Contents

Chairman's Welcome
Committees
List of Reviewers
Program
Abstracts of Keynote Presentations

Keynote Address – 1: Distributed Flat Wireless Networks, Abbas Jamalipour (The University of Sydney, Australia)

Keynote Address – 2: From Complex Algorithms to Analog Electronic Circuits: Generalized Recurrent Neural Networks, Werner Teich (Ulm University, Germany)

Session 1 – Wireless Communications 1

1.1. Complexity Reduced Lattice-Reduction-Aided MIMO Receiver with Virtual Channel Detection, Satoshi Denno (Okayama University, Japan), Masahiro Morikura (Kyoto University, Japan)

1.2. Joint User Decoding: A Technique to Enhance the Benefits of Coding in a Multi-way Relay Channel, Shama N. Islam (The Australian National University, Australia), Parastoo Sadeghi (The Australian National University, Australia)

1.3. Identification and Classification of Orthogonal Frequency Division Multiple Access Signals, Ryan Gray (Naval Postgraduate School, USA), Murali Tummala (Naval Postgraduate School, USA), John C. McEachen (Naval Postgraduate School, USA), James Scrofani (Naval Postgraduate School, USA), David Garren (Naval Postgraduate School, USA)

1.4. Joint Design of Source Power Allocation and Relay Beamforming in Multi-User Multi-Relay Wireless Networks, Umar Rashid (University of Technology, Sydney, Australia), Ha HKha (University of Technology Sydney, Australia), Hoang D. Tuan (University of Technology, Sydney, Australia), Ha Nguyen (University of Saskatchewan, Canada)

1.5. Configurable Digital Transceiver for IEEE 802.15.4 Networks, Mridula Sharma (University of Kassel, Germany), Dirk Dahlhaus (University of Kassel, Germany)

Session 2 – Signal Processing for Multimedia 1

2.1. Efficient Real-Time Face Detection For High Resolution Surveillance Applications, Xin Cheng (Queensland University of Technology, Australia), Ruan Lakemond (Queensland University of Technology, Australia), Clinton Fookes (Queensland University of Technology, Australia), Sridha Sridharan (Queensland University of Technology, Australia)

2.2. A Multi-Modal Gait Based Human Identity Recognition System Based on Surveillance Videos, S. M. Emdad Hossain (University of Canberra, Australia), Girija Chetty (University of Canberra, Australia)

2.3. Automatic Han Chinese Folk Song Classification Using The Musical Feature Density Map, Suisin Khoo (Swinburne University of Technology, Australia), Zhihong Man (Swinburne University of Technology, Australia), Zhenwei Cao (Swinburne University of Technology, Australia)

2.4. Scan-by-Scan Averaging and Adjacent Detection Merging to improve Ship Detection in HFSWR, Jan Hinz (Helmut Schmidt University, Germany), Martin Holters (Helmut-Schmidt-University, Germany), Udo Zöltzer (Helmut-Schmidt-University Hamburg, Germany)
Session 3 – Information and Network Security

3.1. Slide Attacks on the Sfinks Stream Cipher, Ali Alhamdan (Queensland University of Technology, Australia), Harry Bartlett (Queensland University of Technology, Australia), Edward Dawson (Queensland University of Technology, Information Security Institute, Australia), Leonie R Simpson (Queensland University of Technology, Australia), Kenneth Koon-Ho Wong (Queensland University of Technology, Australia)

3.2. Elliptic Curves Cryptographic Techniques, Ali Makki Sagheer (College of Computer - University of Anbar, Iraq)

3.3. Survey on Security Attacks in Vehicular Ad hoc Networks (VANETs), Mohammed Saeed Al-kahtani (Salman bin Abdulaziz University, Saudi Arabia)

3.4. A Secure WSN for Roadside Surveillance using RTI, Robert Paul Inglis (US Naval Academy, USA), Owens Walker (United States Naval Academy, USA), Christopher R. Anderson (United States Naval Academy, USA), Richard K. Martin (Air Force Institute of Technology, USA), Ryan Thomas (Air Force Institute of Technology & US Air Force, USA)

