

# DSP2011

## 17th International Conference on Digital Signal Processing TECHNICAL PROGRAM

6-8 July 2011  
Corfu, Greece

### Tuesday - 5 July 2011

18:00 – 20:30	Registration
---------------	--------------

### Wednesday - 6 July 2011

	Hall A	Hall B	Hall C
8:30 – 10:00	Registration		
10:00 – 10:30	Welcome Address		
10:30 – 11:30	Plenary 1: Sampling in the Age of Sparsity (Prof. Martin Vetterli)		
11:30 – 13:00	Signal Processing in Optical Remote Sensing (W1A)	Signal Processing for Communications I (W1B)	Image Sequence and Stereoscopic Processing (W1C)
13:00 – 14:00	Lunch Break		
14:00 – 15:00	Plenary 2: Signal Processing in the Encrypted Domain (Prof. Inald Lagendijk)		
15:00 – 17:00	Game Theory in Signal Processing for Communications (W2A)	Architectures and Implementations I (W2B)	Event and Object Detection (W2C)
17:00 – 17:30	Coffee Break		
17:30 – 19:00	Human 3D Perception and 3D Video Assessments I (W3A)	Blind Signal Processing (W3B)	Recognition and Tracking (W3C)
20:30	Welcome Reception at Ionian Academy		

 **Special Session**

## Thursday - 7 July 2011

	Hall A	Hall B	Hall C
9:00 – 10:30	<b>Human 3D Perception and 3D Video Assessments II (T1A)</b>	<b>Speech Processing and Enhancement (T1B)</b>	<b>Image and Video Coding I (T1C)</b>
10:30 – 11:00	Coffee Break		
11:00 – 13:00	<b>Intelligent Digital Audio Effects (T2A)</b>	<b>Signal Processing for Communications II (T2B)</b>	<b>Biomedical Image Processing (T2C)</b>
13:00 – 14:00	Lunch Break		
14:00 – 15:00	<b>Plenary 3: Binaural Signal Processing (Prof. Jens Blauert)</b>		
15:00 – 17:00	<b>Signal and Image Restoration (T3A)</b>	<b>Advanced SAR Processing Techniques (T3B)</b>	<b>Architectures and Implementations II (T3C)</b>
17:00 – 17:30	Coffee Break		
17:30 – 19:00	<b>Biologically-inspired Digital Signal Processing (T4A)</b>	<b>Image Processing Applications (T4B)</b>	<b>Signal Processing for Cognitive Radio (T4C)</b>
20:30	Social Event		

**Special Session**

## Friday - 8 July 2011

	Hall A	Hall B	Hall C
9:00 – 10:30	<b>Sparsity aware Signal Processing I (F1A)</b>	<b>Biometrics (F1B)</b>	<b>Image and Video Coding II (F1C)</b>
10:30 – 11:00	Coffee Break		
11:00 – 13:00	<b>Signal Processing for Radar (F2A)</b>	<b>Speech and Audio Signal Processing (F2B)</b>	<b>Watermarking and Forensics (F2C)</b>
13:00 – 14:00	Lunch Break		
14:00 – 15:00	<b>Plenary 4: Signal Processing Challenges in Satellite Networks (Prof. Björn Ottersten)</b>		
15:00 – 17:00	<b>Multiview and 3D Video Coding (F3A)</b>	<b>Filtering and Spectral Estimation (F3B)</b>	<b>Image Analysis and Enhancement (F3C)</b>
17:00 – 17:30	Coffee Break		
17:30 – 19:00	<b>Sparsity aware Signal Processing II (F4A)</b>	<b>Biomedical Signal Processing (F4B)</b>	<b>Signal Processing Applications (F4C)</b>
19:00	Adjournment		

**Special Session**

# Plenaries Program

## Wednesday - 6 July 2011

---

### PLENARY 1

#### SAMPLING IN THE AGE OF SPARSITY

Martin Vetterli (*Swiss Federal Institute of Technology, Lausanne (EPFL)*)

Time: 10.30 – 11.30

---

### PLENARY 2

#### SIGNAL PROCESSING IN THE ENCRYPTED DOMAIN

Inald Lagendijk (*Delft University of Technology*)

Time: 14.00 – 15.00

---

## Thursday - 7 July 2011

---

### PLENARY 3

#### BINAURAL SIGNAL PROCESSING

Jens Blauert (*Ruhr-University, Bochum (RUB)*)

Time: 14.00 – 15.00

---

## Friday - 8 July 2011

---

### PLENARY 4

#### SIGNAL PROCESSING CHALLENGES IN SATELITE NETWORKS

Björn Ottersten (*Royal Institute of Technology, Stockholm (KTH)*)

Time: 14.00 – 15.00

---

# Technical Sessions Detailed Program

Wednesday - 6 July 2011

---

## PLENARY 1

### SAMPLING IN THE AGE OF SPARSITY

Martin Vetterli (*Swiss Federal Institute of Technology, Lausanne (EPFL)*)

---

## SESSION W1A

### Signal Processing in Optical Remote Sensing

Type: Special Session

Time & Place: 11.30 – 13.00, Hall A

Chairperson & Organiser: Gabriele Moser and Sebastiano Serpico (*U. Genoa, Italy*)

---

#### W1A.1

##### RESIDUAL STRIPING REDUCTION IN HYPERSPECTRAL IMAGES

Nicola Acito, *Accademia Navale (Italy)*

Giovanni Corsini, *University of Pisa (Italy)*

Marco Diani, *University of Pisa (Italy)*

#### W1A.2

##### JOINT CLASSIFICATION OF PANCHROMATIC AND MULTISPECTRAL IMAGES BY MULTIREOLUTION FUSION THROUGH MARKOV RANDOM FIELDS AND GRAPH CUTS

Gabriele Moser, Sebastiano Serpico, *University of Genoa (Italy)*

#### W1A.3

##### MORPHOLOGICAL ROAD SEGMENTATION IN URBAN AREAS FROM HIGH RESOLUTION SATELLITE IMAGES

Raffaele Gaetano, *Telecom Paristech (France)*

Josiane Zerubia, *INRIA Sophia Antipolis (France)*

Giuseppe Scarpa, *University Federico II of Naples (Italy)*

Giovanni Poggi, *University Federico II of Naples (Italy)*

#### W1A.4

##### IDENTIFICATION OF ROOFS PERIMETER FROM AERIAL AND SATELLITE IMAGES

Elena Angiati Silvana Dellepiane, *University of Genoa (Italy)*

#### W1A.5

##### AUTOMATIC AERIAL IMAGE SEGMENTATION BASED ON CHAN-VESE MODEL USING FEATURES OF COLOR AND TEXTURE

Parvin Ahmadi, Saeed Sadri, Rassoul Amirfattahi, Niloofar Gheissari, Azam Taheri, *Isfahan University of Technology (Iran)*

---

## SESSION W1B

### Signal Processing for Communications I

Type: Regular Session

Time & Place: 11.30 – 13.00, Hall B

Chairpersons: Konstantinos Slavakis (*U. of Peloponnese, Greece*)

E. Jorswieck (*Dresden U. Technology, Germany*)

---

#### W1B.1

##### MMSE TRANSMIT DIVERSITY SELECTION FOR MULTI-RELAY COOPERATIVE MIMO SYSTEMS USING DISCRETE STOCHASTIC GRADIENT ALGORITHMS

Patrick Clarke, Rodrigo De Lamare, *University of York (U.K.)*

#### W1B.2

##### SECOND-ORDER MODELING FOR RAYLEIGH FLAT FADING CHANNEL ESTIMATION WITH KALMAN FILTER

Laurent Ros, *Gipsa-Lab, University of Grenoble (France)*

Eric-Pierre Simon, *TELICE, Université de Lille 1 (France)*

#### W1B.3

##### EXTENDED ORTHOGONAL SPACE-TIME BLOCK CODING SCHEME IN ASYNCHRONOUS TWO-WAY COOPERATIVE RELAY NETWORKS OVER FREQUENCY-SELECTIVE FADING CHANNELS

Faisal Alotaibi, Faied Abdurahman, Usama Mannai, Jonathon Chambers, *Loughborough University (U.K.)*

