2016 3rd International Conference on Recent Advances in Information Technology (RAIT 2016)

Dhanbad, India 3-5 March 2016

Pages 1-346



IEEE Catalog Number:

ISBN:

CFP1634P-POD 978-1-4799-8580-7

Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP1634P-POD

 ISBN (Print-On-Demand):
 978-1-4799-8580-7

 ISBN (Online):
 978-1-4799-8579-1

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Phone: (845) 758-0400 Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



Contents

Contents	— i
Preface	— ix
About the Department	x
Conference Committee	— xix
List of Reviewers	— xxi

Volume-I

Sl. No.	Advances in Communication	
1	Coastal Surveillance in Multi Sensor Environment : A Design Approach Ashutosh Singh, Vinay Aggarwal and Pankaj Tiwari	01
2	Energy Efficient Fault Tolerant Barrier Coverage Using Limited Mobility Wireless Sensors Dinesh Dash	07
3	CQS: A Conflict-free Query Scheduling Approach in Wireless Sensor Networks Bibudhendu Pati, Joy Lal Sarkar and Chhabi Rani Panigrahi	13
4	Outage Performance of Secondary User in Cognitive Relay Network with Multiple Pus Shashibhushan Sharma, Binod Prasad, Sanjay Dhar Roy and Sumit Kundu	19
5	An Efficient methodology to solve the K-terminal network reliability problem Sandeep Singh, Aman Verma, Subhashis Chatterjee and Venkata Ramana B	25
6	Restoring Virtual Backbone of Wireless Sensor Network on Sensor Failure Dinesh Dash	29
7	Candidate Core Selection for Load-Balanced Multicore Shared Tree Multicasting Koushik Sinha, Bidyut Gupta, Shahram Rahimi and Ansuman Bhattacharya	35
8	Low Power Customized New Trend Remote Surveillance System Over 3G Mobile Network Sabyasachi Tiwari, Utpal Goswami, Mainak Chowdhury and Pradip Kumar Sadhu	41
9	Cooperative Spectrum Sensing based on Dynamic Clustering with Improved Energy Detector Kuldeep Yadav, Sanjay Dhar Roy, Sumit Kundu and Abhijit Bhowmick	46
10	Efficient Coverage and Connectivity Aware Data Gathering Protocol for Wireless Sensor Networks <i>Govind P. Gupta</i>	50
11	Behavioral Study of Sybil Attack on Vehicular Network Amrit Suman and Chiranjeev Kumar	56
12	Analysis and QoS Measurement for Voluminous Data Flow in Wireless Sensor Network Prasanta Kumar Swain, Manas Kumar Rath	61
13	A Modified NCO based LSPF-DPLL Phase Resolver for Wireless Communication Sabyasachi Bhattacharyya, Aradhana Misra and Kandarpa K. Sarma	65
14	A Delay-bound Efficient Path Design Algorithm for Mobile Sink in Wireless Sensor Networks Madhvi Mishra, Kumar Nitesh and Prasanta K. Jana	72

