

# **2015 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2015)**

**Abu Dhabi, United Arab Emirates  
7 – 10 December 2015**



**IEEE Catalog Number: CFP15SSP-POD  
ISBN: 978-1-5090-0482-9**

**Copyright © 2015 by the Institute of Electrical and Electronic 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:	CFP15SSP-POD
ISBN (Print-On-Demand):	978-1-5090-0482-9
ISBN (Online):	978-1-5090-0481-2

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# 2015 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)

## Speech and Language Processing

- Phonated Speech Reconstruction Using Twin Mapping Models

Hamid Sharifzadeh (Unitec Institute of Technology, New Zealand), Amir HajiRassouliha (Unitec Institute of Technology, New Zealand), Ian McLoughlin (University of Kent, United Kingdom), Iman Ardekani (Unitec Institute of Technology, New Zealand), Jacqueline Allen (University of Auckland, New Zealand) 1

- An HMM Approach for Synthesizing Amused Speech with a Controllable Intensity of Smile

Kevin El Haddad (University of Mons, Belgium), Huseyin Cakmak (University of Mons, Belgium), Alexis Moinet (University of Mons, Belgium), Stephane Dupont (University of Mons, Belgium), Thierry Dutoit (FPMS, Belgium) 7

- Towards a Level Assessment System of Amusement in Speech Signals: Amused Speech Components Classification

Kevin El Haddad (University of Mons, Belgium), Huseyin Cakmak (University of Mons, Belgium), Stephane Dupont (University of Mons, Belgium), Thierry Dutoit (FPMS, Belgium) 12

- An Algorithm for Automatic Words Extraction From a Stream of Phones in Dictionary-Based Large Vocabulary Continuous Speech Recognition Systems

Giorgio Biagetti (Università Politecnica delle Marche, Italy), Paolo Crippa (Università Politecnica delle Marche, Italy), Laura Falaschetti (Università Politecnica delle Marche, Italy), Simone Orcioni (Università Politecnica delle Marche, Italy), Claudio Turchetti (Università Politecnica delle Marche, Italy) 18

- Convolutional Maxout Neural Networks for Speech Separation

Like Hui (Tsinghua University, P.R. China), Meng Cai (Tsinghua National Laboratory for Information Science and Technology, P.R. China), Cong Guo (Tsinghua University, P.R. China), Liang He (Tsinghua University, P.R. China), Wei-Qiang Zhang (Tsinghua University, P.R. China), Jia Liu

(Tsinghua University, P.R. China) 24

## **Information Processing and Software Engineering**

- Conjunctive Combined Causal Rules Mining

Manal Alharbi (University of Connecticut, USA), Sanguthevar Rajasekaran (University of Connecticut, USA) 28

- Delay and Power Consumption Estimation in Embedded Systems Using Hierarchical Performance Modeling

Ahmed Alsheikhy (University of Connecticut & School of Engineering, USA), Song Han (University of Connecticut, USA), Reda Ammar (University of Connecticut, USA) 34

- Disjunctive Combined Causal Rules Mining

Manal Alharbi (University of Connecticut, USA), Sanguthevar Rajasekaran (University of Connecticut, USA) 40

- Effect of Training Set Size on SVM and Naïve Bayes for Twitter Sentiment Analysis

Omar Ashraf Abdelwahab (University of Louisville, USA), Mohamed Bahgat (IBM Ireland, Ireland), Christopher Lowrance (University of Louisville, USA), Adel S Elmaghraby (University of Louisville, USA) 46

- Towards Sustainable Development Through Open Source Software in GCC

Manar Abu Talib (University of Sharjah, UAE) 52

- Using Physiological Signal Analysis to Design Affective VR Games

Yi Li (University of Louisville, USA), Adel S Elmaghraby (University of Louisville, USA), Ayman Sabry El-Baz (University of Louisville, USA), Estate Sokhadze (University of South Carolina School of Medicine Greenville, USA) 57

## **Radar Signal Processing**

- Compressive Sensing Based Passive Bistatic Radar Processing Using Time-Domain Complex Data

Muhammad Naveed Tabassum (King Saud University, Saudi Arabia), Muhammad Hadi (King Saud University & PSATRI, Saudi Arabia), Saleh A Alshebeili (King Saud University, Saudi Arabia) 63

- Block Sparsity Based Compressive Sensing Processing for Multi-Channel GSM Passive Bistatic Radar

Muhammad Hadi (King Saud University & PSATRI, Saudi Arabia), Naif Almakhdhub (King Saud University, Saudi Arabia), Mohammed F AlBagami (King Saud University, Saudi Arabia), Saleh A Alshebeili (King Saud University, Saudi Arabia) 69