3.5. Application of ID cards - security components, Radek Holý (Czech Technical University in Prague, Czech Republic), Marek Kalika (Czech Technical University in Prague, Czech Republic), Jan Scherks (Czech Technical University in Prague, Czech Republic)

3.6. Modeling of Efficient Key Management Method in Multicast Networks, Abbas Mehdizadeh (Universiti Putra Malaysia, Malaysia), Fazirulhisyam Hashim (Universiti Putra Malaysia, Malaysia)

Session 4 – Localisation and Tracking

4.1. Using Context-Aware Sub Sorting of Received Signal Strength Fingerprints for Indoor Localisation,Montserrat Ros (University of Wollongong, Australia), Brendan Schoots (University of Wollongong, Australia), Matthew J.A. D'Souza (CSIRO ICT Centre, Australia)

4.2. Scheme for Enhanced Tracking of Mobile Subscribers in a WiMAX Network, Jason Henderson (Naval Postgraduate School, USA), Murali Tummala (Naval Postgraduate School, USA), John C. McEachen (Naval Postgraduate School, USA), James Scrofani (Naval Postgraduate School, USA)

4.3. A M2M Network-Based Realistic Mobile User Movement Prediction in Emergencies, Nusrat Ahmed Surobhi (University of Sydney, Australia), Abbas Jamalipour (University of Sydney, Australia)

4.4. Localization in Wireless Sensor Networks by Constrained Simultaneous Perturbation Stochastic Approximation Technique, Mohammad Abdul Azim (Masdar Institute, UAE), Zeyar Aung (Masdar Institute of Science and Technology, UAE), Weidong Xiao (Masdar Institute, UAE), Vinod Khadikar (Masdar Institute, UAE), Abbas Jamalipour (University of Sydney, Australia)

4.5. A RSS Based Statistical Localization Algorithm in WLAN, Lei Wang (National University of Singapore, Singapore), Wai-Choong Wong (National University of Singapore, Singapore)

4.6. Node Localization Algorithm Based on RSSI in Wireless Sensor Network, Suzhe Wang (Northwestern Polytechnical University, P.R. China), Li Yong (Northwestern Polytechnical University, P.R. China)
Session 5 - Communication Theory

5.1. Soft Iterative Interference Cancellation with Successive Over Relaxation for Digital Transmission Schemes based on Multiple Sets of Orthogonal Spreading Codes, Werner G. Teich (Ulm University, Germany), Paul Wallner (Ulm University, Germany)

5.2. OFDM Performance with Odd-Even Quantisation in Cartesian ΔΣ Upconverters, Sirmayanti Sirmayanti (Victoria University Melbourne Australia & The State Polytechnic of Ujung Pandang, Australia), Vandana Bassoo (University of Technology Mauritius, Mauritius), Horace King (Victoria University, Australia), Mike Faulkner (Victoria University, Australia)

5.3. DMT Performance Analysis of a Symmetric Two-user Interference Channel with Multiple Full-duplex Relays, Yongxu Hu (Nanyang Technological University, Singapore), Kah Chan Teh (Nanyang Technological University, Singapore), Kwok Hung Li (Nanyang Technological University, Singapore)

5.4. A Low-Latency Turbo Decoding Scheme for Diversities-based Communication Systems, Shen-Ming Chung (National Cheng-Kung University, Taiwan), Ming-Der Shieh (National Cheng-Kung University, Taiwan), Kuo Lung-Chih (Industrial Technology Research Institute (ITRI), Taiwan), Hsiao-Hui Lee (Industrial Technology Research Institute, Taiwan)

Session 6 – Wireless Communications 2

6.1. Effect of UWB Multiple Access Schemes on the Power Parameters of Multiuser Interference, Joon-Yong Lee (Handong University, Korea), ChangKyeong Kim (Handong University, Korea)

