

# Monday 1 July 2002

|               | HALL A   | HALL B                               | HALL C   | POSTER AREA                     |
|---------------|--|--------------------------------------|--|---------------------------------|
| 8:30 - 9:15   | <b>Plenary 1: Neural Networks in Space Communications</b>                    |                                      |  |                                 |
| 9:30 - 11:00  | <b>DSP in Communications I</b>   | <b>Wavelets</b>                      | <b>Biomedical Signal and Image</b>               | <b>Video Processing I</b>       |
| 11:00 - 11:30 | Coffee Break   |                                      |  |                                 |
| 11:30 - 13:00 | <b>Digital Watermarking, Fingerprinting and Hashing: Theory and Practice</b> | <b>Speech Processing I</b>           | <b>Biomedical Signal and Image Processing II</b> | <b>DSP in Communications II</b> |
| 13:00 - 14:30 | Lunch Break  |                                      |  |                                 |
| 14:30 - 15:15 | <b>Plenary 2: Redefining Multimedia</b>                                      |                                      |  |                                 |
| 15:30 - 17:00 | <b>DSP in Arts I</b>   | <b>Adaptive Signal Processing I</b>  | <b>Video Processing II</b>                       | <b>Digital Watermarking</b>     |
| 17:00 - 17:30 | Coffee Break   |                                      |  |                                 |
| 17:30 - 19:00 | <b>DSP in Arts II</b>  | <b>Adaptive Signal Processing II</b> | <b>Compressed-Domain Processing</b>              | <b>Blind Deconvolution</b>      |
| 18:00 - 20:00 | Satellite Event<br><b>Digital Cultural Content</b>                           |                                      |  |                                 |

**Special Session**

## Tuesday 2 July 2002

|               | HALL A   | HALL B  | HALL C  | POSTER AREA                                     |
|---------------|--|---|---|---|
| 8:30 - 9:15   | <b>Plenary 3: Advancing Videometry Through Applications: Quantification of Neonatal Seizures from their Video Recordings</b> |   |   |   |
| 9:30 - 11:00  | <b>Blind Signal Separation: Theory</b>   | <b>Non-Uniform Sampling</b>                           | <b>Perceptual Image and Video Coding</b>                      | <b>DSP Implementations</b>                      |
| 11:00 - 11:30 | Coffee Break   |   |   |   |
| 11:30 - 13:00 | <b>Blind Signal Separation: Theory and Applications II</b>   | <b>Signal and System Modelling I</b>                  | <b>JPEG2000 Implementations: Algorithms and Architectures</b> | <b>Signal and Image Processing Applications</b> |
| 13:00 - 14:30 | Lunch Break  |   |   |   |
| 14:30 - 15:15 | <b>Plenary 4: Computer Arithmetic for Low Power Design</b>   |   |   |   |
| 15:30 - 17:00 | <b>Array Signal Processing I</b>   | <b>Image and Multidimensional Signal Processing I</b> | <b>Non-linear Signals, Systems &amp; Chaos</b>                | <b>Speech and Audio Processing</b>              |
| 17:00 - 17:30 | Coffee Break   |   |   |   |
| 17:30 - 19:00 | <b>Array Signal Processing II</b>  | <b>Computer Vision</b>                                | <b>DSP Algorithms and Hardware</b>                            | <b>Signal and System Modelling II</b>           |

**Special Session**

## Wednesday 3 July 2002

|               | HALL A   | HALL B                                | HALL C  | POSTER AREA   |
|---------------|--|---------------------------------------|---|---|
| 8:30 - 9:15   | <b>Plenary 5: Signal Processing in Bioinformatic</b> |                                       |   |   |
| 9:30 - 11:00  | <b>DSP in Thoughts Understanding</b>                 | <b>Speech Processing II</b>           | <b>Image &amp; Multidimensional Signal Processing I</b> | <b>Biomedical Signal and Image Processing III</b>         |
| 11:00 - 11:30 | Coffee Break   |                                       |   |   |
| 11:30 - 13:00 | <b>Non-linear Methods in Speech Processing</b>       | <b>Adaptive Signal Processing III</b> | <b>Analogue Signal Processing</b>                       | <b>Image &amp; Multidimensional Signal Processing II</b>  |
| 13:00 - 14:30 | Lunch Break  |                                       |   |   |
| 14:30 - 15:15 | <b>Plenary 6: DSP in Mammography</b>                 |                                       |   |   |
| 15:30 - 17:00 | <b>DSP in Biomedical Systems</b>                     | <b>Signal &amp; Image Processing</b>  | <b>DSP Education &amp; Implementations</b>              | <b>Adaptive Signal Processing IV</b>                      |
| 17:00 - 17:30 | Coffee Break   |                                       |   |   |
| 17:30 - 19:00 | <b>DSP in Defence</b>                                | <b>DSP in Communications III</b>      | <b>Biomedical Image Processing</b>                      | <b>Image &amp; Multidimensional Signal Processing III</b> |

**Special Session**

# MONDAY 1 July 2002

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## PLENARY 1

### NEURAL NETWORKS IN SPACE COMMUNICATIONS

F. Castanié, D. Roviras (*France*)

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## SESSION M1A

### DSP in Communications I

Type: Special Session

Time & Place: 9.30 – 11.00, Hall A

Chairperson & Organiser: P. Duhamel (*France*)

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#### M1A.1

##### INDIRECTLY ESTIMATED MULTIUSER DETECTORS FOR CODE-DIVISION MULTIPLE-ACCESS SIGNALS AND THEIR ADAPTIVE IMPLEMENTATION

N. B. Karayiannis, J. Chookiarti, *University of Houston (U.S.A.)*

#### M1A.2

##### ON SYNCHRONIZATION IN FILTER BANK BASED OQAM MULTICARRIER TRANSMISSION

M.G. Bellanger, M. Khalifaoui, *CNAM-Electronique (France)*

#### M1A.3

##### A NOVEL LOW COMPLEXITY CLUSTER BASED MLSE EQUALIZER FOR QPSK SIGNALING SCHEME

Y. Kopsinis, S. Theodoridis, *University of Athens (Greece)*

#### M1A.4

##### SEMI-BLIND ESTIMATION OF MULTIPATH CHANNEL PARAMETERS VIA A SEPARABLE LEAST SQUARES APPROACH

A. A. Rontogiannis, *University of Ioannina (Greece)*

A. Marava, K. Berberidis, *University of Patras (Greece)*

J. Palicot, *INRIA/IRISA (France)*

#### M1A.5

##### ADAPTIVE ALGORITHMS FOR CHOOSING TRANSMISSION PARAMETERS IN DYNAMIC CHANNEL CONDITIONS

I. Lusky, N. Geri, Z. Reznic, Y. Bitran, *Texas Instruments (Israel)*

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## **SESSION M1B**

### **Wavelets**

Type: Lecture

Time & Place: 9.30 – 11.00, Hall B

Chairpersons: J. Corneis (*Belgium*)

S.C. Chan (*Hong Kong*)

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#### **M1B.1**

##### **THE DESIGN OF A CLASS OF PERFECT SRECONSTRUCTION TWO-CHANNEL FIR AND WAVELETS FILTERBANKS USING CONSTRAINED LEAST SQUARES METHOD AND SEMIDEFINITE PROGRAMMING**

S. C. Chan, C. K. S. Pun, K. L. Ho, The University of Hong Kong (*Hong Kong*)

#### **M1B.2**

##### **A NEW METHOD FOR COMPLETE – TO - OVERCOMPLETE DISCRETE WAVELET TRANSFORMS**

Y. Andreopoulos, A. Munteanu, G. Van der Auwera , P. Schelkens , J. Cornelis, *Vrije Universiteit Brussel (Belgium)*

#### **M1B.3**

##### **M-HDAF MULTIREOLUTION DEFORMABLE MODELS**

I.A. Kakadiaris, M. Papadakis, L. Shen, A. Kouri, *University of Houston (U.S.A.)*

D. Hoffman, *Iowa State University (U.S.A)*

#### **M1B.4**

##### **WAVELET-BASED FIXED AND EMBEDDED L-INFINITE-CONSTRAINED CODING**

A. Alecu, A. Munteanu, P. Schelkens, J. Cornelis, S. Dewitte, *Vrije Universiteit Brussel (Belgium)*

#### **M1B.5**

##### **NOISY SIGNAL COMPRESSION BASED ON OPTIMAL SEARCH IN WAVELET BINTREE**

L. Zhang, P. Bao, *The Hong Kong Polytechnic University (Hong Kong)*

#### **M1B.6**

##### **IMAGE CODING USING A WAVELET BASED ZERNIKE MOMENTS COMPRESSION TECHNIQUE**

G. Papakostas, B. Mertzios, *Democritus University of Thrace (Greece)*

D. Karras, *Hellenic Aerospace Industry (Greece)*

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## **SESSION MIC**

### **Biomedical Signal and Image Processing I**

Type: Lecture

Time & Place: 9.30 – 11.00, Hall C

Chairpersons: A. Katsaggelos (*U.S.A.*)  
C. Pattichis (*Cyprus*)