- Adaptive Tracking of Maneuvering Targets Using Two-Stage Kalman Filter

Ahmed Abdul Salam (University of Bradford, United Kingdom) 74

- UWB Virtual Beamforming Using Hermite Fractional Delay Filter Sets Combining Autoregressive Modeling

Qiang Du (Nanjing University of Science and Technology, P.R. China), Yaoliang Song (Nanjing University of Science and Technology, P.R. China), Zeeshan Ahmad (Nanjing University of Science and Technology, P.R. China), Chenhe Ji (Nanjing University of Science and Technology, P.R. China) 79

- Probabilistic Controlled Airspace Infringement Tool

Yousra Almathami (University of Connecticut, USA), Reda Ammar (University of Connecticut, USA) 84

- Target Detection in Synthetic Aperture Radar Imageries Using Scale Invariant Feature Transform

Mangalraj Poobalashubramanian (Indian Institute of Information Technology & Institute, India), Anupam Agrawal (Indian Institute of Information Technology Allahabad, India), Mukul Bisharwal (Indian Institute of Information Technology Allahabad, India) 90

- On Isotropic Circular Arrays of Anisotropic Sensors

Houcem Gazzah (University of Sharjah, UAE), Jean Pierre Delmas (UMR CNRS 5157 - CITI Department, France) 95

## **Computer Network and Mobile Computing & Applications 1**

- Wearable Sensor-based System to Promote Physical Activity Among Elderly People

Alexander Sarria (University of Deusto, Spain), Amaia Mendez Zorrilla (University of Deusto, Spain), Begoña García Zapirain (University of Deusto, Spain), John Gialelis (University of Patras, Greece) 100

- On the Integration of Software-Defined and Information-Centric Networking Paradigms

Amr Elmougy (The German University in Cairo, Egypt) 105

- A Heuristic for Routing, Modulation and Spectrum Allocation in Spectrum Sliced Elastic Optical Path Network

Christos Douligeris (University of Piraeus, Greece), Gang Feng (University of Wisconsin, Platteville, USA), Mirosław Klinkowski (National Institute of Telecommunications, Poland) 111

- Taking Swarms to the Field: AUV Reorientation Algorithm for PSO Realization

Sherif Tolba (University of Connecticut, USA), Reda Ammar (University of Connecticut, USA) 116

- Orientation and Displacement Detection for Smartphone Device Based Inertial Measurement Units

Tarek Elarabi (California State University-Fresno & CSU-Fresno, USA), Abhijit Suprem (California State University, Fresno, USA) 122

- UACS: Towards Unified Access Control Services

Georgios Katsikogiannis (University of Piraeus, Greece), Sarandis Mitropoulos (University of Piraeus, Greece), Christos Douligeris (University of Piraeus, Greece) 127

- Two Architectures for Real-Time Sensor Data Streaming for Cloud Applications

Harsh Singh (UOIT, Canada), Syed Rizvi (UOIT, Canada), Qusay Mahmoud (University of Ontario Institute of Technology, Canada) 133

## **Audio, Acoustic Signal Processing**

- Informed Source Location and DOA Estimation Using Acoustic Room Impulse Response Parameters

Shahab Pasha (University of Wollongong, Australia), Christian H Ritz (University of Wollongong, Australia) 139

- Statistical Modeling for Suppression of Late Reverberation with Inverse Filtering for Early Reflections

Sara Islam (University of Engineering and Technology Peshawar, Pakistan), Tariqullah Jan (University of Engineering and Technology Peshawar,

Pakistan) 145

- A VSS Sparseness Controlled Algorithm for Feedback Suppression in Hearing Aids

Vasundhara Vasundhara (IIT Bhubaneswar, India), Ganapati Panda (Indian Institute of Technology Bhubaneswar, India), Niladri Puhan (Indian Institute of Technology Bhubaneswar, India) 151

- A Low Complexity Delayless Frequency Domain Feedback Canceller for Hearing Aids

Vasundhara Vasundhara (IIT Bhubaneswar, India), Ganapati Panda (Indian Institute of Technology Bhubaneswar, India), Niladri Puhan (Indian Institute of Technology Bhubaneswar, India) 157

- Separation of Vocals From Monaural Music Recordings Using Diagonal Median Filters and Practical Time-Frequency Parameters

Hatem Deif (Brunel University London, United Kingdom), Derry FitzGerald (Dublin Institute of Technology, Ireland), Wenwu Wang (University of Surrey, United Kingdom), Lu Gan (Brunel University, United Kingdom) 163

- Acoustic Imaging Using a 64-Node Microphone Array and Beamformer System

Feng Su (Carleton University, Canada), Chris Joslin (Carleton University, Canada) 168

