

2016 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2016)

**Limassol, Cyprus
12-14 December 2016**



**IEEE Catalog Number: CFP16SSP-POD
ISBN: 978-1-5090-5845-7**

**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 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:	CFP16SSP-POD
ISBN (Print-On-Demand):	978-1-5090-5845-7
ISBN (Online):	978-1-5090-5844-0
ISSN:	2162-7843

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

CURRAN ASSOCIATES INC.
proceedings
.com

2016 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)

Audio, Acoustic Signal Processing

Application of I-Vector in Speech and Music Classification

Hao Zhang (Tsinghua University, P.R. China), Xu-Kui Yang (Zhengzhou Information Science and Technology Institute, P.R. China), Wei-Qiang Zhang (Tsinghua University, P.R. China), Wen-Lin Zhang (Zhengzhou Information Science and Technology Institute, P.R. China), Jia Liu (Tsinghua University, P.R. China) 1

A Speech Enhancement Algorithm Using Computational Auditory Scene Analysis with Spectral Subtraction

Cong Guo (Tsinghua University, P.R. China), Like Hui (Tsinghua University, P.R. China), Wei-Qiang Zhang (Tsinghua University, P.R. China), Jia Liu (Tsinghua University, P.R. China) 6

Classical Arabic Phoneme Contextual Analysis Using HMM Classifiers

Yousef A Alotaibi (King Saud University, Saudi Arabia), Ali H. Meftah (King Saud University & College of Computer and Information Sciences, Saudi Arabia), Sid-Ahmed Selouani (Université de Moncton, Campus de Shippagan, Canada) 11

Improved Dialect Recognition for Colloquial Arabic Speakers

Rania R Ziedan (University of Louisville & Benha University, USA), Michael Michael (Shoubra Faculty of Engineering, Benha University, Egypt), Abdelwahab Alsammak (Benha University, Egypt), Mona Mursi (Shoubra Faculty of Engineering, Benha University, USA), Adel S Elmaghraby (University of Louisville, USA) 16

Signal Processing Theory & Methods 1

Frequency-Domain Characterization of Singular Spectrum Analysis Eigenvectors

Michel Leles (UFSJ, Brazil), Adriano Cardoso (Universidade Federal de São João Del-Rei, Brazil), Mariana Moreira (Universidade Federal de São João Del-Rei, Brazil), Homero Guimarães (Universidade Federal de Minas Gerais, Brazil), Cristiano M. Silva (Universidade Federal de São João Del-Rei, Brazil), Andreas Pitsillides (University of Cyprus, Cyprus) 22

Performance Comparison of Subjective Assessment Methodologies for Light Field Displays

Subbareddy Darukumalli (Pazmany Peter Catholic University & Holografika KFT, Hungary), Peter A. Kara (Kingston University, United Kingdom), Attila Barsi (Holografika, Hungary), Maria G. Martini (Kingston University, United Kingdom), Tibor Balogh (Holografika Kft, Hungary), Ahmed Chehaibi (Holografika, Hungary) 28

An Application of Using Embedded Underwater Computing Architectures

Hussain Albarakati (University of Connecticut, USA), Reda Ammar (University of Connecticut, USA), Ayman Alharbi (University Of Connecticut, USA), Hesham Alhumyani (University Of Connecticut, USA) 34

<i>A Subspace-based Manifold Separation Technique for Array Calibration</i> Minqiu Chen (Harbin Institute of Technology, P.R. China), Xi Chen (Guizhou University, P.R. China), Xing-peng Mao (Harbin Institute of Technology, P.R. China)	40
---	----