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#### **M1C.1**

##### **SCALE HYPERPARAMETER ESTIMATION FOR GGMRF PRIOR MODELS WITH APPLICATION TO SPECT IMAGES**

A. López, R. Molina, *Universidad de Granada (Spain)*

A. K. Katsaggelos, *Northwestern University (U.S.A.)*

#### **M1C.2**

##### **SPECKLE REDUCTION IN ULTRASOUND IMAGES OF ATHEROSCLEROTIC CAROTID PLAQUE**

C. Loizou, *Intercollege Limassol Campus (Cyprus)*

C. Christodoulou, M. Pantziaris, A. Nicolaides, *Cyprus Institute of Neurology and Genetics (Cyprus)*

C. S. Pattichis, *University of Cyprus (Cyprus)*

R. Istepanian, *Brunel University (U.K.)*

#### **M1C.3**

##### **CHROMATIN TEXTURE CHARACTERIZATION USING MULTISCALE FRACTAL DIMENSION**

D. M. U. Sabino, E. K. Nakamura, L. F. Costa, R. T. Calado, M. A. Zago, *University of São Paulo (Brazil)*

#### **M1C.4**

##### **EVALUATING WAVELET COMPRESSION IN MICROCALCIFICATION DETECTION IN MAMMOGRAPHY**

O. Kocsis, L. Costaridou, A. Panayiotakis, L. Varaki, E. Likaki, C. Kalogeropoulou, *University of Patras (Greece)*

#### **M1C.5**

##### **APPLICATION OF JPEG 2000 COMPRESSION IN MEDICAL DATABASE IMAGE DATA**

G. Anastassopoulos, A. Tsalkidis, K. Simopoulos, *University of Thrace (Greece)*

I. Stephanakis, *University of Athens (Greece)*

G. Mandellos, *University of Patras (Greece)*

#### **M1C.6**

##### **REAL AND COMPLEX GENOMIC SIGNALS**

P. Cristea, *University of Bucharest (Romania)*

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## **SESSION M1P**

### **Video Processing I**

Type: Poster

Time & Place: 9.30 – 11.00, POSTER AREA

Chairpersons: T. Vlachos (*U.K.*)

F. Bartolini (*Italy*)

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#### **M1P.1**

##### **OBJECT-BASED SEGMENTATION OF MOVING SEQUENCES USING MULTIPLE FEATURES**

R. Piroddi, T. Vlachos, *University of Surrey ( U.K. )*

#### **M1P.2**

##### **STOCHASTIC SEARCH ALGORITHMS FOR OPTIMAL CONTENT-BASED SAMPLING OF VIDEO SEQUENCES**

A. D. Doulamis, N. D. Doulamis, *National Technical University of Athens ( Greece )*

#### **M1P.3**

##### **IMPROVING BLOCK-BASED MOTION ESTIMATION IN THE PRESENCE OF ILLUMINATION VARIATION**

C. Guaragnella, E. Di Sciascio, *Technical University of Bari ( Italy )*

#### **M1P.4**

##### **NON-RIGID MOTION ESTIMATION BASED ON FUZZY MODELS**

J. Morales, R. Verdú, R. Berenguer, L. Weruaga, *Universidad Politécnica de Cartagena ( Spain )*

#### **M1P.5**

##### **ADAPTIVE ASYMMETRIC DIAMOND SEARCH ALGORITHM FOR BLOCK-BASED MOTION ESTIMATION**

T. Sappasitwong, S. Aramvith, S. Jitapunkul, A. Tamtrakarn, P. Kitti-punyangam, H. Kortrakulkij, *Chulalongkorn University ( Thailand )*

#### **M1P.6**

##### **AUTOMATIC DISSOLVE AND FADE DETECTION FOR VIDEO SEQUENCES**

P. Campisi, A. Neri, L. Sorigi, *Università degli Studi "Roma Tre" ( Italy )*

#### **M1P.7**

##### **ROBUST NON-LINEAR FILTERING FOR VIDEO PROCESSING**

V. Zlokolica, W. Philips, D. Van De Ville, *Ghent University ( Belgium )*

#### **M1P.8**

##### **ADAPTIVE CLASSIFICATION-BASED ARTICULATION AND TRACKING OF VIDEO OBJECTS EMPLOYING NEURAL NETWORK RETRAINING**

N. D. Doulamis, A. D. Doulamis, K. Ntalianis, *National Technical University of Athens ( Greece )*

#### **M1P.9**

##### **A SCHEDULING SCHEME FOR MULTIPLEXING EXTRA STREAMING DATA INTO DIGITAL TV PROGRAMS**

M. Azimi, P. Nasiopoulos, R. Ward, *University of British Columbia ( Canada )*

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## **SESSION M2A**

### **Digital Watermarking, Fingerprinting and Hashing: Theory and Practice**

Type: Special Session

Time & Place: 11.30 – 13.00, HALL A

Chairpersons & Organisers: F. Petitcolas (*U.K.*)  
D. Kirovski (*U.S.A.*)

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#### **M2A.1**

##### **IMPROVING THE SECURITY OF WATERMARK PUBLIC DETECTORS**

M. F. Mansour, A. H. Tewfik, *University of Minnesota (U.S.A.)*

#### **M2A.2**

##### **PREPROCESSING MEDIA TO FACILITATE LATER INSERTION OF A WATERMARK**

I. J. Cox, M. L. Miller, *NEC Research Institute (U.S.A.)*

#### **M2A.3**

##### **CAPACITY BOUNDS AND CONSTRUCTIONS FOR REVERSIBLE DATA-HIDING**

T. Kalker, F. M. J. Willems, *Eindhoven University of Technology (The Netherlands)*

#### **M2A.4**

##### **DETECTION-THEORETIC ANALYSIS OF DESYNCHRONIZATION ATTACKS IN WATERMARKING**

P. Moulin, A. Briassouli, *University of Illinois (U.S.A.)*

H. Malvar, *Microsoft Research (U.S.A.)*

#### **M2A.5**

##### **IMAGE WATERMARKING RESISTANT TO GEOMETRIC ATTACKS USING GENERALIZED RADON TRANSFORMATIONS**

D. Simitopoulos, M. G. Strintzis, *Aristotle University of Thessaloniki (Greece)*

D. Koutsonanos, *Informatics and Telematics Institute (Greece)*

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## **SESSION M2B**

### **Speech Processing I**

Type: Lecture

Time & Place: 11.30 – 13.00 HALL B

Chairpersons: E. Dermatas (*Greece*)

M. Davies (*U.K.*)

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#### **M2B.1**

##### **AUDIO REPRESENTATIONS ON OVERCOMPLETE SETS**

L. Daudet, M. Sandler, *University of London (U.K.)*

B. Torrèsani, *Université de Provence (France)*

#### **M2B.2**

##### **EFFICIENT CALCULATION OF A PHYSIOLOGICALLY-MOTIVATED REPRESENTATION FOR SOUND**

A. Klapuri, J.T. Astola, *Tampere University of Technology (Finland)*

#### **M2B.3**

##### **ENHANCEMENT OF ALARYNGEAL SPEECH USING SPECTRAL SUBTRACTION**

P. Pandey, S. Bhandarkar, P. Lehana, *IIT Bombay (India)*

G. Bachher, *Tata Memorial Hospital (India)*

#### **M2B.4**

##### **ON THE USE OF PCA IN GMM AND AR-VECTOR MODELS FOR TEXT INDEPENDENT SPEAKER VERIFICATION**

C. B. Lima, *IME (Brazil)*

A. Alcaim, *CETUC/PUC-Rio (Brazil)*

A. Apolinário Jr, *IME (Brazil)*

#### **M2B.5**

##### **SINGLE TRANSFORM PERCEPTUAL AUDIO ENCODER**

E.Kurniawati, C.T. Lau, B. Premkumar, *Nanyang Technological University (Singapore)*

J.Absar, S. George, *ST Microelectronics Asia Pacific (Singapore)*

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## SESSION M2C

### Biomedical Signal and Image Processing II

Type: Lecture

Time & Place: 11.30 – 13.00 HALL C

Chairpersons : L. Costaridou (*Greece*)  
V. Nicole (*France*)

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#### M2C.1

##### A SYSTEMATIC APPROACH TO SEIZURE PREDICTION USING GENETIC AND CLASSIFIER BASED FEATURE SELECTION

M. D'Alessandro, G. Vachtsevanos, D. Sewell, *Georgia Institute Technology ( U.S.A )*

R. Esteller, *Universidad Simón Bolívar ( Venezuela )*

J. Echauz, *NeuroPace, Inc. ( U.S.A. )*

B. Litt, *University of Pennsylvania ( U.S.A. )*

#### M2C.2

##### ANALYSIS OF EPILEPTIC MAGNETOENCEPHALOGRAM DYNAMICS THROUGH CLUSTERING ALGORITHMS

A.V. Adamopoulos, P. A. Anninos, *Democritus University of Thrace ( Greece )*

B. Boutsinas, M. N. Vrahatis, *University of Patras ( Greece )*

#### M2C.3

##### ON IMPROVING DOPPLER ULTRASOUND SPECTROSCOPY WITH MULTIBAND INSTANTANEOUS ENERGY SEPARATION

P. Maragos, T. Loupas, V. Pitsikalis, *National Technical University Of Athens ( Greece )*

#### M2C.4

##### A MEDICAL ACOUSTIC SIGNAL ANALYSIS METHOD BASED ON ZIPF LAW

D. Emmanuel , M. Pascal, V. Nicole, *Laboratoire d'Informatique ( France )*

B. Michele, *UFR Médecine ( France )*

#### M2C.5

##### TEAGER ENERGY BASED BLOOD CELL SEGMENTATION

R. K. Boddeti, S. Tippur, D. K. Joseph, *Indian Institute of Science ( India )*

#### M2C.6

##### TOWARDS NON-PARAMETRIC GRIDDING OF MICROARRAY IMAGES

R. Fabbri, L. da F. Costa, J. Barrera, *University of São Paulo ( Brazil )*

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## **SESSION M2P**

### **DSP in Communications II**

Type: Poster

Time & Place: 11.30 – 13.00 POSTER AREA

Chairpersons : M.H. Lee (*Korea*)

A. Koutras (*Greece*)

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#### **M2P.1**

##### **ROBUST AND FAST CONVERGENT BLIND MULTI-USER DETECTORS FOR DS-CDMA SYSTEMS IN NONSTATIONARY MULTIPATH ENVIRONMENTS**

P. Arasaratnam, S. Zhu, A. G. Constantinides, *Imperial College (U.K.)*

#### **M2P.2**

##### **DIRECTLY ESTIMATED MULTIUSER DETECTORS FOR CODE-DIVISION MULTIPLE-ACCESS SIGNALS AND THEIR ADAPTIVE IMPLEMENTATION**