#### W1B.4

##### SET-MEMBERSHIP CONSTRAINED CONJUGATE GRADIENT ADAPTIVE FILTERING ALGORITHM AND ITS APPLICATION TO BEAMFORMING

Lei Wang, Rodrigo De Lamare, *University of York (U.K.)*

---

## **SESSION W1C**

### **Image Sequence and Stereoscopic Processing**

Type: Regular Session

Time & Place: 11.30 – 13.00, Hall C

Chairpersons: F. Dufaux (*Télécom ParisTech, France*)

D. Androutsos (*Ryerson U., Canada*)

---

#### **W1C.1**

##### **GUIDING OPTICAL FLOW ESTIMATION USING SUPERPIXELS**

Theodosios Gkamas, Christophoros Nikou, *University of Ioannina (Greece)*

#### **W1C.2**

##### **FAST ALGORITHM FOR LOCAL STEREO MATCHING IN DISPARITY ESTIMATION**

Yu-Cheng Tseng, Tian-Sheuan Chang, *National Chiao Tung University (Taiwan)*

#### **W1C.3**

##### **BANDWIDTH-CONSTRAINED MOTION ESTIMATION FOR REAL-TIME MOBILE VIDEO APPLICATION**

Jui-Hung Hsieh, Tian-Sheuan Chang, *National Chiao-Tung University (Taiwan)*

#### **W1C.4**

##### **MOTION VECTOR RECOVERY BASED COLOUR INFORMATION**

Siriwhaddhanah Pongpadpinit, *Assumption University (Thailand)*

---

## PLENARY 2

### SIGNAL PROCESSING IN THE ENCRYPTED DOMAIN

Inald Lagendijk (*Delft University of Technology, The Netherlands*)

---

---

## SESSION W2A

### Game Theory in Signal Processing for Communications

Type: Special Session

Time & Place: 15.00 – 17.00, Hall A

Chairpersons & Organisers: Daniel Palomar (*Hong Kong UST*) and Gesualdo Scutari (*U. Rome*)

---

#### W2A.1

##### SINGLE TIMESCALE STOCHASTIC APPROXIMATION FOR STOCHASTIC NASH GAMES IN COGNITIVE RADIO SYSTEMS

Jayash Koshal, Angelia Nedich, Uday Shanbhag, *University of Illinois at Urbana-Champaign (U.S.A.)*

#### W2A.2

##### DISTRIBUTED MIN-MAX OPTIMIZATION IN NETWORKS

Kunal Srivastava, Angelia Nedich, Dusan Stipanovic, *University of Illinois at Urbana-Champaign (U.S.A.)*

#### W2A.3

##### SMART CARRIER SENSING FOR DISTRIBUTED COMPUTATION OF THE GENERALIZED NASH BARGAINING SOLUTION

Amir Leshem, Ephraim Zehavi, *Bar Ilan University (Israel)*

#### W2A.4

##### STABLE MATCHINGS FOR RESOURCE ALLOCATION IN WIRELESS NETWORKS

Eduard Jorswieck, *Technical University Dresden (Germany)*

#### W2A.5

##### A STOCHASTIC GAME FORMULATION OF ENERGY-EFFICIENT POWER CONTROL: EQUILIBRIUM UTILITIES AND PRACTICAL STRATEGIES

Francois Meriaux, Maël Letreust, Samson Lasaulce, Michel Kieffer, *L2S - CNRS - SUPELEC - Univ Paris-Sud (France)*

#### W2A.6

##### JOINT SENSING AND POWER ALLOCATION IN NONCONVEX COGNITIVE RADIO GAMES: QUASI-NASH EQUILIBRIA

Gesualdo Scutari, *State University of New York (SUNY) at Buffalo (U.S.A.)*

Jong-Shi Pang, *University of Illinois at Urbana-Champaign (U.S.A.)*

---

## **SESSION W2B**

### **Architectures and Implementations I**

Type: Regular Session

Time & Place: 15.00 – 17.00, Hall B

Chairpersons: G. Knittel (*Max-Planck-Inst for Radio Astronomy, Germany*)

D. Efstathiou (*TEI Serres, Greece*)

---

#### **W2B.1**

##### **AN EFFICIENT BLIND TIMING SKEWS ESTIMATION FOR TIME-INTERLEAVED ANALOG-TO-DIGITAL CONVERTERS**

Yueshan Zou, Bo Li, Xiao Chen, *Shenzhen Graduate School of Peking University, (China)*

#### **W2B.2**

##### **QTIB: QUICK BIT-REVERSED PERMUTATIONS ON CPUS**

Guenter Knittel, *Max Planck Institute for Radio Astronomy (Germany)*

#### **W2B.3**

##### **A DIGITAL LOOP FILTER FOR A PHASE LOCKED LOOP**

Dimitrios Efstathiou, *Technological Educational Institute of Serres (Greece)*

#### **W2B.4**

##### **AN FPGA IMPLEMENTATION AND PERFORMANCE EVALUATION OF THE SEED BLOCK CIPHER**

Paris Kitsos, Athanassios Skodras, *Hellenic Open University (Greece)*

#### **W2B.5**

##### **A NEW HARDWARE EFFICIENT RECONFIGURABLE FIR FILTER ARCHITECTURE SUITABLE FOR FPGA APPLICATIONS**

Khosrov Dabbagh Sadeghipour, *University of Tabriz (Iran)*

Asgar Abbaszadeh, *Anasystem Azerbaijan, East Azerbaijan Science and Technology Park (Iran)*



---

## **SESSION W2C**

### **Event and Object Detection**

Type: Regular Session

Time & Place: 15.00 – 17.00, Hall C

Chairpersons: J. Chambers (*Loughborough U. UK*)

C. Nikou (*U. Ioannina, Greece*)

---

#### **W2C.1**

##### **FALL DETECTION FOR THE ELDERLY IN A SMART ROOM BY USING AN ENHANCED ONE CLASS SUPPORT VECTOR MACHINE**

Miao Yu, Adel Rhuma, Syed Naqvi, Jonathon Chambers, *Loughborough University (U.K.)*

#### **W2C.2**

##### **FACE DETECTION IN A COMPRESSED DOMAIN**

Guido Manfredi, Djemel Ziou and Marie-Flavie Auclair-Fortier, *Universite de Sherbrooke (Canada)*

#### **W2C.3**

##### **AN ABANDONED AND REMOVED OBJECT DETECTION ALGORITHM IN A REACTIVE SMART SURVEILLANCE SYSTEM**

Gaetano Di Caterina, John James Soraghan, *University of Strathclyde (U.K.)*

#### **W2C.4**

##### **MULTIMODAL HUMAN DETECTION BY SPARSE FEATURE PURSUIT**

Juanjuan Han, *University of Siegen (Germany)*

#### **W2C.5**

##### **SHOT BOUNDARY DETECTION FROM VIDEOS USING ENTROPY AND LOCAL DESCRIPTOR**

Junaid Baber, Nitin Afzulpurkar, Matthew Dailey, Maheen Bakhtyar, *Asian Institute of Technology (Thailand)*

#### **W2C.6**

##### **DETECTING HUMAN BEHAVIOR EMOTIONAL CUES IN NATURAL INTERACTION**

George Caridakis, Stylianos Asteriadis, Kostas Karpouzis, Stefanos Kollias, *National Technical University of Athens (Greece)*

---

## **SESSION W3A**

### **Human 3D Perception and 3D Video Assessments I**

Type: Special Session

Time & Place: 17.30 – 19.00, Hall A

Chairpersons & Organisers: Sang-il Park (KCC), Y-J Jung (KAIST) and Y-M Ro (KAIST)

---

#### **W3A.1**

##### **A COMPOUND DEPTH AND IMAGE QUALITY METRIC FOR MEASURING THE EFFECTS OF PACKET LOSS ON 3D VIDEOS**

L.P. Yasakethu, S.T. Worrall, D.V.S.X. De Silva, W.A.C. Fernando, A.M. Kondoz. *University of Surrey (U.K.)*

#### **W3A.2**

##### **STUDY ON VISUAL DISCOMFORT INDUCED BY STIMULUS MOVEMENT AT FIXED DEPTH ON STEREOSCOPIC DISPLAYS USING SHUTTER GLASSES**

Jing Li, Marcus Barkowsky, Junle Wang, Patrick Le Callet, *LUNAM Université, Université de Nantes (France)*

