2018 International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET 2018)

Chennai, India 22 – 24 March 2018



IEEE Catalog Number: ISBN:

CFP18D52-POD 978-1-5386-3625-1

Copyright © 2018 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 is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP18D52-POD
ISBN (Print-On-Demand):	978-1-5386-3625-1
ISBN (Online):	978-1-5386-3624-4

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400 Fax: (845) 758-2633 E-mail: curran@proceedings.com Web: www.proceedings.com





Brief Contents

Message from President	iii
Message from General Chair	iv
Message from Conference Chair	V
Founding Members	vii
Committees	viii
Speakers	X
Overall Schedule	xxiv
Technical Papers	
Day 1: Thursday, 22 March 2018	XXV
Day 2: Friday, 23 March 2018	xxvii
Day 3: Saturday, 24 March 2018	XXX
Author Index	xxxiv



Technical Papers

Session	Track 1: Antennas and propagation, Communication theory and Information theory
Date / Time	22 March 2018 (Thursday) / 03:30 PM 05:30 PM
Venue	Hall 1 Justice Pratap Singh Auditorium
Chair(s)	Dr. K. T. Selvan, Professor, Department of ECE, SSN College of Engineering

- 1 Repeatability of Reference Signal Received Power Measurements in LTE Networks....1 Hayder Khzaali, Josko Zec and Ivica Kostanic
- 4 **Dual Band U Shaped Fractal Monopole Antenna.....7** Sheetal Bukkawar and Vasif Ahmed
- 9 Performance Analysis of Energy Assisted Relaying Techniques in Cooperative Wireless Networks.....11 Aruna T, Shiny Ponmani N and Cynthia Anbuselvi T
- Multiband CPW-fed Circular Microstrip Antenna with Modified Cantor Fractal Slot for 17 DCS/GPS/WiMAX/WLAN/HiPERLAN2 Applications.....15 Munish Kumar and Vandana Nath
- 23 Prominent Modulation Techniques Analysis To dim LEDs installed indoors under visible light communication.....20 Anitha Vijayalakshmi and Nesa Sudha
- 25 Reduced Complexity Receivers for Three-Dimensional Modulation Using Beam Hopping in 5G Systems.....25 Erfan Majeed, Ziad Youssef, Markus Dominik Mueck, Ingolf Karls, Christian Drewes, Guido Bruck and Peter Jung
- 142 Effect of Modulation techniques on the performance of Voice and Video Service for WiMAX Networks in Baghdad.....32

Haider Al Hilfi and Shatha Kaddhum Jasim Al Hummadi

Session	Track 2: Networking, protocols, cognitive radio, wireless sensor networks, services and applications
Date / Time	22 March 2018 (Thursday) / 03:30 PM 05:30 PM
Venue	Hall 2 Justice Pratap Singh Auditorium Room 1
Chair(s)	Dr. A. Gopal, Chief Scientist & Scientist-in-Charge, CSIR-CEERI, Chennai

- 15 Reinforcement Learning Based Decision Fusion Scheme for Cooperative Spectrum Sensing in Cognitive Radios.....38 Balaji V
- 29 Hardware Agnostic Universal Shareable IOT Platform.....43 Kanika Narang and Jyotsna Bapat
- RWA Based Optimal Placement of Wavelength Converters in WDM Optical Networks.....50 54 Jaisingh Thangaraj and Shrinivas Petale



- 64 Artificial Neural Network based Approach for Spectrum Sensing in Cognitive Radio.....54 Yelalwar R.G and Ravinder Y
- 65 Device-to-Device Communication Aided by Two-Way Relay Underlaying Cellular Network.....59 Pratap Khuntia and Ranjay Hazra
- 68 Stochastic network optimization of data dissemination for multi-hop routing in VANETs.....65 Banoth Ravi, Jaisingh Thangaraj and Shrinivas Petale

Session	Track 3: Security and Privacy
Date / Time	22 March 2018 (Thursday) / 03:30 PM 05:30 PM
Venue	Hall 3 Justice Pratap Singh Auditorium Room 2
Chair(s)	Dr. M. Palanivelan , Professor, Department of ECE, Rajalakshmi Engineering College