Bayesian/Sequential Monte Carlo Methods 1

<i>Controlled Airspace Infringements and Warning System</i> Yousra Almathami (University of Connecticut, USA), Reda Ammar (University of Connecticut, USA)	45
<i>A Novel Computationally Efficient SMC-PHD Filter Using Particle-measurement Partition</i> Rui Sun (Harbin Institute of Technology, P.R. China), Lingling Zhao (Harbin Institute of Technology, P.R. China), Xiaohong Su (Harbin Institute of Technology, P.R. China)	51
<i>Soccer Player Tracking Using Particle Filters</i> Paris Kaimakis (University of Central Lancashire, Cyprus), Panagiotis Petsas (University of Cyprus, Cyprus)	57
<i>PCA-Kalman Based Load Forecasting of Electric Power Demand</i> Lucas D X Ribeiro (University of Brasilia & Brazilian Electricity Regulatory Agency, Brazil), Jayme Milanezi, Jr. (University of Brasilia & Brazilian Electrical Regulatory Agency (ANEEL), Brazil), Joao Paulo Carvalho Lustosa da Costa (University of Brasilia & Ilmenau University of Technology and Fraunhofer Institute for Integrated Circuits IIS, Brazil), William F Giazza (University of Brasilia, Brazil), Ricardo Kehrlé Miranda (University of Brasilia, Brazil), Marcos Vinicius Vieira da Silva (University of Brasilia, Brazil)	63

Signal Processing Theory & Methods 2

<i>Informed Split Gradient Non-negative Matrix Factorization Using Huber Cost Function for Source Apportionment</i> Robert Chreiky (University of Balamand, Lebanon), Gilles Delmaire (Université du Littoral Côte d'Opale, France), Matthieu Puigt (Université du Littoral Côte d'Opale, France), Gilles Roussel (Université du Littoral Côte d'Opale, France), Antoine B. Abche (University of Balamand, Lebanon)	69
<i>Asymptotically Optimal Search of Unknown Anomalies</i> Bar Hemo (Ben-Gurion University of the Negev, Israel), Kobi Cohen (Ben-Gurion University of the Negev, Israel), Qing Zhao (Cornell University, USA)	75
<i>On k-Subset Sum Using Enumerative Encoding</i> Victor Parque (Waseda University, Japan), Tomoyuki Miyashita (Waseda University, Japan)	81
<i>Transport Services Within the IoT Ecosystem Using Localisation Parameters</i> Zacharenia Garofalaki (University of Piraeus, Greece), Dimitrios Kallergis (University of Piraeus, Greece), Georgios Katsikogiannis (University of Piraeus, Greece), Ioannis Ellinas (Piraeus University of Applied Sciences, Greece), Christos Douligeris (University of Piraeus, Greece)	87

Biological Signal and Image Processing 1

<i>Extracting Dispersion Information from Optical Coherence Tomography Images</i> Christos Photiou (University of Cyprus, Cyprus), Evgenia Bousi (University of Cyprus, Cyprus), Ioanna Zouvani (Nicosia General Hospital, Cyprus), Costas Pitris (University of Cyprus, Cyprus)	93
<i>Unsupervised Phase Detection for Respiratory Sounds Using Improved Scale-Space Features</i> Feng Jin (Ryerson University, USA), Farook Sattar (University of Waterloo, Canada)	97

Signal Processing for Communications & Networks 1

<i>Relay Selection for Full-Duplex FSO Relays Over Turbulent Channels</i> Mohamed Abaza (Arab Academy for Science, Technology and Maritime Transport, Egypt), Raed Mesleh (German Jordanian University, Jordan), Ali Mansour (ENSTA Bretagne, France), El-Hadi Aggoune (University of Tabuk, Saudi Arabia)	103
<i>LOS Millimeter-Wave Communication with Quadrature Spatial Modulation</i> Raed Mesleh (German Jordanian University, Jordan), Abdelhamid Younis (University of Benghazi, Libya)	109
<i>BER Performance of Superposed ACO-OFDM in Multi-Path Fading Channel</i> Tomoyuki Kozu (Shizuoka University, Japan), Kouji Ohuchi (Shizuoka University, Japan)	114
<i>On Blind Estimation with Reduced Complexity in CSS-OFDM Systems</i> Takahiro Kitazawa (Shizuoka University, Japan), Kouji Ohuchi (Shizuoka University, Japan)	120