15	Indegree-based Path Design for Mobile Sink in Wireless Sensor Networks Preeti Komal, Kumar Nitesh and Prasanta K. Jana	78
16	Location and Selective-bordercast based enhancement of Zone Routing Protocol Shweta R. Malwe, Soniya Rohilla and G. P. Biswas	83
17	Low Complexity Secure Encoding and Joint Decoding for Distributed Compressive Sensing in WSNs Amit Satish Unde, Ravikumar Malla and Deepthi P. P.	89
18	Bacterial foraging optmization algorithm for cluster head selection and routing in WSN Praveen Lalwani, Sagnik Das	95
19	Study of Fairness and delay of packet scheduling in IEEE 802.11 based Wireless Mesh Network Poulomi Deb, Durgabati Poddar, Subhrajyoti Deb and Abhishek Majumder	101
20	A Survey on Wireless Sensor Network for Community Intrusion Detection Systems Nikhil Kumar Mittal	107
21	Smart Low Power Wireless Sensor Network for Underground Mine Environment Monitoring Yogendra Singh Dohare, Tanmoy Maity, Partha Sarathi Paul and Ranjith Babu Vanguri	112
22	A Novel Vertical Handoff Scheme for Vehicular Ad-hoc Networks Sadip Midya, Koushik Majumder, Asmita Roy and Debashis De	117
	Advances in Signal Processing	
23	Non-Linear Fractal Analysis of ECG signal collected from Maternal and Normal Sinus Women Monisha Chakraborty, Tithi Das and Dipak Ghosh	123
24	A New Spectral Subtraction Method for Speech Enhancement using Adaptive Noise Estimation Shambhu Shankar Bharti, Manish Gupta and Suneeta Agarwal	128
25	Comparative study of MFDFA technique for Isometric and Isotonic Muscle Contraction Monisha Chakraborty and Debanjan Parbat	133
26	A Highly Accurate, High-Precision sub-Pixel Motion Estimator- Interpolator for high-performance video coding (HEVC) in Next Generation UHDTV Applications Mani Laxman Aiyar and K.Ramesha	139
27	Single Notch band UWB BPF Using Square Ring Resonator Yatindra Gaurav, Arvind Kumar Pandey and R.K. Chauhan	147
28	A Real-time heartbeat detection technique using TMS320C6713 Processor and Multi-rate Signal Processing D. Mandal and M. Ganguly	149
29	An Anti-Jamming Protocol Based on Secret Reallocation of Channels Ansuman Bhattacharya, Soumyadip Audhya and Koushik Sinha	154
	Advances in Artificial Intelligence & Knowledge Discovery	
30	A Novel Soft Set Theoretic Prisoners' Dilemma Game Model Tuli Bakshi, Arindam Sinharay and Tanmoy Som	160
31	An Introduction towards Automated Parameterization Reduction of Soft Set Tuli Bakshi, Arindam Sinharay and Tanmoy Som	164
32	Application of twitter in Health care sector for India Avinash Kumar Barnwal, Govind Kumar Choudhary, Raj Swarnim, Aman Kedia, Saptarsi Goswami and Amit Kumar Das	172

33	Towards An Internet of Things Framework for Financial Services Sector V. Dinesh Reddy and G.R. Gangadharan	177
34	Classification of Bangla Script Document using SVM Manoj Kumar Shukla, Ajay Rana and Haider Banka	182
35	Design of a mobile Web crawler for hidden Web Manish Kumar and Rajesh Bhatia	186
36	A Dynamic MicroTask Scheduling Approach for SLO based Human-augmented Computing Koushik Sinha, Pratham Majumder and Geetha Manjunath	191
	Advances in Soft Computing	
37	Using Fuzzy c means and Multi Layer Perceptron for Data Imputation: Simple v/s Complex Dataset Shambeel Azim and Swati Aggarwal	197
38	A novel flower pollination algorithm for congestion management in electricity market Sumit Verma and Vivekananda Mukherjee	203
39	Design of Slot Loaded Proximity Coupled Microstrip Antennas using Knowledge based neural networks <i>Ruchi Varma</i> and Jayanta Ghosh	209
40	Comparison between GA-based LQR and Conventional LQR Control Method of DFIG Wind Energy System Ravi Bhushan, Kalyan Chatterjee and Ravi Shankar	215
41	GA Based Improved Frequency Regulation Characteristics For Thermal-Hydro-Gas & DFIG Model Incoordination With FACTS And Energy Storage System Ravi Shankar, Soumya Ranjan Pradhan, Satyabrata Sahoo and Kalyan Chatterjee	220
42	Power and Frequency Stabilization of an Isolated Hybrid Power System Incorporating Scaling Factor Based Fuzzy Logic Controller <i>Tarkeshwar Mahto and V. Mukherjee</i>	226
43	Heat Pipe Mass Optimization for Space Applications Tanweer Alam, U. Upadhyay, S. Azam and R. Kumar	232
44	Fuzzy Gain Scheduled Intelligent Frequency Control in an AC Microgrid Mohit Kumar, Pankaj Kumar, Ashiwani Yadav and Nitai Pal	237
45	Multi-objective Genetic Algorithm set up For Feature Subset Selection in Clustering Himanshu Kashyap, Sohini Das, Jayee Bhattacharjee, Ritu Halder and Saptarsi Goswami	243
46	FARW: Firefly Algorithm for Routing in Wireless Sensor Networks Praveen Lalwani, Isha Ganguli and Haider Banka	248
47	Optimization of clustering process in WSN with meta-heuristic techniques - A survey Dharmanshu Raval, Gaurang Raval and Sharada Valiveti	253
48	A Novel Parallel Search Technique for Optimization Manaar Alam, Soumyajit Chatterjee and Haider Banka	259
49	Hardware Implementation of Naive Bayes Classifier: A Cost Effective Technique Himanshu Ranjan Seth and Haider Banka	264
50	Analysis of size-strength trade-off in green pelletization for manganese concentrate using multiobjective evolutionary algorithm (NSGA-II) Mohammad Nadeem and R. Venugopal	268