#### **W3A.3**

##### **ATTENTION MODEL-BASED VISUAL COMFORT ASSESSMENT FOR STEREOSCOPIC DEPTH PERCEPTION**

Hosik Sohn, Yong Ju Jung, Seong-Il Lee, Hyun Wook Park, Yong Man Ro, *KAIST (Korea)*

#### **W3A.4**

##### **INVESTIGATION OF THE EFFECT OF THREE-DIMENSIONAL SMOOTHING ON MULTIVIEW STEREO IMAGES**

Alexander Babalis, Anastasios Venetsanopoulos, Dimitri Androutsos, *Ryerson University (Canada)*

---

## **SESSION W3B**

### **Blind Signal Processing**

Type: Regular Session

Time & Place: 17.30 – 19.00, Hall B

Chairperson: S. Sanei (*U. Surrey, UK*)

M. Scarpiniti (*U. Rome, Italy*)

---

#### **W3B.1**

##### **A NEW METHOD FOR BLIND SEPARATION OF THE FIRST AND SECOND HEART SOUND FROM PHONOCARDIOGRAM SIGNAL BY USING WAVELET TRANSFORM**

Mahdi Kheirolahi, Rassoul Amirfattahi, Behzad Nazari, Azam Taheri, *Isfahan University of Technology (Iran)*

#### **W3B.2**

##### **MISSING FEATURE MASK GENERATION IN BSS OUTPUTS USING PITCH FREQUENCY**

Hasti Shabani, Mohammad Hussein Kahaei, *Iran University of Science & Technology (Iran)*

#### **W3B.3**

##### **POST-PROCESSING FOR CROSSTALK CANCELLATION IN CONVOLUTIVE BSS OUTPUTS BASED ON PITCH FREQUENCY**

Hasti Shabani, Tahereh Noohi, Mohammad Hussain Kahaei, *Iran University of Science and Technology (Iran)*

#### **W3B.4**

##### **ADAPTIVE STEP SIZE INDEPENDENT VECTOR ANALYSIS FOR BLIND SOURCE SEPARATION**

Yanfeng Liang, Syed Mohsen Naqvi, Jonathon Chambers, *Loughborough University (U.K.)*

---

## **SESSION W3C**

### **Recognition and Tracking**

Type: Regular Session

Time & Place: 17.30 – 19.00, Hall C

Chairpersons: P. Vlamos (*Ionian U., Greece*)

N. Acito (*Accademia Navale, Italy*)

---

#### **W3C.1**

##### **A COLLECTION OF BENCHMARK IMAGES FOR TRAFFIC SIGN RESEARCH**

Xiaohong Gao, *Middlesex University (U.K.)*

#### **W3C.2**

##### **PSYCHOMOTOR SKILLS ASSESSMENT IN LAPAROSCOPIC SURGERY USING AUGMENTED REALITY SCENARIOS**

Vasileios Lahanas, Constantinos Loukas, *University of Athens (Greece)*

#### **W3C.3**

##### **AMBIGUITY DETECTION METHODS FOR IMPROVING HANDWRITTEN MATHEMATICAL CHARACTER RECOGNITION ACCURACY IN CLASSROOM VIDEOS**

Smita Vemulapalli, Monson H. Hayes, *Georgia Institute of Technology (U.S.A.)*

#### **W3C.4**

##### **HUMAN TRACKING IN CROWDED ENVIRONMENT WITH STEREO CAMERAS**

King Shan Cheung, Kam Tim Woo, *HKUST (Hong Kong)*

#### **W3C.5**

##### **SOLVE JIGSAW PUZZLE PROBLEMS WITH CO-NORMALIZATION**

Shaoze Lei, Changshui Zhang, *Tsinghua University (China)*

# Thursday - 7 July 2011

---

## SESSION T1A

### Human 3D Perception and 3D Video Assessments II

Type: Special Session

Time & Place: 9.00 – 10.30, Hall A

Chairperson & Organiser: K. Plataniotis (*U. Toronto*) and Y-J Jung (*KAIST*)

---

#### T1A.1

##### STEREOSCOPIC VISUAL FATIGUE MEASUREMENT BASED ON FUSIONAL RESPONSE CURVE AND EYE-BLINKS

Donghyun Kim, *Yonsei University (Korea)*

Sunghwan Choi, *Yonsei University (Korea)*

Sangil Park, KCC - Korea Communications Commission (*Korea*)

Kwanghoon Sohn, *Yonsei University (Korea)*

#### T1A.2

##### HUMAN BRAIN RESPONSE TO VISUAL FATIGUE CAUSED BY STEREOSCOPIC DEPTH PERCEPTION

Dongchan Kim, Yong Ju Jung, Eunwoo Kim, Yong Man Ro, Hyun Wook Park, *KAIST (Korea)*

#### T1A.3

##### SUBJECTIVE EVALUATION OF TONE-MAPPING METHODS ON 3D IMAGES

Zicong Mai, Colin Dautre, Panos Nasiopoulos, Rabab Ward, *University of British Columbia (Canada)*

#### T1A.4

##### CORRESPONDENCE NORMAL DIFFERENCE: AN ALIGNED REPRESENTATION OF 3D FACES TO APPLY DISCRIMINANT ANALYSIS METHODS

Narges Mohammadzade, Dimitrios Hatzinakos, *University of Toronto (Canada)*

---

## **SESSION T1B**

### **Speech Processing and Enhancement**

Type: Regular Session

Time & Place: 9.00 – 10.30, Hall B

Chairpersons: Nuno Fonseca (*Polytechnic Institute of Leiria, Portugal*)

A. Spanias (*ASU, USA*)

---

#### **T1B.1**

##### **A PARALLEL CEPSTRAL AND SPECTRAL MODELING FOR HMM-BASED SPEECH ENHANCEMENT**

Hadi Veisi, Hossein Sameti, *Sharif University of Technology (Iran)*

#### **T1B.2**

##### **A SCALABLE FREQUENCY DOMAIN-BASED LINEAR CONVOLUTION ARCHITECTURE FOR SPEECH ENHANCEMENT**

Christelle Yemdji, *EURECOM (France)*

Moctar Mossi I., *EURECOM (France)*

Nicholas Evans, *EURECOM (France)*

Christophe Beaugeant, *Intel Mobile Communications (France)*

#### **T1B.3**

##### **SPEECH ENHANCEMENT USING SPEAKER DEPENDENT CODEBOOKS**

D. Hanumantha Rao Naidu, *Sri Sathya Sai Institute of Higher Learning (India)*

G. V. Prabhakara Rao, *Sri Sathya Sai Institute of Higher Learning (India)*

Sriram Srinivasan, *Philips Research (The Netherlands)*

#### **T1B.4**

##### **VECTOR QUANTIZATION WITH RENORMALIZED SPLITS FOR WIDEBAND SPEECH**

Miguel Arjona Ramírez, *University of São Paulo (Brazil)*

---

## SESSION T1C

### Image and Video Coding I

Type: Regular Session

Time & Place: 9.00 – 10.30, Hall C

Chairpersons: Y. Andreopoulos (*UCL, UK*)

I. Deliyannis (*Ionian U. Greece*)

---

#### T1C.1

##### A LOW-COMPLEXITY CLOSED-LOOP H.264/AVC TO QUALITY-SCALABLE SVC TRANSCODER

Sebastiaan Van Leuven, *Gent University - IBBT - Multimedia Lab (Belgium)*

Jan De Cock, *Gent University - IBBT - Multimedia Lab (Belgium)*

Glenn Van Wallendael, *Gent University - IBBT - Multimedia Lab (Belgium)*

Rik Van De Walle, *Gent University - IBBT - Multimedia Lab (Belgium)*

Rosario Garrido-Cantos, *University of Castilla-La Mancha (Spain)*

José Luis Martínez, *Complutense University (Spain)*

Pedro Cuenca, *University of Castilla-La Mancha (Spain)*

#### T1C.2

##### A MODEL-BASED ANALYSIS OF SCALABLE MULTIPLE DESCRIPTION CODING

Shahid Mahmood Satti, Nikos Deligiannis, Adrian Munteanu, Peter Schelkens, Jan Cornelis, *Vrije Universiteit Brussel (Belgium)*