N. B. Karayiannis, J. Chookiarli, *University of Houston (U.S.A.)*

#### **M2P.3**

##### **CHANNEL ESTIMATION AND TRACKING IN ASYNCHRONOUS UPLINK DS/CDMA USING MULTIPLE ANTENNAS**

M. Sirbu, V. Koivunen, *Helsinki University of Technology (Finland)*

#### **M2P.4**

##### **STOCHASTIC APPROXIMATION AND DATA RE-USE APPLIED TO BLIND ADAPTIVE ALGORITHM FOR INTERFERENCE CANCELLATION RAKE CDMA RECEIVER**

S. Zhu, P. Arasaratnam, A. G. Constantinides, *Imperial College (U.K.)*

#### **M2P.5**

##### **PERFORMANCE ANALYSIS OF LCL-PTV NARROWBAND INTERFERENCE SUPPRESSION ALGORITHMS**

D. Darsena, G. Gelli, L. Paura, L. Verdoliva, *Iniversità degli Studi Federico II di Napoli (Italy)*

#### **M2P.6**

##### **OVERSAMPLED ORTHOGONAL AND BIORTHOGONAL MULTICARRIER MODULATIONS WITH PERFECT RECONSTRUCTION**

C. Siclet, *France Telecom R&D (France)*

P. Siohan, *IRISA-INRIA (France)*

D. Pinchon, *University Paul Sabatier (France)*

#### **M2P.7**

##### **BUTTERFLY LOG-MAP DECODING ALGORITHM FOR TURBO CODE**

J. Hou, M. S. Yang, M. H. Lee, *Chonbuk National University (Korea)*

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## PLENARY 2

### REDEFINING MULTIMEDIA

P. Nasiopoulos ( *Canada* )

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## SESSION M3A

### DSP in Arts I

Type: Special Session

Time & Place: 15.30 – 17.00, HALL A

Chairpersons : V. Cappellini ( *Italy* )

P. L. Emiliani ( *Italy* )

Organizer : V. Cappelinni ( *Italy* )

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#### M3A.1

##### HVS MODELLING FOR QUALITY EVALUATION OF ART IMAGES

M. Barni, *University of Siena ( Italy )*

F. Bartolini, A. De Rosa, *University of Florence ( Italy )*

#### M3A.2

##### NEW TECHNIQUE FOR THE RESTORATION OF NOISY COLOR IMAGES

B. Smolka, M. Szczepanski, *Silesian University of Technology ( Poland )*

K. Plataniotis, A. Venetsanopoulos, *University of Toronto ( Canada )*

#### M3A.3

##### DIGITAL PICTURE RESTORATION AND ENHANCEMENT FOR QUALITY ARCHIVING

A. de Polo, *Fratelli Alinari SpA ( Italy )*

#### M3A.4

##### ARTSHOP: A TOOL FOR ART IMAGE PROCESSING

A. M. Bonacchi, V. Cappellini, M. Corsini, A. De Rosa, *University of Florence ( Italy )*

M. Barni, *University of Siena ( Italy )*

#### M3A.5

##### HYBRID IMAGE PROCESSING TECHNIQUES FOR THE RECONSTRUCTION OF LOST WORLDS AND THE REVIVAL OF ANCIENT LIFE

N. Ioannidis, V. Vlahakis, J. Karigiannis, A. Demiris, *Intracom S.A ( Greece )*

D. Stricker, T. Gleue, *Zentrum für Graphische Datenverarbeitung ( Germany )*

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## **SESSION M3B**

### **Adaptive Signal Processing I**

Type: Lecture

Time & Place: 15.30 – 17.00, HALL B

Chairpersons: M. Bellanger (*France*)  
V.F. Ruiz (*U.K.*)

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#### **M3B.1**

##### **UNDERSTANDING THE EXPLOSIVE DIVERGENCE OF THE FTF ALGORITHM**

J. R. Bunch, *University of California (U.S.A.)*

R. C. Le Borne, *Tennessee Technological University (U.S.A.)*

I. Proudler, *QinetiQ, (U.K.)*

#### **M3B.2**

##### **DATA STRUCTURE AND NON-LINEAR EFFECTS IN ADAPTIVE FILTERS**

A. A. (Louis) Beex, *Virginia Tech (U.S.A.)*

James R. Zeidler, *SPAWAR Systems Center (U.S.A.)*

#### **M3B.3**

##### **CONVERGENCE ANALYSIS OF THE RECURSIVE LEAST M-ESTIMATE ADAPTIVE FILTERING ALGORITHM FOR IMPULSE NOISE SUPPRESSION**

S. C. Chan, *University of Hong Kong (China)*

Y. X. Zou, *Singapore Polytechnic (Singapore)*

#### **M3B.4**

##### **IMPROVING THE INITIAL CONVERGENCE OF ADAPTIVE FILTERS: VARIABLE-LENGTH LMS ALGORITHMS**

V. H. Nascimento, *University of São Paulo (Brazil)*

#### **M3B.5**

##### **CHANNEL TRACKING FOR SPACE-TIME BLOCK CODED SYSTEMS USING PARTICLE FILTERING**

W. H. Chin, D. B. Ward, A. G. Constantinides, *Imperial College (U.K.)*

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## **SESSION M3C**

### **Video Processing II**

Type: Lecture

Time & Place: 15.30 – 17.00, HALL C

Chairpersons : G. Tziritas (*Greece*)

S. Kollias (*Greece*)

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#### **M3C.1**

##### **DETECTION AND ESTIMATION OF MOTION USING ADAPTIVE GRIDS**

J. V. Condell, B.W. Scotney, P.J. Morrow, *University of Ulster (Ireland)*

#### **M3C.2**

##### **ROBUST PAN, TILT AND ZOOM ESTIMATION**

I. Grinias, G. Tziritas, *University of Crete (Greece)*

#### **M3C.3**

##### **VIDEO CODING BY USING THE 3D ZERO-TREE APPROACH IN THE WAVELET TRANSFORM DOMAIN**

J. Salvado, *Escola Superior de Tecnologia de Castelo Branco (Portugal)*

L. Sousa, *DEEC and INESC-ID (SIPS Group) (Portugal)*

#### **M3C.4**

##### **HIGH PERFORMANCE MOTION ANALYSIS FOR VIDEO RESTORATION**

M. Ceccarelli, *University of Sannio (Italy)*

A. Petrosino, *National Research Council (Italy)*

#### **M3C.5**

##### **UNSUPERVISED SEGMENTATION OF STEREOSCOPIC VIDEO OBJECTS: INVESTIGATION OF TWO DEPTH-BASED APPROACHES**

K. Ntalianis, A. Doulamis, N. Doulamis, S. Kollias, *National Technical University of Athens (Greece)*

#### **M3C.6**

##### **A FAST ALGORITHM FOR VIDEO SEGMENTATION AND OBJECT TRACKING**

D. D.Giusto, F. Massidda, C. Perra, *University of Cagliari (Italy)*

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## **SESSION M3P**

### **Digital Watermarking**

Type: Poster

Time & Place: 15.30 – 17.00, POSTER AREA

Chairpersons: D. Hatzinakos (*Canada*)

A. Bors (*U.K.*)

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#### **M3P.1**

##### **A ROBUST AUDIO WATERMARKING ALGORITHM USING PITCH SCALING**

S. Shin, O. Kim, J. Kim, J. Choi, *MarkAny Research Institute (Korea)*

#### **M3P.2**

##### **BLIND CEPSTRUM DOMAIN AUDIO WATERMARKING BASED ON TIME ENERGY FEATURES**

C. T. Hsieh, P. Y. Tsou, *Tamkang University (Taiwan)*

#### **M3P.3**

##### **WATERMARKING GRAPHICAL OBJECTS**

T. Harte, A. Bors, *University of York (U.K)*

#### **M3P.4**

##### **JPEG2000 PARAMETERS AGAINST WATERMARKING**

V. Fotopoulos, A. N. Skodras, *University of Patras (Greece)*

#### **M3P.5**

##### **EFFICIENT DATA HIDING IN JPEG2000 IMAGES USING SEQUENTIAL DECODING OF CONVOLUTIONAL CODES**

N. Thomos, M. G. Strintzis, *Aristotle University of Thessaloniki (Greece)*

N. V. Boulgouris, E. Kokkinou, *Informatics and Telematics Institute (Greece)*

#### **M3P.6**

##### **COLOR IMAGE-ADAPTIVE WATERMARKING**

S.A.M. Gilani, I. Kostopoulos, A.N. Skodras, *University of Patras (Greece)*

#### **M3P.7**

##### **IMAGE WATERMARKING IN THE FOURIER DOMAIN USING THE MOJETTE TRANSFORM**

F. Autrusseau, J. Guedon, *Ecole Polytechnique de l'Université de Nantes (France)*

#### **M3P.8**

##### **WATERMARK TECHNIQUE USING FREQUENCY DOMAIN**

C. M. Kung, J. H. Jeng, *I-Shou University (Taiwan)*

#### **M3P.9**

##### **COLOUR IMAGE AUTHENTICATION BASED ON A SELF-EMBEDDING TECHNIQUE**

I. Kostopoulos, S.A.M.Gilani, A.Skodras, *University of Patras (Greece)*

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## **SESSION M4A**

### **DSP in Arts II**

Type: Special Session

Time & Place: 17.30 – 19.00, HALL A

Chairpersons : V. Cappellini (*Italy*)

*P. L. Emiliani (Italy)*

Organizer : *V. Cappelinni (Italy)*

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#### **M4A.1**

##### **CRAQUELURE ANALYSIS FOR CONTENT-BASED RETRIEVAL**

F. S. Abas, K. Martinez, *University of Southampton (U.K)*

#### **M4A.2**

##### **FUZZY AGGREGATION OF PALETTE COLORS FOR HYBRID QUERYING OF FINE ART IMAGE DATABASES**

P. Androustos, A. Kushki, K. N. Plataniotis, A. N. Venetsanopoulos, *University of Toronto (Canada)*

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## **SESSION M4B**

### **Adaptive Signal Processing II**

Type: Lecture

Time & Place: 17.30 – 19.00, HALL B

Chairpersons : J. Chao (*Japan*)