51	Model of a Fuzzy Autonomation system for a Steel Wire Roll Mill L. N. Pattanaik, Rajeev Agrawal and Lakshmi Kumari	274
52	Multi-objective Parametric Optimization of Green Sand Moulding Properties using Genetic Algorithm Archana Kumari and Rajkumar Ohdar	279
53	Vegetation Indices Based Segmentation for Automatic Classification of Brown Spot and Blast Diseases of Rice Santanu Phadikar and Jyotirmoy Goswami	284
	Applications of IT	
54	Study of Scattering Parameters and Gain of two longitudinal Slots of Same or Different Electrical Lengths Milled on either one or both Face of Broad Wall of a Waveguide for Shunt Slot Array Antenna Hare Ram Jha and Shiva Nand Singh	290
55	Operation and Control of Three-Phase Multilevel Inverter with Reduced Component Ravi Raushan, Bidyut Mahato and Kartick Chandra Jana	295
56	Comparative Study of Asymmetrical Configuration of Multilevel Inverter for Different Levels Bidyut Mahato, Ravi Raushan and Kartick Chandra Jana	300
57	Study and Implementation of synchronization Algorithm in Three phase Grid connected PV system B Krishna Naick, Manisha Das, T.K. Chatterjee and Kalyan Chatterjee	304
58	Comprehensive study of various configurations of three-phase Multilevel Inverter for different levels Chandan Kumar, Bidyut Mahato, Ravi Raushan, Tanmoy Maity and Kartick Chandra Jana	310
59	Modelling And Simulation Of Photovoltaic System For Isolated And Grid Connected Mode Kumari Prerna and Gauri Shankar	316
60	Standalone Operation Of Wind Turbine Driven Self Excited Induction Generator Asha Rani and Gauri Shankar	321
61	A novel SIMULINK-based model for comprehensive analysis and comparison of different inverter PWM techniques Somnath Burman and Tanmoy Maity	326
62	Active Power Factor Correction for Rectifier using Micro-controller Kartikesh kumar Jha, Bidyut Mahato and Prem Prakash	331
63	Architecture of Optical Sensing and Monitoring for Pipelines using FBG Abhinav Gautam, Ritu Raj Singh, Amitesh Kumar and Vishnu Priye	337
64	A Compact Tri-Band BPF using Meandered Ring Resonator Priyanka Srivastava, Arvind Kumar Pandey and R. K. Chauhan	339
65	Comparative Analysis of Si, SiGe and Ge bulk Tri Gate n-FinFET for Enhanced Drive Current and Low Power Dissipation Vimal Kumar Mishra and R.K. Chauhan	N/A

Volume-II

Sl. No.	Advances in Cryptography & Network Security	
66	New Approach of Authentication Method based on Profiles R.China Appala Naidu, K Meghana, P S Avadhani and I Uma Maheswara Rao	347
67	A Novel Approach to Detect Extraneous Network Traffic from the Compromised Router Rajendra Patil and Chirag Modi	352
68	Implementation of Secure Portable Real Time Display System Over Ethernet Network Sharique Ali, Amit Sardar, Kamal Kumar Patra and Rakesh Barua	359
69	SQL Injection Attacks in Internet Voting Systems Huma Farheen, Chouti Roseleen, Vaibhav Pratap Singh and Haribabu Pasupuleti	N/A
70	An Improved Secure Remote Login Protocol with Three-Factor Authentication Minu Tiwari, Soumyashree S Panda and G P Biswas	372
71	Empirical Study of Buffer Overflow Protection Mechanisms in their Ability to Defend Against Large Scale Cyber Attacks Srikanth Veeravalli and Raghu Kisore Neelisetti	N/A
72	Anomaly Detection in Network Traffic using K-mean clustering Rashmi Kumari, Sheetanshu Srivastava, Mithilesh Kr Singh, Rithesh Jha and Nikhil Kr Singh	387
73	An Efficient Lightweight Cryptographic Scheme of Signcryption Based on Hyperelliptic Curve Vani Rajasekar, S. Varadhaganapathy, K. Sathya and J. Premalatha	394
74	Malicious Node Detection using ID-Based Authentication Technique Anurag Gupta, Prerna Mohit, Arijit Karati, Ruhul Amin and G. P. Biswas	398
75	Design of an Enhanced Authentication Protocol and Its Verification using AVISPA SK Hafizul Islam, Ruhul Amin, Arijit Karati and G. P. Biswas	404
76	Offline signature verification based on geometric feature extraction using artificial neural network Subhash Chandra and Sushila Maheshkar	410
77	SecOMN: Improved Security Approach for Opportunistic Mobile Networks Using Cyber Foraging Swastik Padhi, Mayank Tiwary, Rojalina Priyadarshini, Chhabi R. Panigrahi and Rachita Misra	415
	Advances in Image and Video Processing	
78	Sign Language Recognition Anup Kumar, Karun Thankachan and Mevin M. Dominic	422
79	Image Segmentation Using Region Derived Triple Thresholding Avik Banerjee, Soumyadeep Bhattacharjee and Sk. Latib	429
80	A Smart Phone Based App For Automated Segmentation and Counting of Platelets Kaushiki Roy, Ratnadeep Dey, Debotosh Bhattacharjee, Mita Nasipuri and Pramit Ghosh	434
81	Color based Human Detection and Tracking Algorithm using a Non-Gaussian Adaptive Particle Filter Aashish Sharma, Ajay Singh and Rajesh Rohilla	439
82	An improved (n,n) Multi-Secret Image Sharing Scheme using Boolean XOR and Reverse Bits Maroti Deshmukh, Neeta Nain and Mushtaq Ahmed	N/A