#### T1C.3

##### JOINT DC COEFFICIENT BAND DECODING AND MOTION ESTIMATION IN WYNER-ZIV VIDEO CODING

Nikos Deligiannis, *Vrije Universiteit Brussel-IBBT (Belgium)*

Marc Jacobs, *Vrije Universiteit Brussel-IBBT (Belgium)*

Joeri Barbarien, *Vrije Universiteit Brussel-IBBT (Belgium)*

Frederik Verbist, *Vrije Universiteit Brussel-IBBT (Belgium)*

Jozef Skorupa, *Ghent University-IBBT (Belgium)*

Rik Van De Walle, *Ghent University-IBBT (Belgium)*

Athanassios Skodras, *Hellenic Open University (Greece)*

Peter Schelkens, *Vrije Universiteit Brussel-IBBT (Belgium)*

Adrian Munteanu, *Vrije Universiteit Brussel-IBBT (Belgium)*

#### T1C.4

##### AN EFFICIENT MODE PRE-SELECTION ALGORITHM FOR H.264/AVC SCALABLE VIDEO EXTENSION FRACTIONAL MOTION ESTIMATION

Gwo-Long Li, Tian-Sheuan Chang, *National Chiao-Tung University (Taiwan)*

---

## **SESSION T2A**

### **Intelligent Digital Audio Effects**

Type: Special Session

Time & Place: 11.00 – 13.00, Hall A

Chairperson & Organiser: Udo Zoelzer (*Helmut Schmidt U., Germany*)

---

#### **T2A.1**

##### **CONCATENATIVE SINGING VOICE RESYNTHESIS**

Nuno Fonseca, *CIIC/ESTG/Polytechnic Institute of Leiria (Portugal)*

Anibal Ferreira, *University of Porto (Portugal)*

Ana Paula Rocha, *LIACC/FEUP/University of Porto (Portugal)*

#### **T2A.2**

##### **INTELLIGENT SYSTEMS FOR MIXING MULTICHANNEL AUDIO**

Joshua D. Reiss, *Centre for Digital Music, EECS, Queen Mary University of London (U.K)*

#### **T2A.3**

##### **A SYSTEM FOR SYNTHESIS OF BACKING VOCALS BY INTELLIGENT HARMONIZATION**

Adrian Von Dem Knesebeck, Sebastian Kraft, Udo Zölzer, *Helmut Schmidt University (Germany)*

#### **T2A.4**

##### **PREDICTING THE PERCEIVED LEVEL OF LATE REVERBERATION USING COMPUTATIONAL MODELS OF LOUDNESS**

Christian Uhle, Jouni Paulus, Jürgen Herre, *Fraunhofer IIS (Germany)*

#### **T2A.5**

##### **UPMIXING FROM MONO - A SOURCE SEPARATION APPROACH**

Derry Fitzgerald, *Dublin Institute of Technology (Ireland)*

#### **T2A.6**

##### **SPATIAL ENHANCEMENT FOR IMMERSIVE STEREO AUDIO APPLICATIONS**

Andreas Floros, *Ionian University (Greece)*

Nicolas - Alexander Tatlas, *Technological Educational Institute of Piraeus (Greece)*



---

## SESSION T2B

### Signal Processing for Communications II

Type: Regular Session

Time & Place: 11.00 – 13.00, Hall B

Chairpersons: D. Pados (*SUNY, USA*) – L. Ros (*Gipsa-Lab, France*)

---

#### T2B.1

##### COMPARISON OF DISTRIBUTED SPACE FREQUENCY BLOCK CODING SCHEMES IN BROADBAND MULTI-NODE COOPERATIVE RELAY NETWORKS WITH PAPR REDUCTION

Masoud Eddaghel, Jonathon Chambers, *Loughborough University (U.K.)*

#### T2B.2

##### IMPROVED TOMLINSON-HARASHIMA PRECODING WITH INTERFERENCE OPTIMIZATION

Christos Masouros, Mathini Sellathurai, Tharm Ratnarajah, *Queen's University Belfast (U.K.)*

#### T2B.3

##### EFFICIENT BURST ERROR CORRECTION METHOD FOR APPLICATION IN LOW FREQUENCY CHANNELS AND DATA STORAGE UNITS

Nikolaos Bardis, *Hellenic Army Academy (Greece)*

Nikolaos Doukas, *Hellenic Army Academy (Greece)*

Olexander Markovskyy, *National Technical University of Ukraine (Ukraine)*

#### T2B.4

##### THREE-DIMENSIONAL SPATIAL CORRELATION CHARACTERISTICS OF CONCENTRIC RING ANTENNA ARRAY SYSTEMS

Ju-Hong Lee, *National Taiwan University (Taiwan)*

Shou-I Li, *National Taiwan University (Taiwan)*

#### T2B.5

##### DIMENSIONALITY REDUCTION DESIGN FOR DISTRIBUTED ESTIMATION IN CERTAIN INHOMOGENEOUS SCENARIOS

Jun Fang, Hongbin Li, *Stevens Institute of Technology (U.S.A.)*

#### T2B.6

##### ROBUST ADAPTIVE BEAMFORMING USING WORST-CASE OPTIMIZATION WITH CONSTRAINED CONSTANT MODULUS CRITERION

Lukas Landau, *Ilmenau University of Technology (Germany)*

Rodrigo C. De Lamare, *University of York (U.K.)*

Martin Haardt, *Ilmenau University of Technology (Germany)*

---

## SESSION T2C

### Biomedical Image Processing

Type: Regular Session

Time & Place: 11.00 – 13.00, Hall C

Chairpersons: C. Stamoulis (*Harvard Med. School, USA*)

A. Skodras (*TUC, Technical U. Greece*)

---

#### T2C.1

##### STATISTICAL ANALYSIS OF THE IMPACT OF DISTORTION (CORRECTION) ON AN AUTOMATED CLASSIFICATION OF CELIAC DISEASE

Michael Liedlgruber, *Salzburg University (Austria)*

Andreas Uhl, *Salzburg University (Austria)*

Andreas Vécsei, *St. Anna Children's Hospital, Vienna (Austria)*

#### T2C.2

##### CELL NUCLEI SEGMENTATION BY LEARNING A PHYSICALLY BASED DEFORMABLE MODEL

Marina Plissiti, Christophoros Nikou, *University of Ioannina (Greece)*

#### T2C.3

##### VARIATIONAL LEVEL SET METHOD WITH SHAPE CONSTRAINT AND APPLICATION TO OEDEMA CARDIAC MAGNETIC RESONANCE IMAGE

Kushsairy Kadir, *University of Strathclyde (U.K.)*

Hao Gao, *University of Strathclyde (U.K.)*

Alex Payne, *University of Glasgow (U.K.)*

Colin Berry, *University of Glasgow (U.K.)*

John Soraghan, *University of Strathclyde (U.K.)*

#### T2C.4

##### AUTOMATIC SEGMENTATION OF PULMONARY ARTERY (PA) IN 3D PULMONARY CTA IMAGES

Yousef Ebrahimdoost, *Kingston University (U.K.)*

Salah D. Qanadli, *University of Lausanne (Switzerland)*

Alireza Nikravan, *Kingston University (U.K.)*

Tim J. Ellis, *Kingston University (U.K.)*

Zahra Falah Shojaee, *Brunel University (U.K.)*

Jamshid Dehmeski, *Kingston University (U.K.)*

#### T2C.5

##### SPOT DETECTION AND SEGMENTATION IN 2D GEL ELECTROPHORESIS IMAGES

Eirini Kostopoulou, *National and Kapodistrian University of Athens (Greece)*

Eleni Zacharia, *National and Kapodistrian University of Athens (Greece)*

Dimitris Maroulis, *National and Kapodistrian University of Athens (Greece)*

#### T2C.6

##### ESTIMATION OF DIRECTIONAL BRAIN ANISOTROPY FROM EEG SIGNALS USING THE MELLIN TRANSFORM AND IMPLICATIONS FOR SOURCE LOCALIZATION

Catherine Stamoulis, Bernard Chang, *Harvard Medical School (U.S.A.)*

---

PLENARY 3

**BINAURAL SIGNAL PROCESSING**

Jens Blauert (*Ruhr-University Bochum (RUB), Germany*)

---

**SESSION T3A**

**Signal and Image Restoration**

Type: Special Session

Time & Place: 15.00 – 17.00, Hall A

Chairpersons & Organisers: Michel Barlaud and Eric Debreuve (*U. Nice-Sophia Antipolis*)