S. Theodoridis (*Greece*)

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#### **M4B.1**

##### **AN EFFICIENT APPROACH TO HIGHLY NON-LINEAR ESTIMATION**

V. Ruiz, *The University of Reading ( U.K. )*

#### **M4B.2**

##### **TOTAL LEAST SQUARES FILTER IN ROBOT NAVIGATION**

L. T. Yang, *St. Francis Xavier University ( Canada )*

#### **M4B.3**

##### **ARMA MODELLING BASED ON ROOT CEPSTRAL DECONVOLUTION**

S. Sarpal, E. Chilton, *University of Surrey ( U.K. )*

#### **M4B.4**

##### **ANALYSIS AND FAST RLS ALGORITHMS OF QUADRATIC VOLTERRA ADAPTIVE FILTERS**

J. Chao, *Chuo University (Japan )*

#### **M4B.5**

##### **QUASI-NEWTON FORMULATION AND ANALYSIS OF SPLIT LMS**

A. Goupil, *France Télécom R&D ( France )*

J. Palicot, *INRIA/IRISA ( France )*

#### **M4B.6**

##### **COMPOSITE PNLMs & NLMS ADAPTATION: A NEW METHOD FOR NETWORK ECHO CANCELLATION**

M. Nekuii, *Sharif University of Technology ( Iran )*

M. Atarodi, *Emad Semicon ( Iran )*

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## **SESSION M4C**

### **Compressed-Domain Processing**

Type: Special Session

Time & Place: 17.30 – 19.00, HALL C

Chairperson: W. Chen (*U.S.A.*)

Organiser: U. - V. Koc (*U.S.A.*)

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#### **M4C.1**

##### **FAST AND MEMORY EFFICIENT ALGORITHM FOR DCT-DOMAIN INVERSE MOTION COMPENSATION OF LOW BITRATE VIDEO**

W. Chen, B. Vasudev, *Epson Palo Alto Laboratory (U.S.A.)*

#### **M4C.2**

##### **INSERTION OF IRREGULAR-SHAPED LOGOS IN THE COMPRESSED DCT DOMAIN**

N. Roma, L. Sousa, *Instituto Superior Técnico (Portugal)*

#### **M4C.3**

##### **RHYTHM DETECTION FOR SPEECH-MUSIC DISCRIMINATION IN MPEG COMPRESSED DOMAIN**

R. Jarina, N. O'Connor, S. Marlow, N. Murphy, *Dublin City University (Ireland)*

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## **SESSION M4P**

### **Blind Deconvolution**

Type: Poster

Time & Place: 17.30 – 19.00, Poster Area

Chairpersons: C. Vural (*U.S.A.*)

M. Petrou (*U.K.*)

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#### **M4P.1**

##### **INCORPORATING PRIOR KNOWLEDGE IN ICA**

C. Papathanasiou, M. Petrou, *University of Surrey ( U.K. )*

#### **M4P.2**

##### **BLIND SIGNAL RECOVERY USING A NOVEL SYSTEM IDENTIFICATION APPROACH**

G. Stathakis, *National Technical University of Athens ( Greece )*

A. Constantinides, T. Stathaki, *Imperial College ( U.K. )*

#### **M4P.3**

##### **CHANNEL EQUALIZATION WITH STAGGERED MODULATION FORMATS**

R. López - Valcarce, *University of Vigo ( Spain )*

#### **M4P.4**

##### **A NOVEL INITIALIZATION SCHEME FOR BLIND EQUALIZATION ALGORITHMS**

S. Xanthopoulos, A. G. Constantinides, *Imperial College ( U.K. )*

#### **M4P.5**

##### **A BLIND ADAPTATION ALGORITHM FOR DECISION FEEDBACK EQUALIZERS WITH FRACTIONALLY-SPACED FEEDFORWARD FILTERS**

R. Zukunft, S. Haar, T. Magesacher, *Munich University of Technology ( Germany )*

#### **M4P.6**

##### **RECURSIVE BLIND IMAGE DECONVOLUTION VIA DISPERSION MINIMIZATION**

C. Vural, W. A. Sethares, *University of Wisconsin-Madison ( U.S.A. )*

#### **M4P.7**

##### **BLIND DECONVOLUTION OF NOISY BLURRED IMAGES VIA DISPERSION MINIMIZATION**

C. Vural, W.A. Sethares, *University of Wisconsin-Madison ( U.S.A. )*

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## **SESSION M5A**

### **Digital Cultural Content: The European Approach**

Type: Satellite Event

Time & Place: 18.00 – 20.00, HALL A

Chairperson & Organiser: T. Papatheodorou ( *Greece* )

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### **Invited Speakers**

#### **COORDINATION OF DIGITIZATION ACTIONS IN EUROPE – NATIONAL REPRESENTATIVES GROUP**

T. Papatheodorou, *University of Patras ( Greece )*

#### **OPEN PROBLEMS IN THE RECONSTRUCTION OF WALL PAINTINGS IN AKROTIRI**

A. Constantinides, *Imperial College ( UK )*

#### **COPYRIGHT PROTECTION OF MULTIMEDIA: IS CONTENT SCREENING IMPOSSIBLE?**

D. Kirovski, *Microsoft Research ( US )*

### **R&D Papers and GOOD Practices**

#### **M5A.1**

##### **QUALITY IMPROVEMENT AND COPYRIGHT PROTECTION FOR DIGITAL CULTURAL CONTENTV.**

V. Cappellini, *University of Florence ( Italy )*

#### **M5A.2**

##### **NEW WAYS IN DIGITIZATION AND VISUALIZATION OF CULTURAL OBJECTS**

N. Tsirliganis, G. Pavlidis, A. Koutsoudis, E. Politou, A. Tsompanopoulos, K. Stavroglou, *Cultural and Educational Technology Institute ( Greece )*

C. Chamzas, *Democritus University of Thrace ( Greece )*

#### **M5A.3**

##### **A DEPLOYED PLATFORM FOR WATERMARKING AND MANAGEMENT OF DIGITAL IMAGES OF THE HELLENIC CULTURAL HERITAGE**

D. Tsolis, E. Karatzas, G. Tsolis, V. Fotopoulos, T. Papatheodorou, A. Skodras, *University of Patras ( Greece )*

#### **M5A.4**

##### **BEST PRACTICE PHOTOGRAPHIC DIGITALIZATION IN THE CULTURAL HERITAGE**

A. de Polo, *Fratelli Alinari SpA ( Italy )*

#### **M5A.5**

##### **CULTURAL HERITAGE IN REGIONAL NETWORKS – ENABLING E-BUSINESS ACTIVITIES FOR CULTURAL HERITAGE ORGANIZATIONS**

N. Bogonikolos, M. Georgoudakis, K. Giotopoulos, *Zeus Consulting S.A. ( Greece )*

**TUESDAY 2 July 2002**

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**PLENARY 3**

**ADVANCING VIDEOMETRY THROUGH APPLICATIONS: QUANTIFICATION OF NEONATAL SEIZURES FROM VIDEO RECORDINGS**

N. Karayiannis (*U.S.A.*)

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**SESSION T1A**

**Blind Signal Separation: Theory**

Type: Special Session

Time & Place: 9.30 – 11.00, HALL A

Chairperson & Organiser: A. Nandi (*U.K.*)

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**T1A.1**

**BLIND IDENTIFICATION AND EQUALIZATION OF MIMO FIR CHANNELS BASED ON SECOND-ORDER STATISTICS AND BLIND SOURCE SEPARATION**

V. Zarzoso, A. K Nandi, J. I. Garcia, L. V. Dominguez, *The University of Liverpool* (*U.K.*)

**T1A.2**

**BLIND SOURCE SEPARATION FOR BLAST**

P. Sansrimahachai, D. B. Ward, A. G. Constantinides, *Imperial College* (*U.K.*)

**T1A.3**

**PARAMETRIC ESTIMATION OF HIDDEN SIGNALS BY LIKELIHOOD MAXIMIZATION**

J. Míguez, *Universidade da Coruña* (*Spain*)

M. F. Bugallo, *Stony Brook University* (*U.S.A.*)

**T1A.4**

**PRINCIPLES FOR ELIMINATING TWO KINDS OF INDETERMINACY IN BLIND SOURCE SEPARATION**

K. Matsuoka, *Kyushu Institute Of Technology* (*Japan*)

**T1A.5**

**EXPLOITING SOURCE NON STATIONARY AND COLORATION IN BLIND SOURCE SEPARATION**

D. T. Pham, *University of Grenoble* (*France*)

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## **SESSION T1B**

### **Non-Uniform Sampling**

Type: Lecture

Time & Place: 9.30 – 11.00, HALL B

Chairpersons : A. Santos (*Spain*)

D. Cumming (*U.K.*)

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#### **T1B.1**

##### **ALGORITHMS FOR THE NONUNIFORM ACQUISITION AND SUBSEQUENT RECONSTRUCTION OF DATA**

G. B. Irvine, D. R. S. Cumming, *University of Glasgow (U.K.)*

#### **T1B.2**

##### **SPECTRUM ESTIMATION OF NONUNIFORMLY SAMPLED SIGNALS**

A. Tarczynski, *University of Westminster (U.K.)*

#### **T1B.3**

##### **RECURSIVE NON PARAMETRIC SPECTRAL ESTIMATION FROM IRREGULARLY SAMPLED OBSERVATIONS**

A. Rivoira, G. Fleury, *Ecole Supérieure d'Electricité (France)*

#### **T1B.4**

##### **FOURIER FILTERING OF CONTINUOUS GLOBAL SURFACES**

S. D. Billings, *University of British Columbia (Canada)*

G. N. Newsam, *Defence Science and Technology Organisation (Australia)*

#### **T1B.5**

##### **RELATIONSHIP BETWEEN SAMPLING RATE AND QUANTIZATION NOISE**

P. R. Pérez-Alcázar, *UNAM (Mexico)*

A. Santos, *Technical University of Madrid (Spain)*

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## **SESSION T1C**

### **Perceptual Image and Video Coding**

Type: Special Session

Time & Place: 9.30 – 11.00, HALL C

Chairperson & Organiser: H.R Wu (*Australia*)