- **39** A Brief Review of Fuzzy Logic and Its Usage Towards Counter-Security Issues.....69 Harikrishna Pillutla and Amuthan Arjunan
- **96 Robust Fabrication of Share to Assure Error Free Dissemination of Secret Data.....75** *Anirban Goswami, Ritesh Mukherjee and Nabin Ghoshal*
- 100 Dynamical Digital Authentication for Wireless Domain with Randomized Dispersing of Multiple Secret Signatures.....80 Soumit Chowdhury, Arkadip Ray, Ritesh Mukherjee and Nabin Ghoshal
- **115 Ring Oscillator based Physically Unclonable Function with Arbiter.....88** *Rachana Bhilare, Harini K and Sri Adibhatla Sridevi*
- **119 Security Enhancement In Bitcoin Protocol.....91** Bala R and Manoharan R
- 123 Privacy Preserving Collaborative Filtering Approach For Recommendation System.....95 Manju S and Thenmozhi M

Session	Track 4: Signal and Image Processing
Date / Time	22 March 2018 (Thursday) / 03:30 PM 05:30 PM
Venue	Hall 4 School of Management Block LAB
Chair(s)	Dr. M. A. Bhagyaveni, Professor, Department of ECE, CEG, Anna University

14 FPGA Implementation of Space-Based AIS.....100 Adarsh MA, Adarsh K and Akshay Nimbal

34 A new design strategy of sharp cut-off FIR filter with powers-of-two coefficients.....105 Subhabrata Roy and Abhijit Chandra



- **36 A Novel Approach for Glaucoma Detection using Fractal Analysis.....111** Shwetha C Shetty and Priyanka Gutte
- **40 Robust Speaker Diarization for news broadcast.....115** *Karthik M L N S, Mirishkar Sai Ganesh and Bijayananda Patnaik*
- 52 An Improved and Optimized Content-Aware Resizing Algorithm for Images with Densely Situated Foreground Objects.....119 Soumyakanti Roy, Tanmoy Dasgupta and Tapan Pradhan
- 56 Comparative Study of Adaptive Algorithms using Matlab and Verilog.....125 Parvathy A and Gayathri Narayanan

Session	Track 1: Antennas and propagation, Communication theory and Information theory
Date / Time	23 March 2018 (Friday) / 03:30 PM 06:30 PM
Venue	Hall 1 Justice Pratap Singh Auditorium
Chair(s)	Dr. P. Vijayalakshmi, Professor, Department of ECE, SSN College of Engineering

- 26 Impact of Antenna Configuration in Three-Dimensional Modulation Using Beam Hopping.....131 Erfan Majeed, Ziad Youssef, Markus Dominik Mueck, Ingolf Karls, Christian Drewes, Guido Bruck, Peter Jung
- 27 Concept Design of Medium Access Control for Spectrum Access Systems in 3.5 GHz....138 Ziad Youssef, Erfan Majeed, Markus Dominik Mueck, Ingolf Karls, Christian Drewes, Guido Bruck, Peter Jung
- 28 Performance Enhancement of the CSMA/CA MAC Mechanisms Using a Reject Request to Send (RRTS) Message for 3.5 GHz Shared Spectrum Systems.....146 Ziad Youssef, Erfan Majeed, Markus Dominik Mueck, Ingolf Karls, Christian Drewes, Guido Bruck, Peter Jung
- 30 Simulation Analysis of Discontinuous Reception Mechanism with ETSI Traffic Model in LTE Networks.....154 Ninu Rachel Philip, Malarkodi B and Gopi E. S
- **31 Two Port multi-band MIMO antenna with FSS implementation.....159** *Zeba Parveen and Megha Dadel*
- 41 Apollonian-Gasket Monopole Antenna for UWB Dongle Applications with Embedded SIR as Band Notch Structure.....163 Nirupama Thingujam, Riya Chakraborty and Rowdra Ghatak
- **49** Site Survey and Radio Frequency Planning for the Deployment of Next Generation WLANs.....168 Pushpendu Kar and Bhasker Dappuri
- 50 An Efficient Photonic-based Millimeter Wavelength Switching Techniques Towards 5G.....172 Digambar K and Jeyachitra R K

2018 International Conference on Wireless Communications, Signal Processing and Networking



51 Integration of Visible Light Communication and Fiber Communication System....177 *Venkata Sai Pavan T and Jeyachitra R K*