6.2. Correcting Refractive Dilution of Precision in Wireless Network Geolocation Estimates, Jason Q McClintic (Naval Postgraduate School, USA), Murali Tummala (Naval Postgraduate School, USA), John C. McEachen (Naval Postgraduate School, USA)

6.3. D.C. Iterations for SINR Maximin Multicasting in Cognitive Radio, Anh Huy Phan (University of New South Wales, Australia), Hoang D. Tuan (University of Technology, Sydney, Australia), Ha H Kha (University of Technology Sydney, Australia)

6.4. Resource Allocation for AF Cooperative Communications Using Stackelberg Game, Hanan Al-Tous (United Arab Emirates University, UAE), Imad Barhumi (United Arab Emirates University, UAE)

6.5. Comparative study of transmit weight designs for nonregenerative Multiuser MIMO downlink relay system, Cong Li (Nagoya Institute of Technology & Graduate School of Engineering, Japan), Yasunori Iwanami (Nagoya Institute of Technology, Japan)

Session 7 – Medical Applications

7.1. Sampling, Quantization and Computational Aspects of the Quadrature Lock-In Amplifier, John Leis (University of Southern Queensland, Australia), Christopher J Kelly (University of Southern Queensland, Australia), David Buttsworth (University of Southern Queensland, Australia)

7.2. QRSSTCancellation in ECG Signals During Atrial Fibrillation: Zero-Padding versus Time Alignment, Shima Gholinezhadasnefesasti (University of Ulster, United Kingdom), Omar Escalona (University of Ulster, United Kingdom), Kimia Nazarzadeh (University of Pune, Australia), Vivek Kodoth (The Heart Centre Royal Victoria Hospital, Belfast- Northern Ireland, UK., United Kingdom), Ernest Lau (Royal Hospitals, United Kingdom), Ganesh Manoharan (Royal Hospitals, United Kingdom)

7.3. Empirical Study of Remote Respiration Monitoring Sensor Using Wideband System, Nao Shimomura (The University of Kitakyushu, Japan), Mitsugu Otsu (The University of Kitakyushu, Japan), Akihito Kajiwara (University of Kitakyushu, Japan)

7.4. Infrared Camera Imaging Algorithm to Augment CT-Assisted Biopsy Procedures, Behrooz Sharifi (University of Southern Queensland, Australia), John Leis (University of Southern Queensland, Australia)
Session 8 - Networks and Protocols

8.1. User Traffic Classification for Proxy-Server based Internet Access Control, Saad Y. Sait (IIT Madras, India), M. Sandeep Kumar (IIT Madras, India), Hema A Murthy (Indian Institute of Technology Madras, India)

8.2. Semi-Decentralized Scheduling of Users in Heterogeneous WCDMA, Erik Geijer Lundin (Ericsson AB, Sweden), Katrina Lau (University of Newcastle, Australia), Graham C Goodwin (the University of Newcastle, Australia)

8.3. SCAR: A Dynamic Coding-aware Routing Protocol, Jin Wang (National University of Singapore, Singapore), Cenzhe Zhu (National University of Singapore, Singapore), Qinfeng Guo (National University of Singapore, Singapore), Teck Yoong Chai (Institute for Infocomm Research, Singapore), Wai-Choong Wong (National University of Singapore, Singapore)

8.4. A QoS enabled two-stage service differentiation model for the Internet, Flavius Pana (Katholieke Universiteit Leuven, Belgium), Ferdi Put (Katholieke Universiteit Leuven, Belgium)

8.5. Obtaining Application-based and Content-based Internet Traffic Statistics, Tomasz Bujlow (Aalborg University, Denmark), Jens M. Pedersen (Aalborg University, Denmark)

Session 9 – Signal Processing for Multimedia 2

9.1. Translation-Invariant Motion Perception for Multiple Objects Using Grid Partitioning Representation, Mio Nishiyama (The University of Tokyo, Japan), Tadashi Shibata (The University of Tokyo, Japan)