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#### **T1C.1**

##### **FACES RECOGNITION BASED BOTH ON PERCEPTION AND BEHAVIOR OF THE HUMAN VISUAL SYSTEM**

M. Carnece, D. Barba, *Ecole Polytechnique de l'Université de Nantes ( France )*

#### **T1C.2**

##### **ADAPTATION OF VISION MODEL BASED DISTORTION METRICS TO PERCEPTUAL IMAGE CODING**

R. Wu, D. M. Tan, B. Qiu, *Monash University ( Australia )*

Z. Yu, *Motorola Australia Research Centre ( Australia )*

#### **T1C.3**

##### **MULTIPLE REFERENCE IMPAIRMENT SCALE SUBJECTIVE ASSESSMENT METHOD FOR DIGITAL VIDEO**

H.R. Wu, B. Qiu, *Monash University ( Australia )*

Z. Yu, *Motorola Australian Research Centre ( Australia )*

#### **T1C.4**

##### **EXTENSION OF THE FORWARD-BACKWARD MOTION COMPENSATION SCHEME FOR MPEG CODED SEQUENCES: A SUB-SPACE APPROACH**

G. Acciani, D. Girimonte, C. Guaragnella, *Politecnico di Bari ( Italy )*

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## **SESSION T1P**

### **DSP Implementations**

Type: Poster

Time & Place: 9.30 – 11.00, POSTER AREA

Chairpersons : M. Markovic (*Yugoslavia*)

J. Williams (*Australia*)

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#### **T1P.1**

##### **OPTIMIZATION OF MODULAR REDUCTION PROCEDURE IN RSA ALGORITHM IMPLEMENTATION ON ASSEMBLER OF TMS320C54X SIGNAL PROCESSORS**

G.Đorđević, *Military Technical Academy (Yugoslavia)*

T.Unkašević, M.Marković, *Institute of Applied Mathematics and Electronics (Yugoslavia)*

#### **T1P.2**

##### **ASYNCHRONOUS IMPLEMENTATION OF TRANSIENT SUPPRESSION IN TUNABLE IIR FILTERS**

M. Makundi, T. I. Laakso, Y. Liu, *Helsinki University of Technology (Finland)*

#### **T1P.3**

##### **ONLINE DATA REDUCTION WITH A DSP-FPGA MULTIPROCESSOR SYSTEM**

M. Balzer, H. Stripf, *Institute for Data Processing and Electronics (Germany)*

#### **T1P.4**

##### **DSP IMPLEMENTATION OF A NEURAL NETWORK BASED BLIND MULTIUSER RECEIVER FOR DS-CDMA COMMUNICATION SYSTEMS**

R. Fantacci, F. Guidi, F. Rastelli, D. Tarchi, P. Tortoli, *Università di Firenze (Italy)*

#### **T1P.5**

##### **IMPLEMENTATION OF REAL-TIME AMDF PITCH-DETECTION FOR VOICE GENDER NORMALISATION**

E. Jung, A. Schwarzbacher, *Dublin Institute of Technology (Ireland)*

R. Lawlor, *National University of Ireland (Ireland)*

#### **T1P.6**

##### **RISC PROCESSOR BASED SPEECH CODEC IMPLEMENTATION FOR EMERGING MOBILE MULTIMEDIA MESSAGING SOLUTIONS**

A. Manish, P. V. S.Babu, M. K Vinary, *Emuzed India Private Limited (India)*

#### **T1P.7**

##### **IMPLEMENTATION OF MULTI-CHANNEL AAC ENCODER FOR HIGH QUALITY AUDIO BROADCASTING**

D. Y. Jang, J. I. Seo, T. Lee, J.W Hong, K. Kang, *Broadcasting Media Research Department, ETRI (Korea)*

#### **T1P.8**

##### **FAST SOFTWARE IMPLEMENTATION OF MPEG ADVANCED AUDIO ENCODER**

I. Dimković, *PsyTEL Research (Yugoslavia)*

D. Milovanović, Z.Bojković, *University of Belgrade (Yugoslavia)*

#### **T1P.9**

##### **RECONFIGURABLE FPGAS FOR REAL TIME IMAGE PROCESSING IN SPACE**

A.S. Dawood, S J. Visser, J.A. Williams, *Queensland University of Technology (Australia)*

#### **T1P.10**

##### **FLEXIBLE REAL TIME SIGNAL FILTERING IN SPACE USING RECONFIGURABLE LOGIC**

A. S. Dawood, S. J. Visser, J.A. Williams, *Queensland University of Technology (Australia)*

**T1P.11****A DSP COURSE FOR REAL-TIME SYSTEMS DESIGN AND IMPLEMENTATION BASED ON THE TMS320C6211 DSK**

M. D. Galanis, A. Papazacharias, E. Zigouris, *University of Patras ( Greece )*

**T1P.12****SVD-BASED PORTABLE DEVICE FOR REAL-TIME HOARSE VOICE DENOISING**

C. Manfredi, *University of Florence ( Italy )*

L. Landini, *University of Pisa ( Italy )*

F. Faita, V. Gemignani, *C. N. R. Institute of Clinical Physiology ( Italy )*

**T1P.13****COMPUTATIONAL SIMD FRAMEWORK: SPLIT-RADIX SIMD-FFT ALGORITHM, DERIVATION, IMPLEMENTATION AND PERFORMANCE**

P.Rodríguez V., M. S. Pattichis, R. Jordan, *University of New Mexico ( U.S.A. )*

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## **SESSION T2A**

### **Blind Signal Separation: Theory and Applications II**

Type: Special Session

Time & Place: 11.30 – 13.00, HALL A

Chairperson & Organiser: A. Nandi (*U.K.*)

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#### **T2A.1**

##### **WDM MONITORING USING BLIND SIGNAL SEPARATION BASED ON HIGHER-ORDER STATISTICS**

Y. Feng, V. Zarzoso, A. K. Nandi, *University of Liverpool (U.K.)*

#### **T2A.2**

##### **BLIND SOURCE SEPARATION FOR ACOUSTICAL MACHINE DIAGNOSIS**

M. Knaak, M. Kunter, D. Filbert, *Technical University Berlin (Germany)*

#### **T2A.3**

##### **COMPUTER AIDED CLASSIFICATION OF MAMMOGRAPHIC TISSUE USING INDEPENDENT COMPONENT ANALYSIS**

I. Christoyianni, A. Koutras, E. Dermatas, *University of Patras (Greece)*

#### **T2A.4**

##### **ROBUST SPEECH RECOGNITION IN A HIGH INTERFERENCE REAL ROOM ENVIRONMENT USING BLIND SPEECH EXTRACTION**

A. Koutras, E. Dermatas, *University of Patras (Greece)*

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## **SESSION T2B**

### **Signal and System Modelling I**

Type: Lecture

Time & Place: 11.30 – 13.00, HALL B

Chairpersons: A. Likothanassis (*Greece*)

V. Anastassopoulos (*Greece*)

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#### **T2B.1**

##### **TRANSIENT MODELING WITH A FREQUENCY-TRANSFORM SUBSPACE ALGORITHM AND “TRANSIENT + SINUSOIDAL” SCHEME**

R. Boyer, S. Essid, *ENST (Paris)*

#### **T2B.2**

##### **REAL TIME NONLINEAR ARMA MODEL STRUCTURE IDENTIFICATION**

E. N. Demiris, S. D. Likothanassis, *University of Patras (Greece)*

B. G. Konstadopoulou, *Hellenic Ministry of Finance (Greece)*

D. G. Karelis, *Technological Educational Institute of Patras (Greece)*

#### **T2B.3**

##### **A MODIFIED CEPSTRUM ANALYSIS APPLIED TO VIBRATIONAL SIGNALS**

N. T. van der Merwe, A. J. Hoffman, *Potchefstroom University for CHE (South Africa)*

#### **T2B.4**

##### **OPTIMAL NTFS FOR SINGLE-BIT $\Sigma\Delta$ MODULATORS**

G. I. Bourdopoulos, A. G. Pneumatikakis, T. L. Deliyannis, *University of Patras (Greece)*

#### **T2B.5**

##### **STOCHASTIC QUANTIZATION TRANSFER FUNCTIONS FOR HIGH RESOLUTION SIGNAL ESTIMATION**

H. Berndt, H. - J. Jentschel, *Dresden University of Technology (Germany)*

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## **SESSION T2C**

### **JPEG2000 Implementations: Algorithms and Architectures**

Type: Special Session

Time & Place: 11.30 – 13.00, HALL C

Chairperson & Organiser: A. N. Skodras ( *Greece* )

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#### **T2C.1**

##### **SOFTWARE ARCHITECTURES FOR JPEG2000**

D. Taubman, *The University of New South Wales ( Australia )*

#### **T2C.2**

##### **CACHE MISSES AND ENERGY-DISSIPATION RESULTS FOR JPEG-2000 FILTERING**

Y. Andreopoulos, P. Schelkens, J. Cornelis Vrije, *Universiteit Brussel ( Belgium )*

K. Masselos, *Intracom S. A. ( Greece )*

G. Lafruit, *Inter-University Microelectronics Center ( Belgium )*

#### **T2C.3**

##### **SYSTEM ARCHITECTURE FOR ERROR-RESILIENT, EMBEDDED JPEG2000 WIRELESS DELIVERY**

M. Martina, G. Masera, G. Piccinini, F. Vacca, M. Zamboni, *Politecnico di Torino ( Italy )*

#### **T2C.4**

##### **REDUCED MEMORY REQUIREMENTS IN MODIFIED JPEG2000 CODEC**

G. Lafruit, Y. Andreopoulos, B. Masschelein, *IMEC-DESICS ( Belgium )*

#### **T2C.5**

##### **QUANTIZING THE 9/7 DAUBECHIES FILTER COEFFICIENTS FOR 2D DWT VLSI IMPLEMENTATIONS.**

V. Spiliotopoulos, N. D. Zervas , C. E. Androulidakis, G. Anagnostopoulos, S. Theoharis, *Alma Technologies ( Greece )*

#### **T2C.6**

##### **AN EFFICIENT VLSI IMPLEMENTATION FOR FORWARD AND INVERSE WAVELET TRANSFORM FOR JPEG2000**

G. Dimitroulakos, N. Zervas, N. Sklavos, K. Goutis, *University of Patras ( Greece )*

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## SESSION T2P

### Signal and Image Processing Applications

Type: Poster

Time & Place: 11.30 – 13.00, POSTER AREA

Chairpersons: A. Ifantis (*Greece*)