---

**T3A.1 WITHDRAWN**

**T3A.2**

**THE BIDIMENSIONAL EMPIRICAL MODE DECOMPOSITION WITH 2D-DWT FOR GAUSSIAN IMAGE DENOISING**

Faten Ben Arfia, *Computer Engineering System design Laboratory (Tunisia)*

Sabri Abdelouahed, *Laboratory of Electronics Signals, Systems and Computers (Morocco)*

Mohamed Ben Messaoud, *Laboratoire d'électronique et des technologies de l'information (Tunisia)*

**T3A.3**

**EXEMPLAR-BASED IMAGE INPAINTING WITH PATCH SHIFTING SCHEME**

Sarawut Tae-O-SotAkinori Nishihara, *Tokyo Institute of Technology (Japan)*

**T3A.4**

**COLOR DEMOSAICING WITH CONTOUR STENCILS**

Pascal Getreuer, *CMLA, ENS Cachan (France)*

**T3A.5**

**A COMBINATION OF TWO NLMS FILTERS IN AN ADAPTIVE LINE ENHANCER**

Tõnu Trump, *Tallinn University of Technology (Estonia)*

---

## **SESSION T3B**

### **Advanced SAR Processing Techniques**

Type: Special Session

Time & Place: 15.00 – 17.00, Hall B

Chairpersons & Organisers: Giorgio Franceschetti and Daniele Riccio (U. Naples, Italy)

---

#### **T3B.1**

##### **ULTRANARROW-BAND SYNTHETIC APERTURE RADAR IMAGING FOR ARBITRARY FLIGHT TRAJECTORIES**

Ling Wang, *Nanjing University of Aeronautics and Astronautics (China)*

Birsen Yazici, *Rensselaer Polytechnic Institute (U.S.A.)*

#### **T3B.2**

##### **SPARSE RECONSTRUCTION TECHNIQUES FOR SAR TOMOGRAPHY**

Xiao Xiang Zhu, *Lehrstuhl für Methodik der Fernerkundung, Technische Universität München (Germany)*

Richard Bamler, *Remote Sensing Technology Institute, German Aerospace, Center (DLR) & Lehrstuhl für Methodik der Fernerkundung, Technische Universität München (Germany)*

#### **T3B.3**

##### **POLARIMETRIC SAR IMAGES SEGMENTATION INCORPORATING TEXTURE FEATURES**

Assia Kourgli, *USTHB, Faculté d'Electronique et d'Informatique (Algeria)*

Youcef Oukil, *USTHB, Faculté des Sciences de la Terre, de Géographie et de l'Aménagement du Territoire (Algeria)*

Azziz Hirche, *USTHB, Faculté de Biologie (Algeria)*

Mounira Ouarzeddine, *USTHB, Faculté d'Electronique et d'Informatique (Algeria)*

#### **T3B.4**

##### **SPECTRAL PROCESSING FOR THE EXTRACTION OF FRACTAL PARAMETERS FROM SAR DATA**

Gerardo Di Martino, Giorgio Franceschetti, Daniele Riccio, Ivana Zinno, *Università di Napoli Federico II (Italy)*

#### **T3B.5**

##### **BISTATIC SAR SIMULATION: TIME AND FREQUENCY DOMAIN APPROACHES**

Giorgio Franceschetti, Antonio Iodice, Antonio Natale, Daniele Riccio, *Università di Napoli Federico II (Italy)*

---

## SESSION T3C

### Architectures and Implementations II

Type: Regular Session

Time & Place: 15.00 – 17.00, Hall C

Chairpersons: A. Kakarountas (*TEI Ionian Islands, Greece*)

R. De Lamare (*U. York, UK*)

---

#### T3C.1

##### **HIGH-THROUGHPUT ASIC IMPLEMENTATION OF AN ENCRYPTION CORE FOR SECURING SHARED STORAGE MEDIA**

Athanasios Kakarountas, *Technological Educational Institute of Ionian Islands (Greece)*

Epameinontas Hatzidimitriou, *University of Patras (Greece)*

Athanasios Milidonis, *Technological Educational Institute of Athens (Greece)*

#### T3C.2

##### **A WIENER MODEL FOR MEMORY HIGH POWER AMPLIFIERS USING B-SPLINE FUNCTION APPROXIMATION**

Xia Hong, Yu Gong, Sheng Chen, *University of Reading (U.K.)*

#### T3C.3

##### **THROUGHPUT-PRECISION COMPUTATION FOR GENERIC MATRIX MULTIPLICATION: TOWARD A COMPUTATION CHANNEL FOR HIGH-PERFORMANCE DIGITAL SIGNAL PROCESSING**

Anastasia Davide, Yiannis Andreopoulos, *University College London (U.K.)*

#### T3C.4

##### **A SYNDROME-BASED LDPC DECODER WITH VERY LOW ERROR FLOOR**

Ioannis Tsatsaragkos, Nikolaos Kanistras, Vassilis Paliouras, *University of Patras (Greece)*

#### T3C.5

##### **MULTIPLE LDPC DECODER OF VERY LOW BIT-ERROR RATE**

Ioannis Tsatsaragkos, Nikolaos Kanistras, Vassilis Paliouras, *University of Patras (Greece)*

#### T3C.6

##### **NOVEL INTENTIONAL PUNCTURING SCHEMES FOR FINITE-LENGTH IRREGULAR LDPC CODES**

Jingjing Liu, Rodrigo De Lamare, *University of York (U.K.)*

---

## **SESSION T4A**

### **Biologically-inspired Digital Signal Processing**

Type: Special Session

Time & Place: 17.30 – 19.00, Hall A

Chairperson: Elias Aboutanios, (*U. New South Wales, Australia*)

Organiser: Steve McLaughlin (*U. Edinburgh, UK*)

---

#### **T4A.1**

##### **AN INSTANTANEOUS FREQUENCY BASED ALGORITHM FOR THE PROCESSING OF NMR DATA**

Elias Aboutanios, *University of New South Wales (Australia)*

Yannis Kopsinis, *University of Athens (Greece)*

#### **T4A.2**

##### **BIO-INSPIRED SONAR**

Yan Pailhas, Chris Capus, Keith Brown, *Heriot Watt University (U.K.)*

#### **T4A.3**

##### **EXTRACTION OF ECG FROM SINGLE CHANNEL EMG SIGNAL USING CONSTRAINED SINGULAR SPECTRUM ANALYSIS**

Saeid Sanei, Ahmadreza Hosseini-Yazdi, *University of Surrey (U.K.)*

#### **T4A.4**

##### **ANALYTE DETECTION USING AN ION-CHANNEL SENSOR ARRAY**

Prasanna Sattigeri, Karthikeyan Ramamurthy, Jayaraman Jayaraman Thiagarajan, Andreas Spanias, Michael Goryll, Trevor Thornton, *Arizona State University (U.S.A.)*

---

## SESSION T4B

### Image Processing Applications

Type: Regular Session

Time & Place: 17.30 – 19.00, Hall B

Chairpersons: P. Agathoklis (*U. Victoria, Canada*)

D. Maroulis (*U. Athens, Greece*)

---

#### T4B.1

##### CUDA ACCELERATED ILLUMINATION PREPROCESSING ON GPUS

Nicholas Vandal, Marios Savvides, *Carnegie Mellon University (U.S.A.)*

#### T4B.2

##### ADVANCED STATISTICAL AND ADAPTIVE THRESHOLD TECHNIQUES FOR MOVING OBJECT DETECTION AND SEGMENTATION

Lakis Christodoulou, *Cyprus University of Technology (Cyprus)*

Takis Kasparis, *Cyprus University of Technology (Cyprus)*

Oge Marques, *Florida Atlantic University (U.S.A.)*

#### T4B.3

##### SEAMLESS STITCHING OF IMAGES BASED ON A HAAR WAVELET 2D INTEGRATION METHOD

Ioana Sevcenco, Peter Hampton and Pan Agathoklis, *University of Victoria (Canada)*