## **Signal Processing for Communications & Networks 2**

- Noise Calibrated GLRT-Based Spectrum Sensing Algorithm for Cognitive Radio Applications

Shahriar Shirvani Moghaddam (Shahid Rajaei Teacher Training University (SRTTU), Iran), Ameneh Habibzadeh (Shahid Rajaei Teacher Training University, Tehran, Iran) 174

- Cooperative Wideband Spectrum Sensing Over Rician and Nakagami Fading Channels

Mohamed Torad (Higher Technological Institute, Egypt), Ahmed Kassas (High Institute of Engineering Shrouk Academy, Egypt), Hadya El-Hennawy (Ain Shams University, Egypt) 180

- Novel Energy Efficient Strategies for Cooperative Spectrum Sensing in Cognitive Radio Networks

Faroq Awin (University of Windsor, Canada), Esam Abdel-Raheem

(University of Windsor, Canada), Majid Ahmadi (University of Windsor, Canada) 186

- Pitch Tracking in Reverberant Environments

Mohammed Kamal Khwaja (VIT University, India), Sunil Sivadas (Institute for Infocomm Research, Singapore), Pachaiappan Arulmozhiarman (VIT University, India) 192

- Adaptive OFDM System with Limited Feedback Using Truncated Channel Impulse Response

Arafat Al-Dweik (Khalifa University, UAE), Noha Abou Aly (Khalifa University, UAE), Mohammed Al-Mualla (Khalifa University of Science, Technology and Research, UAE) 197

- Cooperative Compressed Sensing for Joint Terminal Localization and Spectrum Sensing

Shahriar Shirvani Moghaddam (Shahid Rajaei Teacher Training University (SRTTU), Iran), Rashin Jalili Danaloo (Shahid Rajaei Teacher Training University, Iran) 203

## **Image, Video, and Multidimensional SP 2**

- Image Encryption Using Camellia and Chaotic Maps

Marwa Elpeltagy (EJust, Egypt), Mohammed Sayed (Egypt-Japan University of Science and Technology, Egypt), Moataz Abdelwahab (EJUST, Egypt) 209

- A Natural Preserving Transform Based Forgery Detection Scheme

Omar Fahmy (Future University, Egypt), Mamdouh Fahmy (Assiut University, Egypt) 215

- Efficient Terrain Data Coding for Rendering on Mobile Devices

Yankui Sun (Tsinghua University, P.R. China), Xiaoxin An (Tsinghua University, P.R. China), Zi Ye (Tsinghua University, P.R. China), Zhongyang Sun (Sun Yat-sen University, P.R. China) 221

- Classification of Black Mold Contaminated Figs by Hyperspectral Imaging

Gizem Ortaç (International Antalya University, Turkey), Ahmet Bilgi (Suleyman Demirel University, Turkey), Yusuf Erkan Gorgulu (Suleyman Demirel University, Turkey), Ali Güneş (Suleyman Demirel University, Turkey), Habil Kalkan (Suleyman Demirel University, Turkey), Kadim Taşdemir (International Antalya University, Turkey) 227



- Convolutional Neural Networks for SAR Image Segmentation

David Malmgren-Hansen (Technical University of Denmark & Terma A/S, Denmark), Morten Nobel-Jørgensen (Technical University of Denmark, Denmark) 231

- Huffman Coding Analysis of XOR Filtered Images

Ahmed Desoky (University of Louisville & Speed School of Engineering, USA), Takiyah Cooper (University of Louisville, USA) 237

## Signal Processing Theory & Methods

- Recovery of Multiband Signals Using Group Binary Compressive Sensing

Xinyue Gu (University of Science and Technology of China, P.R. China), Lingyun Zhou (University of Science and Technology of China, P.R. China), Peiyang Yu (University of Science and Technology of China, P.R. China), Chang Chen (University of Science and Technology of China, P.R. China) 242

- Design of Non Uniform Constellations for Layered Division Multiplexing

Belkacem Mouhouche (Samsung Electronics Research and Development UK, United Kingdom), Carlos Barjau (Samsung Electronics, United Kingdom), Hakju Lee (Samsung Electronics, Korea) 247

- An Efficient Multiple Particle Filter Based on the Variational Bayesian Approach

Boujemaa Ait-El-Fquih (King Abdullah University of Sciences and Technology, Saudi Arabia), Ibrahim Hoteit (King Abdullah University of Sciences and Technology, Saudi Arabia) 252

- Using  $\ell_{1,2}$  Mixed-Norm MUSIC Based on Compressive Sampling for Direction of Arrival Estimation