A. Georgakilas (*U.S.A.*)

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#### T2P.1

##### THE “À TROUS” WAVELET TRANSFORM VERSUS CLASICAL METHODS FOR THE IMPROVEMENT OF SOLAR IMAGES

E. B. Christopoulou, A. N. Skodras, *University of Patras (Greece)*

A. A. Georgakilas, *California Institute of Technology (U.S.A)*

#### T2P.2

##### MULTIRESOLUTION IMAGE REGISTRATION ALGORITHM IN WAVELET TRANSFORM DOMAIN

H. S. Own, *NRIAG (Egypt)*

A. E. Hassanien, *Cairo University (Egypt)*

#### T2P.3

##### TIME SERIES ANALYSIS OF SUNSPOT OSCILLATIONS USING THE WAVELET TRANSFORM

E. B. Christopoulou, A.N. Skodras, *University of Patras (Greece)*

A. A. Georgakilas, *California Institute of Technology (U.S.A)*

#### T2P.4

##### TOWARDS AUTOMATIC DETECTION OF COASTLINES FROM SATELITE IMAGERY

K. G. Karantzas, D. Argialas, A. Georgopoulos, *National Technical University of Athens (Greece)*

#### T2P.5

##### POSITION DETERMINATION OF A SUBSURFACE OBJECT BY COMBINED OUTPUT OF TWO RECEIVE GPR ANTENNAS

N. Milisavljeviæ, *Royal Military Academy (Belgium)*

A. G. Yarovoy, *Delft University of Technology (The Netherlands)*

#### T2P.6

##### A NEW APPROACH TO INVESTIGATE THE CORRELATION BETWEEN PERIODICITY OF GEOELECTRIC FIELD AND EARTHQUAKES.

A. Ifantis, *Technological Educational Institute of Patras (Greece)*

#### T2P.7

##### ANALYSIS OF LONG-RANGE CORRELATIONS IN GEOELECTRICAL SIGNALS MEASURED IN SOUTHERN ITALY

L. Telesca, V. Cuomo, V. Lapenna, *Istituto di Metodologie Avanzate di Analisi Ambientale (Italy)*

#### T2P.8

##### SUPPORT VECTOR EVALUATION OF THE UNPREDICTABILITY OF THE ELECTROTELLURIC FIELD VARIATIONS SIGNAL BEFORE MAJOR EARTHQUAKES

A. Ifantis, *Technological Educational Institute of Patras (Greece)*

S. Papadimitriou, *Technological Educational Institute of Kavala (Greece)*

#### T2P.9

##### FEATURE EXTRACTION WITH WAVELET TRANSFORM FOR RECOGNITION OF ISOLATED HANDWRITTEN FARSI/ARABIC CHARACTERS AND NUMERALS.

A. Mowlaei, K. Faez, A. T. Haghighat, *Amirkabir University of Technology (Iran)*

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## PLENARY 4

### COMPUTER ARITHMETIC FOR LOW POWER DESIGN

V. G. Oklobdzija ( *U.S.A.* )

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## SESSION T3A

### Array Signal Processing I

Type: Special Session

Time & Place: 13.30 – 17.00, HALL A

Organiser: A. Manikas ( *U.K.* )

Chairperson: D. Ward ( *U.K.* )

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#### T3A.1

##### ANALYSIS OF ROBUST TIME-DELAY BASED ANGLE-OF-ARRIVAL ESTIMATION METHODS

J. Yli - Hietanen, T. Saarelainen, *Tampere University of Technology ( Finland )*

#### T3A.2

##### EFFICIENT IMPLEMENTATION OF WIDEBAND MULTIBEAM-FORMING NETWORK USING SOPOT COEFFICIENTS AND MULTIPLIER BLOCK

S. C. Chan, C. K. S. Pun, *The University of Hong Kong ( China )*

#### T3A.3

##### INVESTIGATION OF PERFORMANCE OF ACOUSTIC ARRAYS FOR EQUALIZATION IN A REVERBERANT ENVIRONMENT

F. Talantzis, D. B. Ward, *Imperial College ( U.K. )*

#### T3A.4

##### SPECTRUM-ENTROPY BASED BEAM-FORMER WITH SPEAKER TRACKING FOR HANDS-FREE CONTINUOUS SPEECH RECOGNITION IN NOISE

G. Nokas, E. Dermatas, *University of Patras ( Greece )*

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## **SESSION T3B**

### **Image and Multidimensional Signal Processing I**

Type: Lecture

Time & Place: 13.30 – 17.00, HALL B

Chairpersons: A. Venetsanopoulos (*Canada*)  
A. Khashman (*Turkey*)

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#### **T3B.1**

##### **FORWARD AND BACKWARD ANISOTROPIC DIFFUSION FILTERING FOR COLOR IMAGE ENHANCEMENT**

J. M. Kountouris, K. N. Plataniotis, A. N. Venetsanopoulos, *University of Toronto (Canada)*

#### **T3B.2**

##### **MULTIPLE FEATURE BASED MULTISCALE IMAGE ENHANCEMENT**

L. Capdiferro, V. Casieri, *Fondazione Ugo Bondoni (Italy)*

A. Laurenti, G. Jacovitti, *University of Rome (Italy)*

#### **T3B.3**

##### **SINGLE IDEAL-SCALE EDGE DETECTION USING NOISE WITHIN IMAGES**

A. Khashman, *Near East University (Turkey)*

#### **T3B.4**

##### **ON THE MODIFIED VECTOR MEDIAN FILTER**

J. M. Kountouris, K. N. Plataniotis, K. N. Plataniotis, A. N. Venetsanopoulos, *University of Toronto (Canada)*

#### **T3B.5**

##### **REGULARIZATION OF DECONVOLUTION USING STEERABLE PYRAMIDS**

F. Rooms, W. Philips, *University of Ghent (Belgium)*

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## **SESSION T3C**

### **Non-Linear Signals, Systems & Chaos**

Type: Lecture

Time & Place: 13.30 – 17.00, HALL C

Chairpersons: M. Sabry-Rizk ( *U.K.* )  
T. Deliyannis ( *Greece* )

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#### **T3C.1**

##### **NONLINEAR SYSTEM IDENTIFICATION USING DETERMINISTIC MULTILEVEL SEQUENCES**

E. M. Ekiolu, A. H. Kayran, *Istanbul Technical University ( Turkey )*

#### **T3C.2**

##### **MEANS FOR DETECTING CHAOS AND HYPERCHAOS IN NONLINEAR ELECTRONIC CIRCUITS**

K. Giannakopoulos, T. Deliyannis, *University Of Patras ( Greece )*

J. Hadjidemetriou, *University of Thessaloniki ( Greece )*

#### **T3C.3**

##### **A NEW CLASS OF NON-LINEAR, MULTI-DIMENSIONAL STRUCTURES FOR LONG-TERM DYNAMIC MODELLING OF CHAOTIC SYSTEMS**

M. Sabry-Rizk, W. Zgallai, *City University London ( U.K. )*

#### **T3C.4**

##### **APPLICATION OF EXPANSION INTO MATRIX SERIES TO ANALYSIS OF ATTRACTORS OF COMPLEX NONLINEAR DYNAMICAL SYSTEMS**

A. M. Krot, *Institute of Engineering Cybernetics of the National Academy of Sciences of Belarus ( Belarus )*

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## **SESSION T3P**

### **Speech and Audio Processing**

Type: Poster

Time & Place: 13.30 – 17.00, POSTER AREA

Chairpersons: A. Tawfik (*Egypt*)

C. T. Hsieh (*Taiwan*)

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#### **T3P.1**

##### **AN ADAPTIVE PSYCHOACOUSTIC FILTER FOR BROADBAND NOISE REDUCTION IN AUDIO SIGNALS**

I. Kauppinen, K. Roth, *University of Turku (Finland)*

#### **T3P.2**

##### **METHODS FOR DETECTING IMPULSIVE NOISE IN SPEECH AND AUDIO SIGNALS**

I. Kauppinen, *University of Turku (Finland)*

#### **T3P.3**

##### **DESIGN OF COMB FILTERS BASED ON AUDITORY FILTER BANDWIDTHS FOR BINAURAL DICHOTIC PRESENTATION FOR PERSONS WITH SENSORINEURAL HEARING IMPAIRMENT**

A. N. Cheeran, P. C. Pandey, D. S. Jangamashetti, *IIT Bombay (India)*

#### **T3P.4**

##### **3 CLASSES SEGMENTATION FOR ANALYSIS OF FOOTBALL AUDIO SEQUENCES**

S. Lefèvre, B. Maillard, N. Vincent, *Université de Tours (France)*

#### **T3P.5**

##### **AUTOMATIC EPOCH EXTRACTION FOR CLOSED-PHASE ANALYSIS OF SPEECH**

A. Kounoudes, P. A. Naylor, M. Brookes, *Imperial College (U.K.)*

#### **T3P.6**

##### **EFFICIENT REAL-TIME NOISE ESTIMATION WITHOUT EXPLICIT SPEECH, NON-SPEECH DETECTION: AN ASSESSMENT ON THE AURORA CORPUS**