Security Applications

<i>An Identity and Access Management Approach for SOA</i> Georgios Katsikogiannis (University of Piraeus, Greece), Sarandis Mitropoulos (University of Piraeus, Greece), Christos Douligeris (University of Piraeus, Greece)	126
<i>Early Malicious Activity Discovery in Microblogs by Social Bridges Detection</i> Antonia Gogoglou (Aristotle University of Thessaloniki, Greece), Zenonas Theodosiou (SignalGeneriX Ltd, Limassol, Cyprus), Anastasis Kounoudes (Signal Generix, Cyprus), Athena Vakali (Aristotle University of Thessaloniki, Greece), Yannis Manolopoulos (Aristotle University of Thessaloniki, Greece)	132
<i>Combination of Multiple Detectors for Credit Card Fraud Detection</i> Addisson Salazar (Universidad Politécnica de Valencia, Spain), Gonzalo Safont (Universidad Politecnica de Valencia, Spain), Alberto Rodriguez (Universidad Miguel Hernández de Elche, Spain), Luis Vergara (Universidad Politécnica de Valencia, Spain)	138
<i>Phase Based Forgery Detection of JPEG anti Forensics</i> Gamal El-Din Fahmy (Assiut University, Egypt), Rolf P. Würtz (Ruhr-University of Bochum, Germany)	144

Signal Processing for Communications & Networks 2

<i>Blind Detection of Cyclostationary Features in the Context of Cognitive Radio</i> N'Guessan Jean-Marie Kadjjo (Université de Bretagne Occidentale, France), Koffi-Clement Yao (Université de Bretagne Occidentale, France), Ali Mansour (ENSTA Bretagne, France)	150
<i>Secure Performance Analysis of Satellite Communication Networks in Shadowed Rician Channel</i> Kefeng Guo (PLA University of Science and Technology, P.R. China), Bangning Zhang (PLAUST, P.R. China), Yuzhen Huang (School of Information and Communication, Beijing University of Posts and Telecommunications, P.R. China), Daoxing Guo (PLAUST, P.R. China)	156
<i>JADED-RIP: Joint Angle and Delay Estimator and Detector via Rotational Invariance Properties</i> Ahmad Bazzi (EURECOM & RivieraWaves-A CEVA COMPANY, France), Dirk Slock (EURECOM, France), Lisa Meilhac (CEVA-RivieraWaves, France)	160

Biological Signal and Image Processing 2

<i>Preprocessing in a Reaction-Diffusion Algorithm Designed for Image Edge Detection</i> Atsushi Nomura (Yamaguchi University, Japan), Koichi Okada (Yamaguchi University, Japan), Yoshiki Mizukami (Yamaguchi University, Japan)	166
<i>Respiratory Rate Monitoring by Maximum Likelihood Video Processing</i> Davide Alinovi (University of Parma, Italy), Gianluigi Ferrari (University of Parma, Italy), Francesco Pisani (University of Parma, Italy), Riccardo Raheli (University of Parma, Italy)	172
<i>Designing an Optimal Digital Bandpass Filter for 3D USCT II</i> Michael Zapf (Karlsruhe Institute of Technology, Germany), Rajat Chhabra (PEC University of Technology, India)	178
<i>Detection of KANSEI Value Trends Using the Electroencephalogram During Watching Memorable TV Commercials</i> Mana Negishi (Keio University, Japan), Yasue Mitsukura (Keio University, Japan)	184

Bayesian/Sequential Monte Carlo Methods 2 & Signal Processing Theory & Methods 3

<i>Big Time-frequency Domain Data Mining for Underdetermined BSS Using Density Component Analysis</i> Li Chengjie (University of Electronic Science and Technology of China, P.R. China), Lidong Zhu (University of Electronic Science and Technology of China, P.R. China), Zhongqiang Luo (Chengdu Technological University, P.R. China)	188
<i>A Time Scale Modification with Large and Varying Scaling Factors</i> Kevin Struwe (University of Rostock, Germany)	193
<i>Sparse Recovery Using an Iterative Variational Bayes Algorithm and Application to AoA Estimation</i> Ahmad Bazzi (EURECOM & RivieraWaves-A CEVA COMPANY, France), Dirk Slock (EURECOM, France), Lisa Meilhac (CEVA-RivieraWaves, France)	197

<i>Robust Generalized Low Rank Approximation of Matrices for Image Recognition</i> Haïfa Nakouri (University of Tunis, Tunisia), Mohamed M.T. Limam (Institut Superieur de Gestion, Université de Tunis & LARODEC, Tunisia)	203
---	-----