9.2. A 3-D Mesh Watermarking with Uncomplicated Frequency Selectivity, Taichi Nonoshita (Ehime University, Japan), Toshiyuki Uto (Ehime University, Japan), Katsuhiro Ichihara (Ehime University, Japan), Kenji Ohue (Ehime University, Japan)

9.3. Initial contour independent level set image segmentation method using synergetic vector flow fields, Krisorn Chunhapongpipat (Chulalongkorn University & Faculty of Science, Thailand), Ratinan Boonklurb (Chulalongkorn University, Thailand), Sirod Sirisup (National Electronics and Computer Technology Center, Thailand), Rajalida Lipikorn (Chulalongkorn University, Thailand)

9.4. Classifier Selection using Sequential Error Ratio Criterion for Multi-Instance and Multi-Sample Fusion, Vishnu Nallagatla (Queensland University of Technology, Australia), Vinod Chandran (Queensland University of Technology, Australia)

Session 10 – Signal Processing for Communications

10.1. Efficient Computation of Commutative Anisotropic Convolution on the 2-Sphere, Zubair Khalid (The Australian National University, Australia), Rodney Andrew Kennedy (The Australian National University, Australia), Parastoo Sadeghi (The Australian National University, Australia)

10.2. Multiplicative and Additive Perturbation Effects on the Recovery of Sparse Signals on the Sphere using Compressed Sensing, Yibeltal Fantahun Alem (The Australian National University, Australia), Daniel H. Chae (The Australian National University, Australia), Rodney Andrew Kennedy (The Australian National University, Australia)

10.3. Further Results on the WLS Design of Variable Fractional Delay Filters, Chuan-Wei Chu (Curtin University, Australia), Yee Hong Leung (Curtin University, Australia)

10.4. Improving the Performance of the Time-of-Arrival Estimator in MIMO Systems, Li Zhang (National University of Singapore, Singapore), Yong Huat Chew (Institute for Infocomm Research, Singapore), Wai-Choong Wong (National University of Singapore, Singapore)
Poster Session 1 – Communication Systems - 1

P1.1. Estimation of Distribution Algorithm for Green Resource Allocation in Cognitive Radio Systems, Muhammad Naem (Ryerson University, Canada), Saeed Ashrafinia (Simon Fraser University, Canada), Daniel Lee (Simon Fraser University, Canada)

P1.2. A Routing algorithm With Multiple Constrained Balanced Path for overlay network, Huijun Dai (Xi'an Jiaotong University, P.R. China), Hua Qu (Xi'an Jiaotong University, P.R. China), Jihong Zhao (Xi'an Jiaotong University, P.R. China)

P1.3. Performance of Implemented 4x4 MIMO Receiver for 3G LTE Advanced System, Dae-Soon Cho (ETRI, Korea), IL-Kyu Kim (Korea Advanced Institute of Science and Technology), Hyuncheol Park (ETRI, Korea)

P1.4. MAC Controller for Wireless Sensor Network on IEEE 802.15.4 Standard, Meng Zhang (Southeast University, P.R. China), Chenhao Wang (National ASIC Research Center, P.R. China), Xiao Shi (School of Information Eng., P.R. China), Liu Hao (Southeast University, P.R. China)

P1.5. A Routing algorithm With Multiple Constrained Balanced Path for overlay network, Huijun Dai (Xi'an Jiaotong University, P.R. China), Hua Qu (Xi'an Jiaotong University, P.R. China), Jihong Zhao (Xi'an Jiaotong University, P.R. China)

P1.6. Performance Analysis of AF Relaying Cooperative Systems with Relay Selection Over Double Rayleigh Fading Channels, Haci Ilhan (Yildiz Technical University, Turkey), Ayse Ipek Akin (Yildiz Technical University, Turkey)

P1.7. On Scalability, Migratability and Cost-effectiveness of Next-Generation WDM Passive Optical Network Architectures, Chen Guo (National University of Singapore, Singapore), T T Tay (National University of Singapore, Singapore)