Mahnaz Amiri Parian (Islamic Azad University, South Tehran Branch, Iran), Sedigheh Ghofrani (Islamic Azad University, South Tehran Branch, Iran) 258

- High Performance GPU Bayesian Image Synthesis

Miguel Carcamo (Universidad de Santiago de Chile, Chile), Fernando Rannou (Universidad de Santiago de Chile, Chile), Pablo Roman (Universidad de Chile, Chile), Victor Moral (Universidad de Chile, Chile), Simon Casassus (Universidad de Chile, Chile) 264

- A Novel Adaptive Beamforming Technique for Large-Scale Arrays

Lei Yu (Harbin Institute of Technology, P.R. China), Wei Yinsheng (Harbin Institute of Technology, P.R. China), Wei Liu (University of Sheffield, United Kingdom) 269

- Reconstruction of Original Signal From Contaminated Signal Using Fractional Order Differentiator

Koushlendra K. Singh (PDPM IITDM Jabalpur, India), Manish Bajpai (IITDM Jabalpur, India), Rajesh Pandey (IITDM Jabalpur, India) 274

## **Design & Implementation of SP Systems**

- FastICA Architecture Utilizing FPGA and Iterative Symmetric Orthogonalization for Multivariate Signals

Al Laith Taha (Gradute - University Of Windsor, Canada), Luay Yassin Taha (University of Windsor, Canada), Esam Abdel-Raheem (University of Windsor, Canada) 279

- A New Systematic Synthesis Procedure of Configurable Higher Order Analog Filter

Mousumi Bhanja (Dept. of ETC, IEST, Shibpur, India), Souvik Kundu (Indian Institute of Engineering Science and Technology, India), Baidyanath Ray (IEST, Shibpur, India) 285

- A Framework for Dynamically-Loaded Hardware Library (HLL) in FPGA Acceleration

Gian Carlo Cardarilli (University of Rome "Tor Vergata", Italy), Leonardo Di Carlo (University of Rome "Tor Vergata", Italy), Alberto Nannarelli (DTU Technical University of Denmark, Denmark), Federico Pandolfi (University of Rome "Tor Vergata", Italy), Marco Re (Universita' di Roma Tor Vergata, Italy) 291

- Design and Simulation of State-of-Art ZigBee Transmitter for IoT Wireless Devices

Tarek Elarabi (California State University-Fresno & CSU-Fresno, USA), Vishal Deep (California State University - Fresno, USA), Chashamdeep Rai (California State University - Fresno, USA) 297

- A Sequential Circuit Fault Tolerance Technique with Enhanced Area and Power

Aiman El-Maleh (King Fahd University of Petroleum & Minerals, Saudi Arabia) 301

- State Assignment for Power Optimization of Sequential Circuits Based on a Probabilistic Pairwise Swap Search Algorithm

Aiman El-Maleh (King Fahd University of Petroleum & Minerals, Saudi Arabia) 305

## **Image Based Systems**

- Colored Texture Classification with Support Vector Machine and Wavelet Multiresolution Analysis

Osama Hosam (The City for Scientific Research and Technology Applications, Egypt) 309

- Minimally Invasive Surgery Skills Assessment Using Multiple Synchronized Sensors

Sami Taha Abu Snaineh (Palestine Polytechnic University & American Psychological Association, Palestine), Brent Seales (University of Kentucky, USA) 314

- Invasion Detection on Transmission Lines Using Saliency Computation

Huang Lilei (Shanghai Jiaotong University, P.R. China), Yi Xu (Shanghai Jiao Tong University, P.R. China), Rong Xie (Shanghai Jiao Tong University, P.R. China) 320

- High Level Visual and Paralinguistic Features Extraction and Their Correlation with User Engagement

Fasih Haider (Trinity College Dublin, Ireland), Fahim Salim (Trinity College Dublin, Ireland), Saturnino Luz (University of Edinburgh, United Kingdom), Owen Conlan (Trinity College Dublin, Ireland), Nick Campbell (Trinity College Dublin, Canada) 326

- UAV-based Remote Sensing for Vegetation Cover Estimation Using NDVI Imagery and Level Sets Method

Mohammed Ghazal (Abu Dhabi University, UAE), Yasmina Al Khalil (Abu Dhabi University, UAE), Hassan Hajjdiab (Abu Dhabi University, UAE) 332

- Novel Vegetation Estimation Index Computation in Arid Environments

Hassan Hajjdiab (Abu Dhabi University, UAE), Samr Samir Ali (Abu Dhabi University, UAE), Mohammed Ghazal (Abu Dhabi University, UAE) 338

## **Biological Signal and Image Processing**

- Sondric: Image-Processing Algorithm for the Automatic Calculation of the Length and Type of a Nasogastric Tube for Medication or Feeding