N. W. D. Evans, J. S. Mason, *University of Wales Swansea (U.K.)*

B. Fauve, *E.N.S.P.M. (France)*

#### **T3P.7**

##### **SOUND REPRODUCTION SYSTEM WITH ADAPTIVE COMPENSATION OF TEMPERATURE FLUCTUATION EFFECT**

Y. Tatekura, H. Saruwatari, K. Shikano, *Nara Institute of Science and Technology (Japan)*

#### **T3P.8**

##### **A ROBUST SPEAKER DEPENDENT ALGORITHM FOR ISOLATED WORD RECOGNITION**

F. Beritelli, S. Casale, S. Serrano, *University of Catania (Italy)*

#### **T3P.9**

##### **A NEW CELP SPEECH CODER FOR WIRELESS COMMUNICATION**

M. Sadek, S. El-Ramly, A. Tawfik, *Ain - Shams University (Egypt)*

#### **T3P.10**

##### **ANALYSIS OF NONLINEAR SIGNALS BASED ON ESTIMATING MINIMAL ATTRACTOR EMBEDDING DIMENSION**

A. M. Krot, H. B. Minervina, *National Academy of Sciences of Belarus (Belarus)*

#### **T3P.11**

##### **WAVELET-BASED SPEAKER IDENTIFICATION**

E. I. Bovbel, I. E. Kheidorov, Y. A. Chaikou, *Belarusian State University (Belarus)*

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## **SESSION T4A**

### **Array Signal Processing II**

Type: Special Session

Time & Place: 17.30 – 19.00, HALL A

Chairperson & Organiser: A. Manikas (*U.K.*)

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#### **T4A.1**

##### **A MULTITARGET BEAMFORMING ALGORITHM BASED ON A ONE-STEP PREDICTION KALMAN FILTER**

J. M. Kountouris, K. N. Plataniotis, A. N. Venetsanopoulos, *University of Toronto (Canada)*

#### **T4A.2**

##### **POLARISATION-ANGLE-DELAY ESTIMATION USING CROSSED-DIPOLE ARRAY FOR DS-CDMA SYSTEMS**

J. W. P. Ng, A. Manikas, *Imperial College (U.K.)*

#### **T4A.3**

##### **SEMI-BLIND INTERFERENCE SUPPRESSION FOR FREQUENCY SELECTIVE DS-CDMA SYSTEMS EMPLOYING SPACE-TIME BLOCK CODES**

R. A. Pacheco, D. Hatzinakos, *University of Toronto (Canada)*

#### **T4A.4**

##### **A BLIND MULTI-USER MIMO TRANSCEIVER USING CODE MODULATION IN A MULTIPATH CONTEXT**

O. Rousseaux, G. Leus, M. Moonen, *Katholieke Universiteit Leuven (Belgium)*

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## **SESSION T4B**

### **Computer Vision**

Type: Lecture

Time & Place: 17.30 – 19.00, HALL B

Chairpersons: G. Vaksevanos (*U.S.A.*)

K. Plataniotis (*Canada*)

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#### **T4B.1**

##### **A RECURSIVE SEGMENTATION AND CLASSIFICATION SCHEME FOR IMPROVING SEGMENTATION ACCURACY AND DETECTION RATE IN REAL-TIME MACHINE VISION APPLICATIONS**

Y. Ding, G. J. Vachtsevanos, A. J. Yezzi Jr, Y. Zhang, Y. Wardi, *Georgia Institute of Technology (U.S.A.)*

#### **T4B.2**

##### **VISUAL SERVOING OF A MINIATURE ROBOT TOWARD A MARKED TARGET**

P. Röbller, S. A. Stoeter, P. E. Rybski, M. Gini, N. Papanikolopoulos, *University of Minnesota (U.S.A.)*

#### **T4B.3**

##### **ON-ROAD VEHICLE DETECTION USING GABOR FILTERS AND SUPPORT VECTOR MACHINES**

Z. Sun, G. Bebis, *University of Nevada (U.S.A.)*

R. Miller, *Ford Motor Company, Dearborn (U.S.A.)*

#### **T4B.4**

##### **REAL-TIME TRACKING FOR MANAGING SUBURBAN INTERSECTIONS**

H. Veeraraghavan, O. Masoud, N. Papanikolopoulos, *University of Minnesota (U.S.A.)*

#### **T4B.5**

##### **ON THE SIGNIFICANCE OF DIFFERENT FACIAL PARTS FOR AUTOMATIC AGE ESTIMATION**

A. Lanitis, *Cyprus College (Cyprus)*

#### **T4B.6**

##### **HEIGHT ESTIMATION FROM VECTOR FIELDS OF SURFACE NORMALS**

G. D.J. Smith, A. G. Bors, *University of York (U.K.)*

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## **SESSION T4C**

### **DSP Algorithms and Hardware**

Type: Special Session

Time & Place: 17.30 – 19.00, HALL C

Chairperson & Organiser: P. Cheung (*U.K.*)

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#### **T4C.1**

##### **AN AOCA-BASED VLSI ARCHITECTURE FOR NON-RECURSIVE 2D DISCRETE PERIODIZED WAVELET TRANSFORM**

K. Chung, *National Kaohsiung First University Science and Technology (Taiwan)*

Y. Jhuang, F. – C. Hsieh, J. Cwang, *I-Shou University (Taiwan)*

#### **T4C.2**

##### **ON THE DESIGN AND MULTIPLIER-LESS REALIZATION OF DIGITAL IF FOR SOFTWARE RADIO RECEIVERS WITH PRESCRIBED OUTPUT ACCURACY**

S. C. Chan, K. S. Yeung, *The University of Hong Kong (Hong Kong)*

#### **T4C.3**

##### **DESIGNING FIR DIGITAL FILTERS HAVING EXACT IN-BAND VALUES**

D. J. Shpak, *University of Victoria (Canada)*

#### **T4C.4**

##### **A WINDOW-BASED COLOR QUANTIZATION TECHNIQUE AND ITS ARCHITECTURE IMPLEMENTATION**

A. Atsalakis, N. Kroupis, D. Soudris, N. Papamarkos, *Democritus University of Thrace (Greece)*

#### **T4C.5**

##### **A TRIMEDIA BASED MULTI-PROCESSOR SYSTEM USING PCI TECHNOLOGY FOR IMMERSIVE VIDEOCONFERENCE TERMINALS**

O. Schreer, M. Karl, P. Kauff, *Heinrich-Hertz-Institut (Germany)*

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## **SESSION T4P**

### **Signal and System Modelling II**

Type: Poster

Time & Place: 17.30 – 19.00, POSTER AREA

Chairperson: C. P. Pandey (*India*)

I. Stouboulos (*Greece*)

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#### **T4P.1**

##### **AN INVESTIGATION INTO DIFFERENT MASKING BEHAVIOURS RESULTING FROM ESTIMATION OF TONALITY INDEX**

E. Kurniawati, C. T. Lau, B. Premkumar, *Nanyang Technological University (Singapore)*

J. Absar, S. George, *ST Microelectronics Asia Pacific Pte. Ltd. (Singapore)*

#### **T4P.2**

##### **DIGITAL REAL TIME LINE SIMULATOR**

T. Fliess, H. J. Jentschel, *Dresden University of Technology (Germany)*

#### **T4P.3**

##### **LIMIT CYCLES IN EMBEDDED HIGH-ORDER, LOWPASS SIGMA-DELTA MODULATORS WITH DISTINCT NTF ZEROS**

N. Wong, T. S. Ng, *The University of Hong Kong (Hong Kong)*

#### **T4P.4**

##### **HIGHER ORDER SPECTRAL ANALYSIS OF NONLINEAR BEHAVIOUR IN SD MODULATOR**

I. Dokas, V. Tsagaris, V. Anastassopoulos, *University of Patras (Greece)*

#### **T4P.5**

##### **STATE-TRAJECTORY BEHAVIOR IN HIGH-ORDER, LOWPASS SIGMA-DELTA MODULATORS WITH DISTINCT NTF ZEROS**

N. Wong, T. S. Ng, *The University of Hong Kong (Hong Kong)*

#### **T4P.6**

##### **SYNCHRONIZATION IN A CHAOTIC NEURAL NETWORK**

I. M. Kyprianidis, I. N. Stouboulos, *Aristotle University of Thessaloniki (Greece)*

#### **T4P.7**

##### **A NEURAL NETWORK-GENETIC ALGORITHM SCHEME FOR OPTIMAL GROUPING OF INDIVIDUAL CORES IN THREE-PHASE DISTRIBUTED TRANSFORMERS**

A. D. Doulamis, N. Doulamis, *National Technical University of Athens (Greece)*

#### **T4P.8**

##### **STATISTICAL AND SPECTRAL PROPERTIES OF IRREDUCIBLE MARKOV CHAINS**

V. Anastassopoulos, *University of Patras (Greece)*

## WEDNESDAY 3 July 2002

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### PLENARY 5

#### SIGNAL PROCESSING IN BIOINFORMATICS

L. da Fontoura Costa (*Brazil*)

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### SESSION W1A

#### DSP in Thoughts Understanding

Type: Special Session

Time & Place: 9.30 – 11.00, HALL A

Chairperson & Organiser: T. Ebrahimi (*Switzerland*)

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#### W1A.1

##### ADAPTIVE BRAIN INTERFACES —ABI: SIMPLE FEATURES, SIMPLE NEURAL NETWORK, COMPLEX BRAIN-ACTUATED DEVICES

J. R. Mill, A. Hauser, F. Renkens, *Swiss Federal Institute of Technology, Lausanne (Switzerland)*

#### W1A.2

##### CLASSIFICATION OF EEG SIGNALS IN THE AMBIGUITY DOMAIN FOR BRAIN COMPUTER INTERFACE APPLICATIONS

G. Garcia, T. Ebrahimi, J. M. Vesin, *Swiss Federal Institute of Technology, Lausanne (Switzerland)*

#### W1A.3

##### PARAMETRIC MODELS AND SPECTRAL ANALYSIS FOR CLASSIFICATION IN BRAIN-COMPUTER INTERFACES

S. Kelly, D. Burke, P. de Chazal, R. Reilly, *National University of Ireland (Ireland)*

#### W1A.4

##### REGISTRATION OF TRANSCRANIAL MAGNETIC STIMULATION, A VISUALIZATION TOOL FOR BRAIN FUNCTIONS

Q. Noirhomme, E. Romero, Y. Vandermeeren, E. Olivier, B. Macq, *Université Catholique de Louvain (Belgium)*

O. Cuisenaire, *Swiss Federal Institute of Technology, Lausanne (Switzerland)*

M. Ferrant, *General Electri, Paris (France)*

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## **SESSION W1B**

### **Speech Processing II**

Type: Lecture

Time & Place: 9.30 – 11.00, HALL B

Chairpersons: R. Merserau ( *U.S.A* )

