privacy of Cloud Computing and its use in e-Governance	Kuntal Mukherjee and G. Sahoo
346	Dynamic Economic Dispatch of Thermal Units by Blended Biogeography Based Optimization	J Jasper and T Aruldoss Albert Victoire

# **\$18**: Special Session on Image Processing and Imaging Technologies (WICT-IPIT 2012)

Date	: 1st November 2012; Time: 11:00-12:3	0 Session Chair: Dr.
Sabu M Thampi, IIITM-K		
251	Image Compression using Multilayer	Shantikumar Yumnam, Pushpa
	Feed Forward Artificial Neural Network	Bishnulatpam and Manglem
	with Conjugate Gradient	Khumanthem
270	,	Sabitha Gauni and Kumar R
	receiver with Common Carrier	
	Frequency Offset (CCFO)	
351	Evaluation of different Stages of	Tinu Varghese, Sheela Kumari,
	AlzheimerÕs Disease using	Mathuranath P S and Albert Singh
	Unsupervised Clustering techniques	_
	and Voxel Based Morphometry	
373	Automatic Grading of Macular	Jyoti Prakash Medhi, Malaya Kumar
	Degeneration from Color Fundus	Nath and Samarendra Dandapat
	Images	·
377	Curvelet based Image Fusion	Monika Verma, Vandana D Kaushik
	-	and Venkateshwar Rao

# List of Poster Paper Presentations (During Tea breaks on the first two days) October 30, 2012 - 10:30 - 11:00 October 31, 2012 - 16:30 17:00

	Various Steganalytic Techniques	*Yambem Jina Chanu, Kh. Manglem
	Comparison for LSB Embedding	Singh and Themrichon Tuithung
	Dual image watermarking scheme	* Bishnulatpam Pushpa Devi, Kh
	based on Singular value decomposition	Manglem Singh and Sudipta Roy
	Radar Cross Section of Phased Array with Parallel Feed Network	* Hema Singh
	System Architecture for Device and Content Independent Application including 3D Imaging and Virtual Reality Implemented in Collaborative Language Learning Game	* Razia Sultana, Andreas Christ, Patrick Meyrueis
89	A View on Ultrasonogram Denoising Techniques	Haseena K.A and Sherikh K.K
170	A Novel Forward Vehicle Collision Avoidance Methodology through Integration of Information and Communication Technologies at Intersections	Vivek Singhal and Sukhvir Jain
217	Personalized Web Information Retrieval Based on Varying Health Parameters Related to Diabetes	Asangi De Silva Jayatilaka Jayatilaka, S.M.A.K.D. Arunatileka Arunatileka and R.G. Premaratne Premaratne
219	Review of Community Detection Approaches in Social Networks using Bayesian Method and Graph Theory	Harish Kumar Shakya and Bhaskar Biswas
288	A comparative study between Ridgelet PCA and PCA using different distance measure technique for 2D shape recognition and retrieval	Muzameel Ahmed and V. N. Manjunath Aradhya

344	A Comparative Study on Image Edge Enhancement for Synthetic Aperture Radar (SAR) Images	Md.lqbal Quraishi, Krishna Dhal and Goutam Das
268	Selective Encryption for Secure Real Time Remote Video Monitoring	Deepti Lawand, Madhumitta Chatterjee and Suhas Lawand
	Parallel scale space construction using SIMD hypercube	Anukul Panda, Hunny Mehrotra and Banshidhar Majhi
53	Simulated Annealing based algorithm for multi objective fuzzy time-cost optimization problem	Manal Osman Suliman
237	OCRG: A Proposed Recommender for Mitigating New User Problem	Harita Mehta, Punam Bedi and Veer Sain Dixit
77	Towards the Improvement of Cuckoo Search Algorithm	Hetal Soneji and Rajesh Sanghvi
271	Development of Advanced Contrast Enhancement Technique for Mammographic Images	Arpita Das and Mahua Bhattacharya
239	Human Body Tracking System Based on DWT and Mean-Shift Algorithm on ARM-Linux Platform	Ganesh Rakate
188	An Artificial Bee Colony algorithm based Efficient Prediction Model for Stock Market Indices	Minakhi Rout, Babita Majhi, Usha Manasi Mohapatra and Rosalin Mahapatra
166	Simulation and Comparative Analysis of Energy Conservation Performance Metric for ERAODV, AODV and DSDV Routing Protocols in MANET	Bhabani Sankar Gouda, Lakshmi Narayana and Arkaprava Bhaduri Mandal
252	IPv4 and IPv6 Performance Comparison for Simulated DNS and VoIP Traffic in Windows 2007 and Windows 2008 Client Server Environment	Shubhangi Kharche and Alka Mahajan
168	A power-aware middleware for location & context aware mobile apps with cloud computing interaction	Rafael P Žrez-Torres and C Žsar Torres-Huitzil