Teresa Rdondo Garrastachu (University of Deusto, Spain), Amaia Mendez Zorrilla (University of Deusto, Spain), Begoña García Zapirain (University of Deusto, Spain) 344

- Automatic Heart Rate Detection From FBG Sensors Using Sensor Fusion and Enhanced Empirical Mode Decomposition

Ibrahim Sadek Ibrahim Hussein Tahoun (Institute for Infocomm Research & Image and Pervasive Access Lab (IPAL), Singapore), Jit Biswas (Institute for Infocomm Research, Singapore), Siang Fook Foo (Institute for Infocomm Research, Singapore), Mounir Mokhtari (Institut Mines-Télécom & Image and Pervasive Access Lab (IPAL), Singapore) 349

- 3D Reconstruction From Multiple Imaging Planes: A Pilot Study of Bone Tumor MR Images

Weerayuth Chanapai (Faculty of Engineering, Mahidol University, Thailand), Praman Fuangfa (Ramathibodi Hospital, Mahidol University, Thailand), Suphaneewan Jaovisidha (Ramathibodi Hospital, Mahidol University, Thailand), Adisak Narththarung (Ramathibodi Hospital, Mahidol University, Thailand), Panrasee Rittipravat (Mahidol University, Thailand) 354

- MEG Data Classification for Healthy and Epileptic Subjects Using Linear Discriminant Analysis

Muhammad Imran Khalid (King Saud University, Saudi Arabia), Saeed Aldosari (King Saud University, Saudi Arabia), Saleh A Alshebeili (King Saud University, Saudi Arabia), Turkey Al Otaiby (King ABDULAZIZ CITY for Science and Technology, Saudi Arabia), Majed Al-Hameed (King Fahad Medical City, Saudi Arabia), Lamyaa Jad (King Fahad Medical City, Saudi Arabia) 360

- Adaptive Variable Density Sampling Based on Knapsack Problem for Fast MRI

Chennakeshava Krishna (Indian Institute of Science, India), Kasi Rajgopal (Indian Institute of Science, India) 364

- Autonomous Glaucoma Detection From Fundus Image Using Cup to Disc Ratio and Hybrid Features

Anum Abdul Salam (College of Electrical & Mechanical Engineering NUST & NUST, Pakistan), Muhammad Usman Akram (CEME NUST, Pakistan), Syed Muhammad Anwar (University of Engineering and Technology Taxila, Pakistan), Muhammad Majid (University of Engineering and Technology Taxila, Pakistan) 370

- Methods for Increased Sensitivity and Scope in Automatic Segmentation and Detection of Lung Nodules in CT Images

Anindya Gupta (Tallinn University of Technology, Estonia), Olev Martens (Tallinn University of Technology & Competence Center ELIKO, Estonia), Yannick Le Moullec (Tallinn University of Technology, Estonia), Tonis Saar (Tallinn University of Technology, Estonia) 375

## Special Session

- Memory Disorders Within the Frame of Algorithmic Thinking: Brain Imaging Evidence

Antonia Plerou (Ionian University, Greece), Catherine Bobori (Ionian University, Greece) 381

- Molecular Basis of Huntington's Disease and Brain Imaging Evidence

Antonia Plerou (Ionian University, Greece), Catherine Bobori (Ionian University, Greece), Panagiotis Vlamos (Ionian University, Greece) 387

- Detection of Oxidative Stress in Neurodegenerative Diseases

Antigoni Avramouli (Ionian University, Greece), Georgia Theocharopoulou (Ionian University, Greece), Panagiotis Vlamos (Ionian University, Greece) 392

## Computer Network and Mobile Computing & Applications 2

- Sparse Coding of Dense 3d Meshes in Mobile Cloud Applications

Aris S. Lalos (University of Patras, Greece), Iason Nikolas (University of Patras, Greece), Konstantinos Moustakas (University of Patras, Greece) 403

- Performance Evaluation of Cloud Systems: A Behavioural Approach

Dimitrios Kallergis (University of Piraeus, Greece), John Tsantilis (University of Piraeus, Greece), Christos Douligeris (University of Piraeus, Greece) 409

- Effect of Channel Impairments on Radiometric Fingerprinting

Saeed Ur Rehman (Unitec Institute of Technology, New Zealand), Iman Ardekani (Unitec Institute of Technology, New Zealand) 415

- A Clustered Caching Placement in Heterogeneous Small Cell Networks with User Mobility

Iman Keshavarzian (Yazd University, Iran), Zolfa Zeinalpour (Yazd University, Iran), Ali A. Tadaion (Yazd University, Iran) 421

- Performance Analysis of Small Cell Networks with Multi-Antenna Base Stations Utilizing Interference Mitigation Techniques