83	A novel approach to a camera based assistive aid for visually impaired Ishaani Mittal, Apoorva Mittal and Sreedevi Indu	448
84	A Novel Approach for De-speckling of Ultrasound Images using Bilateral Filter Sameera V Mohd Sagheer and Sudhish N George	453
85	Survey on Automated Diagnosis on the Detection of Leukemia: A Hematological disorder Sonali Mishra, Bansidhar Majhi and Pankaj Kumar Sa	460
86	A Novel Method for Moving Object Detection based on Block Based Frame Differencing Sandeep Singh Sengar and Susanta Mukhopadhyay	467
87	Modified Dictionary Learning Method For Sparsity Based Single Image Super-Resolution Abdu Rahiman V, Rohit U and Sudhish N. George	473
88	Class Tiling Design for Ordered Dithering Ayush Agrawal, Jitesh Karamchandani and Sushila Maheshkar	478
89	A Contour based Procedure for Face Detection and Tracking from Video <i>Aniruddha Dey</i>	483
90	Eye Movement Based Human Computer Interaction Ramsha Fatima, Atiya Usmani and Zainab Zaheer	489
91	Voice and Touch Control Home Automation ushant Kumar and S.S Solanki	495
	Advances in Pattern Recognition and Machine Learning Computing	
92	Classification of Lower Limb Motor Imagery Using K Nearest Neighbor and Naive-Bayesian Classifier Sanniv Bhaduri, Anwesha Khasnobish, Rohit Bose and D. N. Tibarewala	499
93	A Novel Approach to Classify the Research Articles Hierarchically Rajendra Kumar Roul, Shubham Rohan Asthana and Shah Mit Kalpeshbhai	N/A
94	A novel deep learning architecture for sentiment classification Rahul Ghosh, Kumar Ravi and Vadlamani Ravi	511
95	FOREX Rate Prediction using Chaos Theory and Quantile Regression Random Forest Dadabada Pradeepkumar and Vadlamani Ravi	517
96	Domain Adaptation for Land-cover Classification of Remotely Sensed Images using Ensemble of Multilayer Perceptrons Shounak Chakraborty and Moumita Roy	523
97	Identification of miRNA Signature using Next-Generation Sequencing data of Prostate Cancer Shib Sankar Bhowmick, Indrajit Saha, Ujjwal Maulik and Debotosh Bhattacharjee	528
	Advances in VLSI Design & Embedded Systems	
98	Investigation on Electrical Characteristics of FDSOI Device for Ultra-Low Power Operation Manisha Guduri, Sudip Kundu and Aminul Islam	534
99	A Reliability Aware Application Mapping onto Mesh based Network-on-Chip Navonil Chatterjee, Sheshivardhan Reddy, Shilpa Reddy and Santanu Chattopadhyay	537
100	An ILP-based Floorplan-aware Path Synthesis Technique for Application-Specific NoC Design Priyajit Mukherjee and Santanu Chattopadhyay	543