Signal Processing Theory & Methods 4

<i>Artificial Neural Networks in WSNs Design: Mobility Prediction for Barrier Coverage</i> Zhilbert Tafa (University for Business and Technology, Kosovo, Kosovo)	208
<i>Advanced Mapping Techniques for Digital Signal Processors</i> Tomas Fryza (Brno University of Technology, Czech Republic)	213
<i>Classification of Friezes Engraved on Ceramic Sherds from 3D Scans</i> Teddy Debroutelle (Université d'Orléans & Laboratoire PRISME, France), Sylvie Treuillet (Polytech Orléans, France), Matthieu Exbrayat (Université d'Orléans, France), Sebastien Jesset (Service Archeologique d'Orléans, France)	218
<i>Learning to Communicate: Channel Auto-encoders, Domain Specific Regularizers, and Attention</i> Tim O'Shea (Virginia Tech, USA), Kiran Karra (Virginia Tech, USA), T. Charles Clancy (Virginia Tech, USA)	223
<i>A Rao-Blackwellized Particle Filter to Estimate the Time-Varying Noise Parameters in Non-Linear State-Space Models Using Alternative Stabilized Forgetting</i> Milan Papez (Brno University of Technology, Czech Republic)	229
<i>Mobix:A Software Proposal Based Authentication Service for Mobile Devices</i> Ali Alsaadi (University of Louisville, USA), Adel S Elmaghraby (University of Louisville, USA), Anup Kumar (University Of Louisville, USA)	235

Radar Signal Processing

<i>Dynamic Data Driven Image Reconstruction Using Multiple GPUs</i> Adeesha Wijayasiri (University of Florida, USA), Tania Banerjee (University of Florida, USA), Sanjay Ranka (University of Florida, USA), Sartaj Sahni (University of Florida, USA), Mark Schmalz (University of Florida, USA)	241
<i>BI-GESPAR:A Fast SAR Imaging Algorithm for Phase Noise Mitigation</i> Qing Zhang (University of Electronic Science and Technology of China, P.R. China)	247
<i>An FPGA Architecture for Velocity Independent Backprojection in FMCW-based SAR Systems</i> Fabian Cholewa (Leibniz University Hannover, Germany), Matthis Wielage (Leibniz Universität Hannover, Germany), Peter Pirsch (Institut fuer Mikroelektronische Systeme, Germany), Holger Blume (Leibniz Universitaet Hannover, Germany)	252
<i>Off-grid Compressed Sensing for WiFi-based Passive Radar</i> Ji Wu (Tsinghua University, P.R. China), Yang Lu (Imperial College London, United Kingdom), Wei Dai (Imperial College, United Kingdom)	258

Signal Processing for Communications & Networks 3

<i>Spectrum Sensing Enhancement Using Principal Component Analysis</i>	
Abbass Nasser (Université de Bretagne Occidentale, France), Ali Mansour (ENSTA Bretagne, France), Koffi-Clement Yao (Université de Bretagne Occidentale, France), Hani Abdallah (AUCE - Beirut - Lebanon, Lebanon), Mohamad Chaitou (Lebanese University, Faculty of Science, Lebanon), Hussein Charara (Lebanese University, Faculty of Science, Lebanon)	263
<i>A Greedy Power-aware Routing Algorithm for Software-defined Networks</i>	
Mohamad Khattar Awad (Kuwait University & Engineering, Kuwait), Yousef Rafique (Kuwait University, Kuwait), Sarah Alhadlaq (Ministry of Electricity and Water, Kuwait), Dunya Hassoun (Australian College of Kuwait, Kuwait), Asmaa Alabdulhadi (Ministry of Higher Education, Kuwait), Sheikha Thani (The Public Authority for Civil Information, Kuwait)	268
<i>Code-Aided Interference Suppression for Communication System with MSK Modulation</i>	
Yangyong Zhang (722 Research Institute, CSIC, P.R. China), Zhongtao Luo (Chongqing University of Posts and Telecommunications, P.R. China), Huan Zheng (722 Research Institute, CSIC, P.R. China), Kui Ding (722 Research Institute, CSIC, P.R. China), Ling Wang (722 Research Institute, CSIC, P.R. China), Zi-Shu He (University of Electronics Science and Technology of China, P.R. China)	274
<i>Performance Investigation on BCH Codec Implementations</i>	
Dejan Azinovic (IHP, Germany), Klaus Tittelbach-Helmrich (IHP, Germany), Zoran Stamenkovic (IHP, Germany)	280