FahimeSadat Mirhosseini (Yazd University & Yazd University, Iran), Ali A. Tadaion (Yazd University, Iran) 427

- Secure and Efficient Sharing Aggregation Scheme for Data Protection in WSNs

Feriel Bouakkaz (Laboratoire LIMED, Faculté des Sciences Exactes, Université de Bejaia, Algeria), Mawloud Omar (Laboratoire LIMED, Faculté des Sciences Exactes, Université de Bejaia, Algeria), Ahcene Bounceur (Lab-STIC, UBO, France), Abdelkamel Tari (Laboratoire LIMED, Faculté des Sciences Exactes, Université de Bejaia, Algeria) 432

- A Novel Handover Decision-Making Algorithm for HetNets

Shahriar Shirvani Moghaddam (Shahid Rajae Teacher Training University (SR TTU), Iran), Ameneh Habibzadeh (Shahid Rajae Teacher Training University, Tehran, Iran), S. Mohammad Razavizadeh (Iran University of Science & Technology (IUST), Iran), Mahyar Shirvanimoghaddam (University of Newcastle, Australia) 438

## **Signal Processing for Communications & Networks 3**

- MMSE Sparse Beamforming for Power-Constrained Large Two-Way Relay AF Networks

Homa Eghbali (University of British Columbia, Canada), Ahmed El Shafie (University of Texas at Dallas, USA), Junho Lee (KAIST, Korea), Sami Muhaidat (Khalifa University, UAE), Naofal Al-Dhahir (University of Texas at Dallas, USA) 443

- Per-symbol ICI Mitigation for Frequency Non-selective Time-varying Channels

Karim Said (Virginia Tech, USA), A. A. (Louis) Beex (DSPRL - Wireless@VT & Virginia Tech, USA) 449

- An Extension to the Filtered-x LMS Algorithm with Logarithmic Transformation

Marek Pawelczyk (Silesian University of Technology, Poland), Witold Wierzchowski (Silesian University of Technology, Poland), Lifu Wu (Nanjing University of Information Science and Technology, P.R. China), Xiaojun Qiu

(Nanjing University, P.R. China) 454

- Per-symbol ICI Mitigation for Low-dimensional Doubly Dispersive Channels Using Pilot Restoration

Karim Said (Virginia Tech, USA), A. A. (Louis) Beex (DSPRL - Wireless@VT & Virginia Tech, USA) 460

- Implementation of Adaboost for the Detection of the Toxic Response Behaviour of Zebrafish (Danio Rerio)

Qiuju Du (Ningbo University, P.R. China), Jianyu Xu (Ningbo University, P.R. China), Yinghui Ge (Ningbo University, P.R. China), Chunlin Wang (Ningbo University, P.R. China) 466

- A Finite-Precision Adaptation of Bit Recycling to Arithmetic Coding

Ahmad Al-Rababa'a (Université Laval, Canada), Danny Dubé (Université Laval, Canada) 472

## **Image, Video, and Multidimensional Signal Processing 3**

- Modified Block Matching Algorithm Improving Rate-Distortion Performance for Stereoscopic Image Coding

Aysha Kadaikar (Université Paris13, Sorbonne Paris Cité, France), Gabriel Dauphin (University of Paris, France), Anissa Mokraoui (Université Paris 13, Sorbonne Paris Cité & Institut Galilée, L2TI, France) 478

- Repetitive Motion Detection for Human Behavior Understanding From Video Images

Orrawan Kumdee (Mahidol University, Thailand), Panrasee Rittipravat (Mahidol University, Thailand) 484

- Analysis of Linear and Non-Linear Frequency Modulated Signals Using STFT and Hough Transform

Thokala Ravi Kishore (DRDO, India), Sai Sidharth Doppalapudi (BITS Pilani, Hyderabad Campus, India), K. Deergha Rao (Dept. of ECE, Vasavi College of Engg, Osmania University, India) 490

- Joint Color and Texture Descriptor Using Ring Decomposition for Robust Video Copy Detection in Large Databases

Yassine Himeur (Centre de Développement des Technologies Avancées & Jijel University, Algeria), Karima Ait saadi (Centre de Développement des

Technologies Avancées, Algeria) 495

- Implementation of Edge-Enhancement Nonlinear Anisotropic Diffusion Filtering Using Different CUDA Memory Models

Mohamed Attia (Alexandria University, USA), Saleh Elshehaby (Alexandria University, USA), Adel S Elmaghraby (University of Louisville, USA) 501

- Extended Disparity Map Estimation Algorithm Using Joint Entropy-Distortion Metric for Non-Rectified Stereoscopic Images