Session	Track 2: Networking, protocols, cognitive radio, wireless sensor networks, services and applications
Date / Time	23 March 2018 (Friday) / 03:30 PM 06:30 PM
Venue	Hall 2 Justice Pratap Singh Auditorium Room 1
Chair(s)	Dr. Asnath Victy Phamila Y , Associate Professor, School of Computing Science and Engineering, VIT Chennai

- 76 IOT Based Smart Agriculture System.....183 Sushanth G and Sujatha S
- **80 Modified TEEN for handling inconsistent cluster size problem in WSN.....187** *Gunjan, Prachi Maheshwari and Ajay K Sharma*
- **86 Optimized path for traversal of mobile sink in heterogeneous wireless sensor networks.....193** Saunhita Sapre and Mini S
- 92 Monitoring Air Pollution: An IoT Application.....199 Sneha Kamble, Mini S and Trilochan Panigrahi
- **108 Enhanced Multi-Controller Placements in SDN.....204** *Ramya G and Manoharan R*
- 120 Design and Development of an IoT Based Smart Irrigation and Fertilization System for Chilli Farming.....209

Rekha Prabha, Emrick Sinitambirivoutin, Florian Passelaigue and Maneesha Vinodini Ramesh

- **121 Building Optimal Topologies for Real-Time Wireless Sensor Networks.....216** *Rekha Prabha, Maneesha V Ramesh and Venkata Prasanna Rangan*
- **132** Configuration of Aerial Mesh Networks with Internet of Things.....222 Manali Gupta, Vikash and Shirshu Varma
- 136 An Improved Adaptive Sparse Channel Estimation Method for Next Generation Wireless Broadband.....225

Beena A. O, Sakuntala S Pillai and Vijayakumar N

Session	Track 3: Security and Privacy/Track 1: Antennas and propagation, Communication theory and Information theory
Date / Time	23 March 2018 (Friday) / 03:30 PM 06:30 PM
Venue	Hall 3 Justice Pratap Singh Auditorium Room 2
Chair(s)	Dr. R. Amutha, Professor, Department of ECE, SSN College of Engineering
144 IoT Security Solution to avoid Theft230	

Chandrappa D R, Pavan H R, Sagar M V and Dakshayini M



- 151 Improving Security using Aggregate Signature Scheme against different Attacks in WSN.....233 Nivedha T and Jayanthi K
- 164 Protection System for Automatic Teller Machines Against Cash Box Thefts.....N/A Varaprasad Golla
- 168 Secured Routing in VANETs using Lightweight Authentication and Key Agreement Protocol.....237 Kiruba Sandou D, Jothy N and Jayanthi K
- **A Survey: Hybrid Medium Access Control Protocol for M2M Communication.....242** *Anurag Gaurav and Atul Kumar Pandey*
- 126 Performance Analysis of Advanced Diversity Receivers in the Presence of Multiple Interferers.....248 Aruna Gaurav and Manash Pratim Barman
- 130 Compact Dual-Mode Single-Band Microstrip Antenna for Body Area Network applications.....253 Saideep V and Santanu Kumar Behera
- 148Genetic-Algorithm Based Planar Antenna Design.....257Mitali Gulati, Siddhartha S, Yash Vedi and Susila M
- 150 Performance Analysis for Mixed Line Rates (MLR) WDM/DWDM Networks under Various Modulation Techniques.....259 Vikram Kumar, Shakrajit Sahu and Santos Kumar Das

Session		Track 4: Signal and Image Processing
Date / T	ìime	23 March 2018 (Friday) / 03:30 PM 06:30 PM
Venue		Hall 4 School of Management Block LAB
Chair(s))	Dr. Premanand Chandramani , Professor, Department of ECE, SSN College of Engineering
59	Performance Evaluation Based on Placement Planning of Logic Blocks in FPGA Design264 Jasmine Joseph and Anu Chalil	
69	Automatic Segmentation of Exudates in Retinal Images268 Sangita Bharkad	
70	A Local Adaptive Region-wise Histogram Correction and Thresholding Technique for Very Poorly Illuminated Images273 Gourab Adhikari, Rohan Mukherjee and Tanmoy Dasgupta	
71	An Analytical Study of Mental Rotation Activity Based on Feature Descriptor Patterns278 Sayantani Ghosh, Lidia Ghosh and Amit Konar	