#### T4B.4

##### A NEW APPROACH FOR ANCIENT INSCRIPTIONS' WRITER IDENTIFICATION

Panayiotis Rousopoulos, *National Technical University of Athens (Greece)*

Michail Panagopoulos, *Ionian University (Greece)*

Constantin Papaodysseus, *National Technical University of Athens (Greece)*

Fivi Panopoulou, *National Technical University of Athens (Greece)*

Dimitris Arabadjis, *National Technical University of Athens (Greece)*

Stephen Tracy, *Institute of Advanced Research, Princeton (U.S.A.)*

Fotios Giannopoulos, *National Technical University of Athens (Greece)*

Solomon Zannos, *National Technical University of Athens (Greece)*

---

## **SESSION T4C**

### **Signal Processing for Cognitive Radio**

Type: Special Session

Time & Place: 17.30 – 19.00, Hall C

Chairperson: Sergio Barbarossa (*U. Rome, Italy*)

---

#### **T4C.1**

##### **CENSORED TRUNCATED SEQUENTIAL SPECTRUM SENSING FOR COGNITIVE RADIO NETWORKS**

Sina Maleki, Geert Leus, *TU Delft (The Netherlands)*

#### **T4C.2**

##### **LONG-TERM ENERGY CONSTRAINTS AND POWER CONTROL IN COGNITIVE RADIO NETWORKS**

Francois Meriaux, *LSS (France)*

Yezekael Hayel, *Lab. d'Informatique d'Avignon (France)*

Samson Lasaulce, *CNRS / Supélec (France)*

Andrey GarnaeV, *V.I.Zubov Research Institute of Computational Mathematics & Control Processes (Russian Federation)*

#### **T4C.3**

##### **ADMISSION AND POWER CONTROL FOR COGNITIVE RADIO NETWORKS BY SEQUENTIAL GEOMETRIC PROGRAMMING**

Emiliano Dall'Anese, Seung-Jun Kim, Georgios B. Giannakis, *University of Minnesota (U.S.A.)*

#### **T4C.4**

##### **A BIO-INSPIRED FAST SWARMING ALGORITHM FOR DYNAMIC RADIO ACCESS**

Paolo Di Lorenzo, *Sapienza University of Rome, DIET (Italy)*

Sergio Barbarossa, *Sapienza University of Rome, DIET (Italy)*

Ali H. Sayed, *University of California, Los Angeles (U.S.A.)*



# Friday - 8 July 2011

---

## SESSION F1A

### Sparsity aware signal processing I

Type: Special Session

Time & Place: 9.00 – 10.30, Hall A

Chairpersons & Organisers: George Giannakis and Daniele Angelosante (*U. Minnesota, U.S.A.*)

---

#### F1A.1

##### MAXIMUM A POSTERIORI ESTIMATION APPROACH TO SPARSE RECOVERY

Md Mashud Hyder, Kaushik Mahata, *University of Newcastle (Australia)*

#### F1A.2

##### MULTI-COSET SAMPLING FOR POWER SPECTRUM BLIND SENSING

Dyonisius Dony Ariananda, Geert Leus, *Delft University of Technology (The Netherlands)*

Zhi Tian, *Michigan Technological University (U.S.A.)*

#### F1A.3

##### REDUCED COMPLEXITY ONLINE SPARSE SIGNAL RECONSTRUCTION USING PROJECTIONS ONTO WEIGHTED L1 BALLS

Yannis Kopsinis, *University of Athens (Greece)*

Konstantinos Slavakis, *University of Peloponnese (Greece)*

SergiosTheodoridis, *University of Athens (Greece)*

Steve McLaughlin, *University of Edinburgh (U.K.)*

#### F1A.4

##### MOTION COMPENSATION AS SPARSITY-AWARE DECODING IN COMPRESSIVE VIDEO STREAMING

Ying Liu, Ming Li, Kanke Gao, Dimitris A. Pados, *State University of New York at Buffalo (U.S.A.)*

---

## **SESSION F1B**

### **Biometrics**

Type: Regular Session

Time & Place: 9.00 – 10.30, Hall B

Chairpersons: S. Kollias (*NTUA, Greece*) – M. Savvides (*CMU, USA*)

---

#### **F1B.1**

##### **TOWARDS ROBUST BIOHASH GENERATION FOR DYNAMIC HANDWRITING USING FEATURE SELECTION**

Andrey Makrushin, Tobias Scheidat, Claus Vielhauer, *Otto-von-Guericke University of Magdeburg (Germany)*

#### **F1B.2**

##### **INFORMATION THEORETIC CAPACITY ANALYSIS FOR BIOMETRIC HASHING METHODS**

Cagatay Karabat, *Tubitak Bilgem (Turkey)*

Hakan Erdogan, *Sabanci University (Turkey)*

Mehmet Kivanc Mihcak, *Bogazici University (Turkey)*

#### **F1B.3**

##### **FEASIBILITY STUDY OF PHOTOPLETHYSMOGRAPHIC SIGNALS FOR BIOMETRIC IDENTIFICATION**

Petros Spachos, Jiexin Gao, Dimitrios Hatzinakos, *University of Toronto (Canada)*

#### **F1B.4**

##### **ROBUST PERIOCULAR BIOMETRIC RECOGNITION USING MULTI-LEVEL FUSION OF VARIOUS LOCAL FEATURE EXTRACTION TECHNIQUES**

Felix Juefei-Xu, Miriam Cha, Marios Savvides, *Carnegie Mellon University (U.S.A.)*

Saad Bedros, Jana Trojanova, *Honeywell (U.S.A.)*

---

## SESSION F1C

### Image and Video Coding II

Type: Regular Session

Time & Place: 9.00 – 10.30, Hall C

Chairpersons: J. Barbarien (*VUB, Belgium*) – A. Gotchev (*TUT, Finland*)

---

#### F1C.1

##### A PROBABILISTIC PREDICTOR FOR SIDE INFORMATION GENERATION IN DISTRIBUTED VIDEO CODING

Frederik Verbist, Nikos Deligiannis, Marc Jacobs, Joeri Barbarien, Peter Schelkens, Jan Cornelis, Adrian Munteanu, *Vrije Universiteit Brussel-IBBT (Belgium)*

#### F1C.2

##### A FACE IMAGE HASHING METHOD BASED ON OPTIMAL LINEAR TRANSFORM UNDER COLORED GAUSSIAN NOISE ASSUMPTION

Cagatay Karabat, *TUBITAK BILGEM (Turkey)*

Hakan Erdogan, *SABANCI UNIVERSITY (Turkey)*

Mehmet Kivanc Mihcak, *BOGAZICI UNIVERSITY (Turkey)*

#### F1C.3

##### CHROMA INTERPOLATION USING WINDOWED KRIGING FOR COLOR-IMAGE COMPRESSION-BY-NETWORK WITH GUARANTEED DELAY

Mauritz Panggabean, Leif Arne Rønningen, *NTNU (Norway)*

#### F1C.4

##### EDGE-BASED PREDICTIVE SCANNING SCHEME OF DCT COEFFICIENTS FOR INTER-FRAME VIDEO CODING

Xingyu Zhang, Oscar Au, Feng Zou, Run Cha, Jiali Li, *HKUST (Hong Kong)*

---

## SESSION F2A

### Signal Processing for Radar

Type: Special Session

Time & Place: 11.00 – 13.00, Hall A

Chairpersons and Organisers: Marco Lops (*U. Cassino, Italy*) and Fulvio Gini (*U. Pisa, Italy*)

---

#### F2A.1

##### OPTIMAL WAVEFORM DESIGN FOR MIMO RADAR WITH LOW PROBABILITY OF INTERCEPTION

Songbai Wang, Jian Wang, Jianshu Chen, *Xiuming Shan, Tsinghua University (China)*

#### F2A.2

##### A JOINT SPARSE SIGNAL REPRESENTATION PERSPECTIVE FOR TARGET DETECTION USING BISTATIC MIMO RADAR SYSTEM

Md Mashud Hyder, Kaushik Mahata, *University of Newcastle (Australia)*

#### F2A.3

##### WALL CLUTTER MITIGATION BASED ON EIGEN-ANALYSIS IN THROUGH-THE-WALL RADAR IMAGING

Fok Hing Chi Tivive, *University of Wollongong (Australia)*

Moeness G. Amin, *Villanova University (U.S.A.)*

Abdesselam Bouzerdoun, *University of Wollongong (Australia)*

#### F2A.4

##### MIN-MAX WAVEFORM DESIGN FOR MIMO RADARS UNDER UNKNOWN CORRELATION OF THE TARGET SCATTERING

Emanuele Grossi, Marco Lops, Luca Venturino, *Universita' degli Studi di Cassino (Italy)*