P1.8. Performance of Pre-Rake Diversity Combining in UWB-IR Communications, Ryohei Nakamura (The University of Kitakyushu, Japan), Hiroki Ishikawa (The University of Kitakyushu, Japan), Akihiro Kajiwara (University of Kitakyushu, Japan)

P1.9. RCS Measurements for Vehicles and Pedestrian at 26 and 79GHz, Isamu Matsunami (Nagasaki University, Japan), Ryohei Nakamura (The University of Kitakyushu), Akihiro Kajiwara (The University of Kitakyushu)

P1.10. Characterizing Energy and Deployment Efficiency Relations in Cellular Systems, Beomhee Lee (Yonsei University, Korea), Seong-Lyun Kim (Yonsei University, Korea)

Poster Session 2 – Signal Processing

P2.1. Exploring the Implementation of JPEG Compression on FPGA, Ann De Silva (Massey University, New Zealand), Donald G. Bailey (Massey University, New Zealand), Amal Punchihewa (Massey University & Senior Lecturer, New Zealand)

P2.2. A Block Based Temporal Spatial Nonlocal Mean Algorithm For Video Denoising With Multiple Resolution, Wenjie Yin (Shanghai University, P.R. China), Haiwu Zhao (Shanghai University, P.R. China), Guoqing Li (Shanghai University, P.R. China), Guozhong Wang (Shanghai University, P.R. China), Guowei Teng (Shanghai University, P.R. China)

P2.3. Robust encoded spread spectrum image watermarking in contourlet domain, Francisco Garcia-Ugalde (National Autonomous University of Mexico, Mexico), Manuel Cedillo-Hernandez (Universidad Nacional Autonoma de Mexico, Facultad Ingenieria, Mexico), Emilio Morales-Delgado (Universidad Nacional Autonoma de Mexico, Facultad Ingenieria, Mexico)
Nacional Autonoma de Mexico, Facultad de Ingenieria, Mexico), Bohumil Psenicka (National Autonomous University of Mexico, Mexico)

P2.4. Subband adaptive filter algorithm based on normalized least mean fourth criterion, Jae Jin Jeong (POSTECH, Korea), Kyuhwan Kim (POSTECH, Korea) 412

P2.5. Vector Equalization based on Continuous-Time Recurrent Neural Networks, Mohamad Mostafa (University of Ulm, Germany), Werner G. Teich (Ulm University, Germany), Juergen Lindner (Ulm University, Germany) 415

P2.6. Sparse Signal Recovery on the Sphere: Optimizing the Sensing Matrix through Sampling, Yibeltal Fantahun Alem (The Australian National University, Australia), Daniel H. Chae (The Australian National University, Australia), Rodney Andrew Kennedy (The Australian National University, Australia) 422

P2.7. Phase-Based Salient Object Detection, Jia Wan (the Hong Kong Polytechnic University, Hong Kong), Lam Kenneth Kin-Man (The Hong Kong Polytechnic University, Hong Kong) 428

P2.8. Visual Quality Improvement of Digital Video by Stabilization using Adaptive CMAC Filtering, Amir Zahoor (Blekinge Institute of Technology, Karlskrona, Sweden), Wittaya Koodtalang (Blekinge Institute of Technology, Karlskrona, Sweden), Muhammad Shahid (Blekinge Institute of Technology, Karlskrona, Sweden), Benny Lövström (Blekinge Institute of Technology, Karlskrona, Sweden) 435

P2.9. On the Probability Density Function of the Product of Rayleigh Distributed Random Variables, Anushka Widanagamage (Queensland University of Technology, Australia), Anagiyaddage D. S. Jayalath (Queensland University of Technology, Australia) 441

P2.10. Experimental Demonstration of Absolute Polar Duty Cycle Division Multiplexing, Amin Malekmohammadi (The University of Nottingham, Malaysia), Mohd Khazani Abdullah (SIGtech, Malaysia) 445