Design & Implementation of SP Systems

<i>Novel Active PID Controller Employing VDTA</i>	
Dinesh Prasad (Jamia Millia Islamia, India), Mayank Srivastava (KIET, Ghaziabad, India), Laxya Singla (GCET, India), Farah Jabin (Jamia Millia Islamia, India), Ghania Fatima (Jamia Millia Islamia, India), Saif Ali Khan (Jamia Millia Islamia, India), Safa Tanzeem (Jamia Millia Islamia, India)	286
<i>Integrating Machine Learning in Embedded Sensor Systems for Internet-of-Things Applications</i>	
Jongmin Lee (Arizona State University, USA), Michael Stanley (NXP Semiconductors, USA), Andreas Spanias (ASU / SenSIP Center / School of ECEE, USA), Cihan Tepedelenlioglu (Arizona State University, USA)	290
<i>An FPGA Design for the Two-Band Fast Discrete Hartley Transform</i>	
Lampros Pyrgas (Technological Educational Institute of Western Greece, Greece), Paris Kitsos (Technological Educational Institute of Western Greece & Digital IC dEsing and Systems Lab., Greece), Athanassios N. Skodras (University of Patras, Greece)	295

Image, Video, and Multidimensional SP 2

<i>Multi-Frame Motion Compensation Using Extrapolated Frame by Optical Flow for Lossless Video Coding</i>	
Yusuke Kameda (Tokyo University of Science, Japan), Hiroyuki Kishi (Tokyo University of Science, Japan), Tomokazu Ishikawa (Tokyo University of Science, Japan), Ichiro Matsuda (Tokyo University of Science, Japan), Susumu Itoh (Tokyo University of Science, Japan)	300
<i>Handwriting Image Enhancement Using Local Learning Windowing, Gaussian Mixture Model and K-Means Clustering</i>	
Huseyin Kusetogullari (Karlskrona, Sweden), Hakan Grahm (Blekinge Institute of Technology, Sweden), Niklas Lavesson (Blekinge Institute of Technology, Sweden)	305
<i>Flexible Image Watermarking in JPEG Domain</i>	
Mehdi Fallahpour (University of Ottawa, Canada), David Megias (UOC, Spain)	311

Signal Processing Theory & Methods 5

<i>The Use of Adaptive Erblet Transform with Application to Ecological Data</i>	
Farook Sattar (University of Waterloo, Canada), Sarika Cullis-Suzuki (University of Victoria, Canada), Feng Jin (Ryerson University, USA)	317
<i>Data Mining Using Probabilistic Grammars</i>	
Aljoharah A Algwaiz (University of Connecticut & King Saud University, USA), Sanguthevar Rajasekaran (University of Connecticut, USA), Reda Ammar (University of Connecticut, USA)	323
<i>Categorizing Hardware Failure in Large Scale Cloud Computing Environment</i>	
Moataz Khalil (University of Louisville & Researcher Visitor, USA), Walaa Sheta (Informatic Research Institute, MuCSAT, Egypt), Adel S Elmaghraby (University of Louisville, USA)	327
<i>Classifying Children with Reading Difficulties From Non-Impaired Readers Via Symbolic Dynamics and Complexity Analysis of MEG Resting-State Data</i>	
Stavros I Dimitriadis (Artificial Intelligence and Information Analysis Laboratory Greece, Greece), Panagiotis Simos (School of Medicine, University of Crete, Greece), Nikolaos Laskaris (Artificial Intelligence & Information Analysis Laboratory Aristotle Univ, Greece), Spiros Fotopoulos (University of Patras, Greece), Jack Fletcher (University of Houston, Houston, Texas, TX, USA), David Linden (School of Psychology, United Kingdom), Andrew Papanicolaou (University of Tennessee Health Science Center, USA)	333