#### F2A.5

##### SPECTRAL ESTIMATION OF MIGRATING TARGETS IN WIDEBAND RADAR

Francois Deudon, Stéphanie Bidon, Olivier Besson, *University of Toulouse – ISAE (France)*

Jean-Yves Tournet, *University of Toulouse - IRIT/ENSEEIH (France)*

#### F2A.6

##### ADAPTIVE RADAR DETECTION AND LOCALIZATION OF A POINT-LIKE TARGET IN HOMOGENEOUS ENVIRONMENT

Giuseppe Ricci, Danilo Orlando, *University of Salento (Italy)*

---

## SESSION F2B

### Speech and audio signal processing

Type: Regular Session

Time & Place: 11.00 – 13.00, Hall B

Chairpersons: J. Mourjopoulos (*U. Patras, Greece*)

J. Reiss (*QMUL, UK*)

---

#### F2B.1

##### **BINAURAL SOUND SOURCE LOCALIZATION IN THE PRESENCE OF REVERBERATION**

Cecilia Zannini, Raffaele Parisi, Aurelio Uncini, *University of Rome "La Sapienza" (Italy)*

#### F2B.2

##### **COMPARISON OF HAMMERSTEIN AND WIENER SYSTEMS FOR NONLINEAR ACOUSTIC ECHO CANCELERS IN REVERBERANT ENVIRONMENTS**

Michele Scarpiniti, Danilo Comminiello, Raffaele Parisi, Aurelio Uncini, *"Sapienza" University of Rome (Italy)*

#### F2B.3

##### **THE ROLE OF VOICE ACTIVITY DETECTION IN FORENSIC SPEAKER VERIFICATION**

Francesco Beritelli, Andrea Spadaccini, *University of Catania (Italy)*

#### F2B.4

##### **SINGLE CHANNEL SPEECH MUSIC SEPARATION USING NONNEGATIVE MATRIX FACTORIZATION AND SPECTRAL MASKS**

Emad M. Grais and Hakan Erdogan, *Sabanci University (Turkey)*

#### F2B.5

##### **SPEECH DEREVERBERATION BASED ON A RECORDED HANDCLAP**

Alexandros Tsilfidis, Eleftheria Georganti, Elias Kokkinis, John Mourjopoulos, *University of Patras (Greece)*

#### F2B.6

##### **MODELING OF A 'WHAT YOU HEAR IS WHAT YOU SPEAK' (WYHIWYS) DEVICE**

Karthik Mahesh Varadarajan, *Vienna University of Technology (Austria)*

---

## SESSION F2C

### Watermarking and Forensics

Type: Regular Session

Time & Place: 11.00 – 13.00, Hall C

Chairpersons: C. Vielhauer (*Brandenburg U. Applied Sciences, Germany*)

B. Cornelis (*ETRO VUB, Belgium*)

---

#### F2C.1

##### **DISTORTION MEASURE OF WATERMARKING 2D VECTOR MAPS IN THE MESH-SPECTRAL DOMAIN**

Andrey Davydov, Anton Kovalev, *St. Petersburg State University (Russian Federation)*

Konstantin Izyurov, *University of Geneva & St. Petersburg State University (Russian Federation)*

#### F2C.2

##### **REVERSIBLE WATERMARKING WITH DIGITAL SIGNATURE CHAINING FOR PRIVACY PROTECTION OF OPTICAL CONTACTLESS CAPTURED BIOMETRIC FINGERPRINTS – A CAPACITY STUDY FOR FORENSIC APPROACHES**

Ronny Merkel, Christian Kraetzer, Jana Dittmann, *Otto-von-Guericke-University Magdeburg (Germany)*

Claus Vielhauer, *Brandenburg University of Applied Sciences (Germany)*

#### F2C.3

##### **PRNU-BASED DETECTION OF SMALL-SIZE IMAGE FORGERIES**

Giovanni Chierchia, Sara Parrilli, Giovanni Poggi, Carlo Sansone, Luisa Verdoliva, *University of Naples Federico II (Italy)*

#### F2C.4

##### **A HIGH CAPACITY REVERSIBLE MULTIPLE WATERMARKING SCHEME FOR MEDICAL IMAGES**

Behrang Mehrbany Irany, Xin Cindy Guo, Dimitrios Hatzinakos, *University of Toronto (Canada)*

#### F2C.5

##### **BENCHMARKING CONTACT-LESS SURFACE MEASUREMENT DEVICES FOR FINGERPRINT ACQUISITION IN FORENSIC INVESTIGATIONS: RESULTS FOR A DIFFERENTIAL SCAN APPROACH WITH A CHROMATIC WHITE LIGHT SENSOR**

Mario Hildebrandt, Ronny Merkel, Marcus Leich, Stefan Kiltz, Jana Dittmann, Claus Vielhauer,

*Otto-von-Guericke-University Magdeburg (Germany)*

#### F2C.6

##### **BLIND COPY MOVE IMAGE FORGERY DETECTION USING DYADIC WAVELET TRANSFORM**

Ghulam Muhammad, Muhammad Hussain, Khalid Khawaji, *King Saud University (Saudi Arabia)*

George Bebis, *University of Nevada (U.S.A.)*

---

## PLENARY 4

### SIGNAL PROCESSING CHALLENGES IN SATELITE NETWORKS

Björn Ottersten (*Royal Institute of Technology, Stockholm (KTH)*)

---

#### SESSION F3A

##### Multiview and 3D Video Coding

Type: Special Session

Time & Place: 15.00 – 17.00, Hall A

Chairpersons and Organisers: Marco Cagnazzo and B. Pesquet-Popescu (*Telecom-ParisTech, France*)

---

##### F3A.1

###### SUPPORT VECTOR MACHINE BASED FUSION FOR MULTI-VIEW DISTRIBUTED VIDEO CODING

Frederic Dufaux, *Telecom ParisTech (France)*

##### F3A.2

###### GLOBAL VIEW AND DEPTH FORMAT FOR FTV

Takashi Ishibashi, Tomohiro Yendo, Mehrdad Panahpour Tehrani, *Nagoya University (Japan)*

Toshiaki Fujii, *Tokyo Institute of Technology (Japan)*

Masayuki Tanimoto, *Nagoya University (Japan)*

##### F3A.3

###### FLOATING POLYGON SOUP

Thomas Collet, *IETR / INSA (France)*

Luce Morin, *IETR / INSA (France)*

Stéphane Pateux, *Orange Labs (France)*

Claude Labit, *INRIA Rennes Bretagne atlantique (France)*

##### F3A.4

###### VIEW AND RATE SCALABLE MULTIVIEW IMAGE CODING WITH DEPTH-IMAGE-BASED RENDERING

Vladan Velisavljevic, *Deutsche Telekom Laboratories (Germany)*

Vladimir Stankovic, *University of Strathclyde (U.K.)*

Jacob Chakareski, *Ecole Polytechnique Federale de Lausanne (Switzerland)*

Gene Cheung, *National Institute of Informatics (Japan)*

##### F3A.5

###### SOURCE AND CHANNEL CODING RECIPES FOR MOBILE 3D TELEVISION

Atanas Gotchev, *Tampere University of Technology (Finland)*

Dominik Strohmeier, *Ilmenau University of Technology (Germany)*

Karsten Mueller, *Fraunhofer HHI (Germany)*

Gozde BozdagiAkar, *Middle East Technical University (Turkey)*

Venceslav Petrov, *MM Solutions AD (Bulgaria)*

##### F3A.6

###### DEPTH MAP CODING BY DENSE DISPARITY ESTIMATION FOR MVD COMPRESSION

Marco Cagnazzo and Béatrice Pesquet-Popescu, *Institut TELECOM, TELECOM-ParisTech (France)*

---

## **SESSION F3B**

### **Filtering and Spectral Estimation**

Type: Regular Session

Time & Place: 15.00 – 17.00, Hall B

Chairpersons: T. Trump (*Tallinn U. Technology, Estonia*)