72	Evaluation of Density Based Odor Classification by General Type-2 Fuzzy Set Induced Pattern Classifier283 <i>Mousumi Laha, Lidia Ghosh, Sricheta Parui, Sayantani Ghosh and Amit Konar</i>	
73	Estimating Pollution Contents in an Urban Area using Airborne Hyperspectral Thermal Data289 Jeena Elsa George and Aravinth J	
82	Music Perception Analysis on Hearing Impaired Listeners296 Alka John, Rajeev Rajan, Karun Sajeev	
85	Language Identification From Speech Features using SVM and LDA301 Anjana J S and Poorna S S	
89	Fusion methods for hyperspectral image and LIDAR data at pixel-level305 Diana Abraham C and Aravinth J	
Session		Track 1: Antennas and propagation, Communication theory and Information theory
Date / T	ime	24 March 2018 (Saturday) / 01:30 PM 04:30 PM

 Venue
 Hall 1 Justice Pratap Singh Auditorium

 Chair(s)
 Dr. S. Sundaravadivelu, Professor, Department of ECE, SSN College of Engineering

- 55 **Performance Analysis of Filtered OFDM for 5G.....308** *Gopika Jayan and Aswathy K Nair*
- 75 A Compact Polygon Shape Ultra Wideband Antenna For Portable Devices.....313 Arti Kumari, Ritesh Kumar Badhai and Priyadarshi Suraj
- 79 Full Duplex and Pattern reconfigurable system antenna design for 5G wireless communications systems using a quadrature 3 dB coupler.....317 Lamine SANE, Ibra DIOUM, Khaly TALL, M Mansour KHOUMA, Kadidiatou DIALLO and Sidi Mohamed FARSSI
- 83 Dual-band Bandpass Filter Using Complementary Split Ring Resonators For X-Band Applications.....320 Sushmeetha R R and Natarajamani S
- 84 A Review on the Concept of Polar Codes.....323 Aparna Mohan and Rajkumar P Sreedharan
- **88** A Broadband Circularly Polarized Microstrip Patch Antenna for X-Band Applications.....328 Divya Bharathi S and Natarajamani S
- **91 Triple-band Compact Monopole Antenna using Defected Ground Plane.....331** Saurabh Kumar, Priyadarshi Suraj and Ritesh Kr. Badhai

22 – 24 March 2018 Chennai, India

- 94 A NOVEL CAZAC Sequence Based Timing Synchronization Scheme for OFDM System.....335 Anuja Das, Biswajit Mohanty and Benudhar Sahu
- 756719 Analysis on Transfer Efficiency of Five Different Antenna Configurations in Short-Distance Wireless Power Transfer.....N/A

Wentao Xiong, Mei Jiang, Guanlong Huang and Haoxin Chen

Session	ession Track 2: Networking, protocols, cognitive radio, wireless sensor networks, services and applications/Track 1: Antennas and propagation, Communication theory and Information theory	
Date / Ti	te / Time 24 March 2018 (Saturday) / 01:30 PM 04:30 PM	
Venue		Hall 2 Justice Pratap Singh Auditorium Room 1
Chair(s)		Dr. R. Jayaparvathy , <i>Professor</i> , <i>Department of ECE</i> , <i>SSN College of Engineering</i>
157	Analytical study on data transmission in WBAN with user mobility support339 Ramesh Saha and Suparna Biswas	
159	On Fall Detection using Smartphone Sensors344 Suparna Biswas and Tanima Bhattacharya	
163	A Review of Communication Handoffs in Vehicular Ad-Hoc Networks (VANET) and its ClassificationN/A Rajeshwari Madli, Varaprasad G and Imthiyaz M P	
174	Performance Evaluation of DigiMesh and ZigBee Wireless Mesh Networks348 Ala' Khalifeh, Haya Salah, Sahel Alouneh, Anwar Al-Assaf and Khalid Darabkeh	
175	IT and developing countries with a case study of recycling354 Tamer F. Hafez, Ali Badawey Ali, Rehab S. Ali and Nadia Abd-Alsabour	
176	WiMAX network aided SCIS project for Baghdad: design and analysis using ICS telecom359 Haider M. Turki AL-HILFI, Bassam Abdulmunem Salih and ALI H.NAJIM	
756918	SIS Rumor spreading model with population dynamics in online social networks364 Suyalatu Dong and Yong-Chang Huang	
158	Energy Consumption Aspects of 5G Waveforms369 Sudhir K. Routray, Mahesh K. Jha, Laxmi Sharma, Sutapa Sarkar, Abhishek Javali and Richa Tengshe	
101	Iterative Detection for MIMO Systems associated with Polar Codes374 <i>Madiop Diouf, Idy Diop, Ibra DIOUM, Khaly Tall and Sidi Mohamed Farssi</i>	