Aysha Kadaikar (Université Paris13, Sorbonne Paris Cité, France), Gabriel Dauphin (University of Paris, France), Anissa Mokraoui (Université Paris 13, Sorbone Paris Cité & Institut Galilée, L2TI, France) 505

## **Speech and Language Processing and Audio, Acoustic Signal Processing 2**

- Psychoacoustic Model Compensation for Robust Continuous Speech Recognition in Additive Noise

Biswajit Das (Innovation Labs, Tata Consultancy Services, India), Ashish Panda (Tata Consultancy Services, India) 511

- American Midland Dialect Identification Using Prosodic Features and SVM

Asmaa Etman (Virginia Tech, Egypt), A. A. (Louis) Beex (DSPRL - Wireless@VT & Virginia Tech, USA) 516

- Improved Pitch Detection Using Fourier Approximation Method

Balachandra Kumaraswamy (International Institute of Information Technology Bangalore & BMS College of Engineering, India), Poonacha G (IIITB, India) 522

- Adaptive Frequency Domain Identification for ANC Systems Using Non-stationary Signals

Allahyar Montazeri (Lancaster University, United Kingdom), Saurav Karna (Ilmenau University of Technology, Germany) 528

- THUEE Language Modeling Method for the OpenKWS 2015 Evaluation

Zhuo Zhang (Tsinghua University, P.R. China), Wei-Qiang Zhang (Tsinghua University, P.R. China), Kai-Xiang Shen (Tsinghua University, P.R. China), Xu-Kui Yang (Zhengzhou Information Science and Technology Institute, P.R. China), Yao Tian (Tsinghua University, P.R. China), Meng Cai (Tsinghua National Laboratory for Information Science and Technology, P.R. China), Jia



Liu (Tsinghua University, P.R. China) 534

- Shared Speech Attribute Augmentation for English-Tibetan Cross-language Phone Recognition

Yue Zhao (Minzu University of China, P.R. China), Nan Zhou (Minzu University of China, P.R. China), Libing Zhang (Sino-HK Eeneration Electrical Engineering (Beijing) Co., Ltd, P.R. China), Licheng Wu (Minzu University of China, P.R. China), Rui Zheng (Minzu University of China, P.R. China), Xiaoyang Wang (RPI, USA), Qiang Ji (Rensselaer Polytechnic Institute, USA) 539

## **eHealth and Bio Informatics & Bio Engineering**

- Predicting E. Coli Promoters Using Formal Grammars

Aljoharah Algwaiz (University of Connecticut, USA), Sanguthevar Rajasekaran (University of Connecticut, USA), Reda Ammar (University of Connecticut, USA) 544

- A Novel Insomnia Identification Method Based on Hjorth Parameters

Sana Tmar-Ben Hamida (Texas A&M University at Qatar, Qatar), Beena Ahmed (Texas A&M University at Qatar, Qatar), Thomas Penzel (Charité - Universitätsmedizin Berlin, Germany) 548

- The Truth Machine of Involuntary Movement: FPGA Based Cortico-Muscular Analysis for Fall Prevention

Valerio Francesco Annese (Politecnico di Bari, Italy), Daniela De Venuto (Politecnico di Bari, Italy) 553

- An Efficient Chain Code Based Face Identification System for Biometrics

Souvik Kundu (Indian Institute of Engineering Science and Technology, India), Baidyanath Ray (IEST, Shibpur, India) 559

- A Cloud-Based System for Real-Time, Remote Physiological Monitoring of Infants

SyedParham Mohajerani (Texas A&M University at Qatar, Qatar), Syed Ali Hashim Moosavi (Texas A&M University at Qatar, Qatar), Rami Al-Rihawi (Texas A&M University at Qatar, Qatar), Akhlaque Bhat (Hamad Medical Corporation, Qatar), Reema Youssef Kamal (Hamad Medical Corporation, Qatar), Beena Ahmed (Texas A&M University at Qatar, Qatar) 565

- Integration Framework of Chronic Disease Management System and a Recommender System in the United Arab Emirates

Modafar Ati (Abu Dhabi University, UAE), Wail Omar (BNR Education, Canada), Asmaa Hussein (University of Queensland, Australia) 570

## **Information Processing and Biological Signal and Image Processing 2**

- Accelerating Higher-Order Masking of AES Using Composite Field and SIMD

Abdulaziz Miyajan (University of Connecticut & Uconn, USA), Zhijie Shi (University of Connecticut, USA), Chun-Hsi Huang (University of Connecticut, USA), Turki Al-Somani (Umm Al-Qura University, Saudi Arabia) 575