40	Cooperative Security Agents for MANET	Vaishali Mohite and Lata Ragha
233	Assessment for Possible Drug Application Delays in MCT Strategy Due to Pathophysiological Constraints of Cancer	Durjoy Majumder
191	Analysis and Evaluation of Cooperative Multi-Point Transmission/Reception and Soft Handover for LTE-Advanced	Rudraksh Shrivastava and Mari Carmen Aguayo Torres
249	Development of Adaptive Channel equalization using DE	Prasanta Khuntia, Benudhar Sahu and Chandra Sekhar Mohanty
78	An Embedded GSM based Real time Multiparameter,Patient Monitoring System and Control-An Implementation for ICU patients	Nitin Jain, Preeti Jain and Trupti Agarkar
328	Privacy Preserving Hierarchical Content Distribution in Multiparty Multilevel DRM	Dheerendra Mishra and Sourav Mukhopadhyay
146	A Novel Approach for Malicious Nodes Detection in Ad-hoc Networks Based on Cellular Learning Automata	Amir Bagheri Aghababa, Amirhosein Fathinavid, Abdolreza Salari and Seyedeh Elaheh Haghayegh Zavareh
243	Construction of University Ontology	Ayesha Ameen, Khaleel Ur Rahman Khan and Padmaja Rani
198	Secure Encryption with Digital Signature Approach for Short Message Service	Neetesh Saxena and Narendra S Chaudhari
10	Towards Realistic Performance Evaluation of Mobile Ad hoc Network	Shailender Gupta, Chirag Kumar, Chander Kumar and Bharat Bhushan
262	Proving Theorems Based on Equivalent Transformation Using Resolution and Factoring	Kiyoshi Akama and Ekawit Nantajeewarawat

384	Hanaa Elshazly, Neveen Ghali, Abeer El Korany and Aboul Ella Hassanien	Rough sets and Genetic Algorithms: A hybrid approach to breast cancer classification
19	Measuring Complexity of Lateral Ventricle from MR Images for Schizophrenia	Damodara Hebbar, Gangadhar Bn and Anand Jatti
174	Software Effort Prediction Using Unsupervised Clustering and Functional Link Artificial Neural Networks	Tirimula Rao Benala and Satchidanda Dehuri
184	Approximate Load Balance based on ID/Locator Split Routing Architecture	Sanqi Zhou, Jia Chen, Hongbin Luo and Hongke Zhang
350	Optimization of OFDM systems resources using multi objective estimation distribution algorithms	Annauth Rajendrasingh and Rughooputh Harry C.S
234	Wireless Smart Badge based on IEEE 802.15.4 LRWPAN	Chitra Javali and Girish Revadigar
275	Voice Enabled Android Application for Vehicular Complaint System Using GPS and GSM-SMS technology	Aditi Mhapsekar, Uma Nagarsekar, Priyanka Kulkarni and Dhananjay Kalbande
278	Design of Compact Reversible Decimal Adder using RPS Gates	Rekha K James, K Poulose Jacob and Sreela Sasi
186	Cluster Optimization for enhanced web usage mining using fuzzy logic	Nayana Mariya Varghese and Jomina John
347	A Goal based methodology for Web specific Requirements engineering	Shailey Chawla and Sangeeta Srivastava
INV	Robust Video Watermarking Scheme Based on Visual Cryptography	Thounaojam Rupachandra Singh
297	Analysis of Ionospheric Scintillations of GPS and VHF/UHF Signals over Low Latitude Indian Region	Swamy Kct, Sarma A D, Supraja Reddy Ammana and Tarun Kumar Pant
55	Quantitative Analyses and Evaluation of MANET Routing Protocols in Effect of Varying Mobility Model using QualNet Simulator	Dharam Vir Tanwar, S.K Agarwal and Sayad Akthar Imam

135	An Approach to Increase the	Nikhil Marriwala and Priyanka
	Wireless Sensor Network Lifetime	Rathee
236	HIXEn: An integration engine for multi-vocabulary health information using REST & semantic metadata mapping	Saptarshi Purkayastha
205	Analysing of 3D Beamforming in MIMO Radars	Amirsadegh Roshanzamir, Mohammadhossein Roshanzamir and Mohammad Hasan Bastani
76	ÒPhish Mail Guard :Phishing Mail Detection Technique by using Textual and URL analysisÓ	Jayshree Hajgude and Lata Ragha
238	Dyscover - An Orton-Gillingham	Saptarshi Purkayastha, Namrata
	Approach Inspired Multi-sensory	Nehete and Jashodhara
	learning application for Dyslexic children	Purkayastha
98	Automatic Speech Recognition using Correlation Analysis	Arnab Pramanik and Rajorshee Raha
12	Performance of Fuzzy equalizers in software defined Radio	Nikhil Marriwala and Sippy Kapoor
125	Multistage Recognition Approach for Handwritten Devanagari Script Recognition	Vijaya Pawar and Arun Gaikwad



#### **About IIITM-K**

IIITM-K, established in the year 2000 by Govt. of Kerala is a non-profit making autonomous institution to promote higher education in Kerala in IT and allied areas. The institute has gained strength in several front end areas in the fields of IT education and research. It possesses state of the art IT infrastructure to offer post graduate and PhD Programmes. The academic Programmes of the Institute cover a rich diversity of subject areas in the disciplines ranging from Theoretical Computer Sciences, IT, Scientific Computing, Ecological Informatics, Computational Sciences, Computational Chemistry, Eco-Informatics, Geo-informatics, Security, Community e-Governance concepts, and Enterprise Systems etc.



#### **About MIR Labs**

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## Contact Us Technical Matters:

Dr. Ajith Abraham

Machine Intelligence Research Labs (MIR Labs)

http://www.mirlabs.org

Email: ajith.abraham@ieee.org

Tel: 001-253-2453001 Fax: 001-615-694-4607

#### **Local Organization and Venue:**

Dr. Sabu M. Thampi
Indian Institute of Information Technology
and Management Kerala (IIITM-K)
Technopark Campus,
Trivandrum-695581, Kerala, India
Email: smthampi@ieee.org
Ph. +91-471-2700777 (Extn: 117)