2018 International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET)

Session		Track 4: Signal and Image Processing/Track 2: Networking, protocols, cognitive radio, wireless sensor networks, services and applications
Date / Time		24 March 2018 (Saturday) / 01:30 PM 04:30 PM
Venue		Hall 3 Justice Pratap Singh Auditorium Room 2
Chair(s)		Dr. E. Priya, Assistant Professor, Department of ECE, Sri Sairam Engineering College
149		ible Video fusion for Surveillance381 Pratyush Yadav and VenkateswaranN
154	Performance Analysis of Different Spatial Domain Methods for Traffic Control Using Image Processing: A LabVIEW approach387 <i>Mallikharjuna Rao G and Srinivas P</i>	
156	Small Motion Magnification using Automated RoI Selection and Spatial Co-ordinate Approach392 <i>Mithoon Kumar, Tilendra Choudhary and Bhuyan M.K</i>	
165		Heartbeat Extraction in SCG signal using Variational Mode Decomposition396 woudhary, Sharma L.N and Bhuyan M.K
171	Intoxicated Person Identification using Thermal Infrared Images and Gait400 <i>Bhuyan M.K, Suchit Dhawle, Pradipta Sasmal and Georgia Koukiou</i>	
756347	An improved compatibility based on weighted local and global information for graph matching406 Xue Lin, Xiuyang Zhao and Dongmei Niu	
143	Brain MRI Sunayana T	Computational Tool for Segmentation of Gray and White Matter Regions in Images411 <i>ürumalasetty, Vidwan Reddy Patlolla, Rakshith Tirumalasetty, Manish K.Arya,</i> <i>wal, Gahangir Hossain, Adityan Jothi, Ashwani K. Dubey, Rajab Challoo and</i> <i>d</i>
152	Using Body	y Measurement and Estimation of Joint Angle Kinematics in Sagittal Plane V Worn Sensors for Gait Analysis418 Patel, Rajdeep Ojha and Sujatha S
124		Development of Prototype Model for Asthma Trigger Detection423 <i>i S, Adithya M, Anirudh A R and Jawahar A</i>



Session		Track 4: Signal and Image Processing	
Date / Time		24 March 2018 (Saturday) / 01:30 PM 04:30 PM	
Venue		Hall 4 School of Management Block LAB	
Chair(s)		Dr. N. Venkateswaran, <i>Professor, Department of ECE, SSN College of Engineering</i>	
93	MR Brain Tumor Classification and Segmentation Via Wavelets428 Menaka Devi T, Ramani G and Xavier Arockiaraj S		
97	Accelerated Feature Descriptor Matching in Images Using Threshold Accepting432 Savinu T Vijay and Pournami P N		
98	Digitalization of Malayalam Palmleaf Manuscripts based on Contrast-Based Adaptive Binarization and Convolutional Neural Networks437 Dhanya Sudarsan, Parvathy Vijayakumar, Sharon Biju, Soniya Sanu and Sreelakshmi K Shivadas		
125	Significance of Feature Selection For Acoustic Modeling in Dysarthric Speech Recognition441 Jerin Baby Mathew, Jonie Jacob, Karun Sajeev, Jithin Joy and Rajeev Rajan		
127	A comparative analysis of supervised learning techniques for pixel classification in remote sensing Images445 Sivagami R, Krishankumar R and Ravichandran K S		
128	Automatic Segmentation of Polyps in Endoscopic Image using Level-Set Formulation44 Soumayan Dutta, Pradipta Sasmal, Bhuyan M.K. and Yuji Iwahori		
134	Approache	sed Speech Separation using Statistical,Auditory and Signal Processing es454 R and Kumara Swamy R	
137		al Humanoid Robot459 Samarth Mulgund, Praveen Sindgi, Yogesh N and Kumaraswamy R	
756994		n of Futures Market by Using Boosting Algorithm463 VU, Jia-min MAO and Wei-feng LI	