P2.11. Modulation Frequency Domain Adaptive Gain Equalizer Using Convex Optimization, Rizwan Ishaq (University of Deusto, Bilbao, Spain), Muhammad Shahid (Blekinge Institute of Technology, Karlskrona, Sweden), Benny Lövström (Blekinge Institute of Technology, Sweden), Begona García Zapirain (University of Deusto, Bilbao, Spain), Ingvar Claesson (Blekinge Institute of Technology, Karlskrona, Sweden) 450

Poster Session 3 – Signal Processing

P3.1. An Enhanced Spectral Efficiency Chaos-Based Symbolic Dynamics Transceiver Design, Georges Kaddoum (LACIME laboratory, Canada), Francois Gagnon (Ecole de Technologie Superieure, Canada), Denis Couillard (Ultra Electronics TCS, Canada) 455

P3.2. Weight Adjust Algorithm in Indoor Fingerprint Localization, Xin Song (Shanghai Jiao Tong University, P.R. China), Feng Yang (Shanghai Jiao Tong University, P.R. China), Lianghui Ding (Shanghai Jiao Tong University, P.R. China), Liang Qian (Shanghai Jiao Tong University, P.R. China) 461

P3.3. System Architecture for Autonomous Driving with Infrastructure Sensors, Kyungbok Sung (ETRI, Korea), Dong-Yong Kwak (ETRI, Korea) 466

P3.4. UltraWideband Wireless Channel in presence of atmospheric gases and refined engine oil, Ahmed Alshabo (University of Wollongong, Australia), David Stirling (University of Wollongong, Australia), Montserrat Ros (University of Wollongong, Australia), Peter J Vial (University of Wollongong, Australia), Tadeusz A. Wysocki (University of Nebraska-Lincoln, USA), Beata Wysocki (University of Nebraska-Lincoln, USA) 472

P3.5. Robust Blind Multisuser Detection in DS-CDMA Systems over Nakagami-m Fading Channels with Impulsive Noise including MRC Receive Diversity, Pamula Vinay Kumar (MIC College of Technology, India), Srinivasa Rao Vempati (Anurag Engineering College, India), Habibulla Khan (KL University, India), Tipparti Anil Kumar (Kakatiya Institute of Technology and Science, India) 479
P3.6. Low-Complexity Interference-Aware Single Relay Selection in Multi-Source Multi-Destination Cooperative Networks, Dawoon Lee (Yonsei University, Korea), Sooyong Choi (Yonsei University, Korea)

P3.7. Improvement of Scatter Search Using Bees Algorithm, Ali Makki Sagheer (College of Computer Engineering, University of Anbar, Iraq), Ahmed Sadiq (Computer Science, Iraq), Mohammed Salah Ibrahim (Computer Science & Anbar University Computer College Computer Science Dept, Iraq)

P3.8. A Behavior Analysis Based Mobile Malware Defense System, Dai Fei Guo (Siemens Corporate Technology, P.R. China), Ai-Fen Sui (Siemens Corporate Technology, P.R. China), Tao Guo (Siemens, P.R. China)

P3.9. Novel Dynamic Shadow Approach for Fault Tolerance in Mobile Agent Systems, Rahul Hans (DAV Institute of Engineering and Technology, India), Ramandeep Kaur (Guru Nanak Dev University, Amritsar, India)

P3.10. Polynomial approximations for bit error probability for 4-DPSK transmission, Sharon Lee (University of Queensland, Australia)

P3.11. Reliable Cooperative Wideband Spectrum Sensing based on Entropy estimation, Srinu Sesham (Research & Hyderabad Central University, India), Samrat Sabat (University of Hyderabad, India), Siba Kumar Udgata (University of Hyderabad, India)

P3.12. A Fuzzy Logic Node Relocation Model in WSNs, Yashar Maali (University of Technology Sydney, Australia), Ali Rafiei (University of Technology Sydney, Australia), Mehran Abolhasan (University of Technology Sydney, Australia), Daniel Franklin (University of Technology Sydney, Australia), Farzad Safaei (ICT Research Institute, University of Wollongong, Australia)