T. Kida (*Tokyo Inst. Technology, Japan*)

---

#### **F3B.1**

##### **A NOVEL SUPER-RESOLUTION MUSIC-BASED PSEUDO-BISPECTRUM**

Walid Zgallai, *University of West London (U.K.)*

#### **F3B.2**

##### **FAST GENERALIZED SLIDING WINDOW RLS RECURSIONS FOR IIR RECURRENCE RELATED BASIS FUNCTIONS**

Ricardo Merched, *Universidade Federal do Rio de Janeiro (Brazil)*

#### **F3B.3**

##### **HIGH-RESOLUTION ESTIMATION OF MULTIDIMENSIONAL SPECTRA FROM UNEVENLY SAMPLED DATA**

Naveed Butt, *Center for Mathematical Sciences, Lund University (Sweden)*

Andreas Jakobsson, *Lund University (Sweden)*

#### **F3B.4**

##### **EFFICIENT IMPLEMENTATION OF THE IAA-BASED MAGNITUDE SQUARED COHERENCE ESTIMATOR**

Kostas Angelopoulos, *George-Othon Glentis, University of Peloponnese (Greece)*

Andreas Jakobsson, *Lund University (Sweden)*

#### **F3B.5**

##### **THE OPTIMUM RECONSTRUCTION OF VECTOR SIGNALS USING MULTI-INPUT MULTI-OUTPUT FILTER BANKS**

Yuichi Kida, *Ohu University (Japan)*

Takuro Kida, *Tokyo Institute of Technology (Japan)*



---

## SESSION F3C

### Image Analysis and Enhancement

Type: Regular Session

Time & Place: 15.00 – 17.00, Hall C

Chairpersons: J. Cornelis (*VUB, Belgium*)

V. Chatzis (*TEI Kavala, Greece*)

---

#### F3C.1

##### A 2D BIVARIATE EMD ALGORITHM FOR IMAGE FUSION

Foteini Agrafioti, Jiexin Gao, Hoda Mohammadzade, Dimitrios Hatzinakos, *University of Toronto (Canada)*

#### F3C.2

##### A NOVEL WORKSPACE FOR IMAGE CLUSTERING

Michail Krinidis, Stelios Krinidis, Vassilios Chatzis, *Technological Institute of Kavala (Greece)*

#### F3C.3

##### IMPROVING TEXTURES DISCRIMINATION IN THE LOCAL BINARY PATTERNS TECHNIQUE BY USING SYMMETRY & GROUP THEORY

Sergio Alejandro Orjuela Vargas, Rolando Quinones, Benhur Ortiz Jaramillo, Filip Rooms, Robain De Keiser, Wilfried Philips, *Ghent University (Belgium)*

#### F3C.4

##### MORPHOLOGICAL WAVELETS FOR 3D VOLUME IMAGE DECORRELATION

Dragana Sandić-Stanković, *IRITEL AD BEOGRAD (Serbia)*

#### F3C.5

##### ALTERNATING LINE HIGH DYNAMIC RANGE IMAGING

Seungki Cho, Hyun Seok Hong, Heechul Han, Yanglim Choi, *Samsung Electronics (Korea)*

#### F3C.6

##### RESOLUTION ENHANCEMENT BASED ON WAVELET ATOMIC FUNCTIONS

Volodymyr Ponomaryov, Francisco Gomeztagle Supelveda, *National Polytechnic Institute of Mexico (Mexico)*  
Victor Kravchenko, *Russian Academy of Sciences (Russian Federation)*

---

## SESSION F4A

### Sparsity aware signal processing II

Type: Special Session

Time & Place: 17.30 – 19.00, Hall A

Chairpersons and Organisers: George Giannakis and Daniele Angelosante (*U. Minnesota, U.S.A.*)

---

#### F4A.1

##### GROUP LASSOING CHANGE-POINTS IN PIECEWISE-STATIONARY AR SIGNALS

Daniele Angelosante, *ABB Schweiz (Switzerland)*

Georgios B. Giannakis, *University of Minnesota (U.S.A.)*

#### F4A.2

##### COMPRESSED CHANNEL SENSING : IS THE RESTRICTED ISOMETRY PROPERTY THE RIGHT METRIC?

Anna Scaglione, Xiao Li, *University of California Davis (U.S.A.)*

#### F4A.3

##### ENERGY PRESERVING MATCHING OF SENSOR NETWORK TOPOLOGY TO DEPENDENCY GRAPH OF THE OBSERVED FIELD

Stefania Sardellitti, Sergio Barbarossa, *University of Rome La Sapienza (Italy)*

#### F4A.4

##### BLIND IDENTIFICATION OF SPARSE CHANNELS AND SYMBOL DETECTION VIA THE EM ALGORITHM

Gerasimos Mileounis, Nicholas Kalouptsidis, *University of Athens (Greece)*

Behdash Babadi, Vahid Tarokh, *Harvard University (U.S.A.)*

#### F4A.5

##### DETERMINISTIC PILOT SEQUENCES FOR SPARSE CHANNEL ESTIMATION IN OFDM SYSTEMS

Lorne Applebaum, *Princeton University (U.S.A.)*

Waheed Bajwa, *Duke University (U.S.A.)*

Robert Calderbank, *Princeton University (U.S.A.)*

Jarvis Haupt, *University of Minnesota (U.S.A.)*

Robert Nowak, *University of Wisconsin–Madison (U.S.A.)*

---

## **SESSION F4B**

### **Biomedical Signal Processing**

Type: Regular Session

Time & Place: 17.30 – 19.00, Hall B

Chairpersons: A. Giannakoulopoulos (*Ionian U., Greece*)

W. Zgallai (*U. West London, UK*)

---

#### **F4B.1**

##### **A PLOYCOHERENCE-BASED ECG SIGNAL NON-LINEARITY DETECTOR**

Walid Zgallai, *University of West London (U.K.)*

#### **F4B.2**

##### **MUSIC PSEUDO-BISPECTRUM DETECTS ECG ISCHAEMIA**

Walid Zgallai, *University of West London (U.K.)*

#### **F4B.3**

##### **AN ENHANCED EMD ALGORITHM FOR ECG SIGNAL PROCESSING**

Foteini Agrafioti, Dimitrios Hatzinakos, *University of Toronto (Canada)*

#### **F4B.4**

##### **COMPUTATION TIME STUDY IN BIOMEDICAL SIGNAL PROCESSING WITH EMPIRICAL MODE DECOMPOSITION: THE CASE OF ELECTROCARDIOGRAM**

Alexandros Karagiannis, Philippos Constantinou, *National Technical University of Athens (Greece)*

---

## SESSION F4C

### Signal Processing Applications

Type: Regular Session

Time & Place: 17.30 – 19.00, Hall C

Chairpersons: M. Panagopoulos (*Ionian U., Greece*)

I. Kyprianidis (*AUTH, Greece*)

---

#### F4C.1

##### AUGMENTING VIRTUAL-REALITY ENVIRONMENTS WITH SOCIAL-SIGNAL BASED MUSIC CONTENT

Ioannis Karydis, *Ionian University (Greece)*

Ioannis Deliyannis, Andreas Floros, *Ionian University (Greece)*

#### F4C.2

##### AN APPLICATION OF SPARSE INVERSION ON THE CALCULATION OF THE INVERSE DATA SPACE OF GEOPHYSICAL DATA

Christos Saragiotis, *King Abdullah University of Technology and Science (Saudi Arabia)*

Panos Doulgeris, Eric Verschuur, *Delft University of Technology (The Netherlands)*

#### F4C.3

##### MITIGATE HIGH POWER INTERFERECE NOISE IN CHIRP RADAR SYSTEMS USING EMD-FRFT FILTERING

Sherif Elgamel, John Soraghan, *University of Strathclyde (U.K.)*

#### F4C.4

##### THE MEMRISTOR AS AN ELECTRIC SYNAPSE. SYNCHRONIZATION PHENOMENA

Christos Volos, *University of Military Education (Greece)*

Ioannis Kyprianidis, Ioannis Stouboulos, *Aristotle University of Thessaloniki (Greece)*

#### F4C.5

##### ON THE USE OF DOUBLE-LSB AND SIGNED-LSB ENCODINGS FOR RNS

Evangelos Vassalos, Dimitris Bakalis, *University of Patras (Greece)*

Haridimos Vergos, *University of Patras (Greece)*