- Psychological Stress Measurement Using Low Cost Single Channel EEG Headset

Sanay Muhammad Saeed (University of Engineering and Technology, Taxila, Pakistan, Pakistan), Syed Muhammad Anwar (University of Engineering and Technology Taxila, Pakistan), Muhammad Majid (University of Engineering and Technology Taxila, Pakistan) 581

- Evaluation of CUDA Memory Fence Performance; Berlekamp-Massey Case Study

Hannan Hassan (City for Scientific Research, Egypt), Ghafa Fathy (City for Scientific Research, Egypt), Walaa Sheta (Informatic Research Institute, MuCSAT, Egypt) 586

- Investigation Into Google Play Security Mechanisms Via Experimental Botnet

Milan Oulehla (Tomas Bata University in Zlín, Faculty of Applied Informatics, Czech Republic) 591

## **Signal Processing for Communications & Networks 4**

- Optimized Dual Uplink and Downlink Resource Allocation for Multiple Class of Service in OFDM Network

Mohamed Shehata (Arab Academy for Science, Technology and Maritime, Egypt), Safa Gasser (Arab Academy for Science, Technology and Maritime Transport, Egypt) 597

- Adaptive LMS Power Series Analytical Solution for Differential Algebraic Equations

Tarek I Haweel (Assiut University & Faculty of Engineering, Egypt),

Mohammad Haweel (Egyptian Russian University (ERU), Egypt), Abdulaziz Alsayyari (Shaqra University, Saudi Arabia) 602

- Determination of Layered Structure Parameters Based on Spectrum Estimation Techniques

Mohamed A Abou-Khousa (The Petroleum Institute, UAE) 608

## **Image, Video, and Multidimensional SP 1**

- Online Improvement of Time-of-Flight Camera Accuracy by Automatic Integration Time Adaption

Thomas Hoegg (University of Siegen, Germany), Christian Baiz (Christ-Elektronik GmbH, Germany), Andreas Kolb (Siegen University, Germany) 613

- Efficient Watermark Registration Technique for Monochrome Images

Ayman Tawfik (Ajman University of Science & Technology, UAE) 619

- Single Image Superresolution Using E-SPLINE Functions

Gamal El-Din Fahmy (Assiut University, Egypt) 623

- Iterative Image Subset Scanning for Image Reconstruction From Sensor Signals

Giovanni Cherubini (IBM Zurich Research Laboratory, Switzerland), Paul Hurley (IBM Zurich Research Laboratory, Switzerland), Matthieu Simeoni (IBM Zurich Research Lab, Switzerland), Sanaz Kazemi (IBM Netherlands, The Netherlands) 629

- Automatic License Plate Recognition: A Comparative Study

Imran Ahmad (University of Windsor, Canada), Boubakeur Boufama (UNiversity of Windsor, Canada), Pejman Habashi (University of Windsor, Canada), William Anderson (University of Windsor, Canada), Tarik Elamsy (University of Windsor, Canada) 635

## **Signal Processing for Communications & Networks 1**

- On the Use of Compressed Sampling Algorithms for Impairments Compensation in Dynamic Nonlinear Transmitters

Oualid Hammi (Schulich School of Engineering, University of Calgary, Canada), Abubakr Abdelhafiz (The University of Calgary, Canada), Tareq Y. Al-Naffouri (King Abdullah University of Science and Technology, USA),

Fadhel Ghannouchi (University of Calgary, Canada) 641

- Algebraic Method for Optimal Beamforming in Two-Way Relay Systems with Analog Network Coding

Christopher P Thron (Texas A&M University-Central Texas, USA), Ahsan Aziz (National Instruments, USA) 646

- Performance Analysis of Pre-Equalized Multilevel Partial Response Schemes

Mamoun Guenach (Bell Laboratories, Alcatel-Lucent, Antwerp, Belgium), Lennert Jacobs (Ghent University, Belgium), Bartłomiej Kozicki (Alcatel-Lucent, Belgium), Marc Moeneclae (Ghent University, Belgium) 652

- Peak-to-Average Power Ratio Reduction in Interleaved OFDMA Systems

Shamael Alshuhail (KAUST, Saudi Arabia), Anum Ali (University of Texas at Austin, USA), Tareq Y. Al-Naffouri (King Abdullah University of Science and Technology, USA) 658

- Data-aided Iterative Reweighted LMMSE Channel Estimation for MIMO OFDM

Mohammed Kashoob (University of York, United Kingdom), Yury Zakharov (University of York, United Kingdom) 663

## **Additional Paper**

- The Mechanism of Splitting Mitochondria in Terms of Membrane Automata

Georgia Theocharopoulou, Konstantinos Giannakis, Theodore Andronikos (Department of Informatics, Ionian University, Greece) 397