101	VLSI Implementation of Optimized Spectrum Sensing Scheme for Cognitive Radio K. Akhila Sudha and B. Vijaya Lakshmi	N/A
102	Comparison of various branch prediction methodologies used in embedded systems Ambily Antony and Sudarshan T.S.B	N/A
103	Mapping Three Step Search Algorithm onto a Systolic Array Processor in H.264 Ria and Subhash Chandra Yadav	561
	Advances in Computing and Real Time Systems	
104	Usability of Electronic Voting System in India and Innovatory Approach Anooshmita Das, Ranjit Kumar Singh, Sanchit Kumar Singh and Manash Pratim Dutta	N/A
105	Wi-Fi Control Bot with Real-Time Video Streaming Chawngsangpuii Khiangte, Lalchhanhima Ralte, Ramchandra Regmi, Mayank Srivastava and Rohit Das	570
106	Multi-Cloud Scenario based QoS Enhancing Virtual Resource Brokering Deepsubhra Guha Roy, Debashis De, Md Mozammil Alam and Samiran Chattopadhyay	576
107	Algorithm of 2D-Voronoi Diagram Construction With Rectangular Block Arindam Sinharay, Tanusree Roy, Antara Saha and Vaswar Pande	582
108	Performance Evaluation of MySQL, Cassandra and HBase for Heavy Write Operation Vishal Dilipbhai Jogi and Ashay Sinha	586
109	Green Intelligence for Cloud Data Centers C Karthik, Mayank Sharma, Kirti Maurya and K Chandrasekaran	591
110	Data Modelling for Discrete Time Series Data Using Cassandra and MongoDB Dharavath Ramesh, Ashay Sinha and Suraj Singh	598
	Applications of IT in GeoSciences and Mining	
111	Quad tree based algorithm for building of network model from road layers of vector maps Shibumon Alampatta, Rajesh MA and Narayan Panigrahi	602
112	Runoff Estimation of Banaras Hindu University South Campus Using ArcGIS and HecGeo-HMS Nikita Shivhare, Padam Ji Omar, Nitesh Gupta and Prabhat Kumar Singh Dikshit	607
113	Review of IT Enabled Technologies in Indian Mining Industry for Improved	613
113	Productivity & Safety Deepanshu R Singh and Arvind K Mishra	013
	Advances in Software Engineering & Advances in Information Retrieval	
114	Modified ACO to maintain diversity in Regression Test Optimization Sushant Kumar, Prabhat Ranjan and R. Rajesh	619
115	Dynamic Software Product Line: An Approach to Dynamic Binding Mahua Banerjee and Reeta Kumari	626
116	Information Retrieval from Social Networks : A survey Waseem Ahmad and Rashid Ali	631
117	Process excellence in IT sector in an emerging economic scenario Satyajit Mahato, Amit Rai Dixit and Rajeev Agrawal	636

118	Sentiment classification of Hinglish text Kumar Ravi and Vadlamani Ravi	641
119	Strategic ICT initiatives in hospitality industry to gain sustainable competitive advantage: a framework for evaluating the response lag perspective <i>Vivek Kumar Verma and Bibhas Chandra</i>	646
120	Business Data Extraction from Social Networking Asif Uddin Khan and Eric Hsiaokuang Wu	651
121	Effectiveness of Prioritization of Test Cases Based on Faults Soumen Nayak, Chiranjeev Kumar and Sachin Tripathi	657
	Miscellaneous	
122	Design and study of three vertically coupled optical unsymmetrical microring resonator Suchita Lakra and Sanjoy Mandal	663
123	Comparative study of Electrode Configurations in Different Brain Tumor Geometry for Effective Electrochemotherapy <i>R. Bose and S. Chatterjee</i>	667
124	HR Practices for Women Employees: A Study of Information Technology (IT) Sector in India Shubhi Gupta and Govind Swaroop Pathak	672
125	E-Governance And Use Of Information Communication Technology In Land Management System In The Jharkhand State: Problems And Prospects H. K. Singh and Meeta Bhatia	677
126	Enhanced Free Spectral range Triple Ring Resonator Suman Ranjan and Sanjoy Mandal	683
127	Construction of Amicably Resolvable Pairwise Balanced Design from Row-regular Williamson Type Matrices M. K. Singh and Pinky Pandey	687
128	Computer Aided Automatic Water Pipe Network Analysis by Simultaneous Loop Equation Solution Method Kailash Jha and Manish Kumar Mishra	691
129	Tenets of Internet of Things (IoT) Application and Java Technology Ankesh Anupam	697
130	Achieving Retention through Human Resource Information System: Developing a Framework Pallavi Pandey, Saumya Singh and Pramod Pathak	700