N. Fakotakis ( *Greece* )

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#### **W1B.1**

##### **AUDIO-VISUAL SPEECH RECOGNITION BY SPEECHREADING**

X. Zhang, R. M. Mersereau, M. A. Clements, *Georgia Institute of Technology ( U.S.A. )*

#### **W1B.2**

##### **AR-VECTOR USING CMS FOR ROBUST TEXT INDEPENDENT SPEAKER VERIFICATION**

C.B. de Lima, D. G. da Silva, J.A. Apolinário Jr., *IME ( Brazil )*

A. Alcaim, *CETUC/PUC-Rio ( Brazil )*

#### **W1B.3**

##### **ON ROBUST AR SPEECH ANALYSIS BASED ON QUADRATIC CLASSIFIER WITH HEURISTICALLY DECISION THRESHOLD**

M. Markoviae, *Institute of Applied Mathematics and Electronics ( Yugoslavia )*

#### **W1B.4**

##### **PROBABILISTIC NEURAL NETWORKS COMBINED WITH GMMS FOR SPEAKER RECOGNITION OVER TELEPHONE CHANNELS**

T. Ganchev, N. Fakotakis, G. Kokkinakis, *University of Patras ( Greece )*

A. Tsopanoglou, *Knowledge S.A.( Greece )*

#### **W1B.5**

##### **DETECTION OF CLICKS IN AUDIO SIGNALS USING WARPED LINEAR PREDICTION**

P. Esquef, M. Karjalainen, *Helsinki University of Technology ( Finland )*

V. Välimäki, *Tampere University of Technology( Finland )*

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## **SESSION W1C**

### **Image & Multidimensional Signal Processing I**

Type: Lecture

Time & Place: 9.30 – 11.00, HALL C

Chairpersons & Organisers: A. H. Tewfik (*U.S.A.* ),  
C. Kotropoulos (*Greece*)

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#### **W1C.1**

##### **SHAPE DESCRIPTION BY IMAGE FORESTING TRANSFORM**

R. S. Torres, A. X. Falcão, *University of Campinas (Brazil)*

L.F. Costa, *University of São Paulo (Brazil)*

#### **W1C.2**

##### **VISUAL SPEECH RECOGNITION USING SUPPORT VECTOR MACHINES**

M. Gordan, *Technical University of Cluj-Napoca (Romania)*

C. Kotropoulos, I. Pitas, *Aristotle University of Thessaloniki (Greece)*

#### **W1C.3**

##### **A FUZZY REGION DISSIMILARITY MEASURE USING FEATURE SPACE INFORMATION**

S.Makrogiannis, G. Economou, S. Fotopoulos, *University of Patras (Greece)*

#### **W1C.4**

##### **HIERARCHIC TEXTURE CLASSIFICATION USING STATISTICAL STEGANOGRAPHY TECHNIQUES**

Y. – K. Ho, M. – Y. Wu, J. – H. Lee, *National Cheng Kung University (Taiwan)*

#### **W1C.5**

##### **A FAST OBJECT DETECTION ALGORITHM USING MOTION-BASED REGION-OF-INTEREST DETERMINATION**

A. Anbu, G. Agarwal, G. Srivastava, *Motorola India Electronics Ltd. (India)*

#### **W1C.6**

##### **A LOCAL APPROACH FOR FAST LINE DETECTION**

S. Lefèvre, C. Dixon, C. Jeusse, N. Vincent, *Université de Tours (France)*

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## **SESSION W1P**

### **Biomedical Signal and Image Processing III**

Type: Poster

Time & Place: 9.30 – 11.00, POSTER AREA

Chairpersons: D. E. Creanga (*Romania*)  
D. Cavouras (*Greece*)

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#### **W1P.1**

##### **MULTI-STREAM HIDDEN MARKOV MODELS AND WAVELETS FOR VOCAL TRACT DISEASE DETECTION AND PRONUNCIATION CORRECTION**

E. I. Bovbel, I. E. Kheidorov, Y. V. Pachkovski, *Belarusian State University (Belarus)*

#### **W1P.2**

##### **EVALUATION OF DIFFERENT WAVELET CONSTRUCTIONS (DESIGNS) FOR ANALYSIS OF PROTEIN SEQUENCES**

I. Cosic, *School of Electrical and Computer Engineering (Australia)*  
Q. Fang, *RMIT University (Australia)*

#### **W1P.3**

##### **PATTERN RECOGNITION BASED SEGMENTATION METHOD OF CELL NUCLEI IN TISSUE SECTION ANALYSIS**

P. Spyridonos, D. Glotsos, G. Nikiforidis, *University of Patras (Greece)*  
D. Cavouras, *Technological Education Institution of Athens (Greece)*  
P. Ravazoula, V. Zolota, *Patras University Hospital (Greece)*

#### **W1P.4**

##### **DYNAMIC GRID SELF-ORGANIZING MAP FOR CLUSTERING OF VISUAL EVOKED POTENTIAL SINGLE TRIALS**

M. Stavrinou, S. Papadimitriou, A. Bezerianos, *University of Patras (Greece)*  
P. Papathanasopoulos, *Patras University Hospital (Greece)*

#### **W1P.5**

##### **ACTIVE CONTOURS FOR HEART MOTION-COMPENSATED RECONSTRUCTION IN COMPUTED TOMOGRAPHY**

R. Verdú, J. Morales, R. Berenguer, L. Weruaga, *Universidad Politécnica de Cartagena (Spain)*

#### **W1P.6**

##### **WAVELET VARIANCE ANALYSIS OF HIGH-RESOLUTION ECG IN PATIENTS PRONE TO VT/VF DURING CARDIAC ELECTROPHYSIOLOGY STUDIES**

A. Kapela, A. Achim, A. Bezerianos, *University of Patras (Greece)*  
R. D. Berger, *Johns Hopkins University (U.S.A.)*

#### **W1P.7**

##### **THE APPLICATION OF SYMPLECTIC GEOMETRY ON NONLINEAR DYNAMICS ANALYSIS OF THE EXPERIMENTAL DATA**

M. Lei, Z. Wang, Z. Feng, *Shanghai Jiao Tong University (China)*

#### **W1P.8**

##### **COUPLED OSCILLATORS APPROACH TO IDENTIFICATION OF DIRECTIONALITY IN CARDIORESPIRATORY INTERACTION**

L. Cimponeriu, A. Bezerianos, *University of Patras (Greece)*  
M. Rosenblum, *University of Potsdam (Germany)*  
A. Patzak, R. Mrowka, *Humboldt University (Germany)*

#### **W1P.9**

##### **OPTIMIZING THE SWEEP CYCLE OF TIME-VARYING COMB FILTERS FOR BINAURAL DICHOTIC PRESENTATION IN SENSORINEURAL HEARING IMPAIRMENT**

A. N. Cheeran, P. C. Pandey, *IIT Bombay (India)*

**W1P.10****EVOLUTIONARY SELF-ADAPTIVE MULTIMODEL PREDICTION ALGORITHMS OF THE FETAL MAGNETOCARDIOGRAM**

A.V. Adamopoulos, P. A. Anninos, *Democritus University of Thrace ( Greece )*

S. D. Likothanassis, G. N. Beligiannis, L.V Skarlas, E.N. Demiris, D. Papadopoulos, *University of Patras ( Greece )*

**W1P.11****PRELIMINARY STUDY ON THE TEMPORAL PARAMETERS IN SOME ELECTRORETINOGRAPHIC RECORDINGS**

D. E. Creanga, *Univ. Al. I. Cuza ( Romania )*

**W1P.12****MULTIRESOLUTION AUTOREGRESSIVE FILTERING FOR PNEUMONIA DETECTION IN MEDICAL IMAGES**

I. Stephanakis, *National Technical University of Athens ( Greece )*

G. Anastassopoulos, A. Tsalkidis, *Democritus University of Thrace ( Greece )*

**W1P.13****A PROGNOSTIC-CLASSIFICATION SYSTEM BASED ON A PROBABILISTIC NN FOR PREDICTING URINE BLADDER CANCER RECURRENCE**

P. Spyridonos, D. Glotsos, G. Nikiforidis, *University of Patras ( Greece )*

D. Cavouras, *Technological Education Institution of Athens ( Greece )*

P. Ravazoula, *Patras University Hospital ( Greece )*

**W1P.14****HEART PERIOD DYNAMICS FOLLOWING AN ASPHYXIA EXPERIMENT IN RATS**

L. Moraru, L. Cimponeriu, A. Bezerianos, *University of Patras ( Greece )*

**W1P.15****A SPECKLE REDUCTION FILTER USING WAVELET-BASED METHODS FOR MEDICAL IMAGING APPLICATION**

S. C. Kang, *INCOM I&C ( Korea )*

S. H. Hong, *Inha University ( Korea )*

**W1P.15****MOSAIC ULTRASOUND MEDICAL IMAGE COMPRESSION USING TTA10 ALGORITHM**

D. Tsishkou, E. Bovbel, *Belarussian State University ( Belarus )*

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## **SESSION W2A**

### **Non-linear Methods in Speech Processing**

Type: Special Session

Time & Place: 11.30 – 13.00, HALL A

Chairperson & Organiser: P. Maragos (*Greece*)

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#### **W2A.1**

##### **DETECTION OF CHAOTIC BEHAVIOUR IN SPEECH SIGNALS USING THE LARGEST LYAPUNOV EXPONENT**

F. Martvnez, A. Guillaumon, J. C. Alcaraz, M.C. Alcaraz, *Universidad Politécnica de Cartagena (Spain)*

#### **W2A.2**

##### **USING GAUSSIAN PROCESSES TO SYNTHESISE VOICED SPEECH WITH NATURAL PITCH VARIATIONS**

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

D. Leith, *National University of Ireland Maynooth (Ireland)*

I. Mann, *PACE Microsystems, Ltd (U.K.)*

#### **W2A.3**

##### **SOME ADVANCES IN NONLINEAR SPEECH MODELING USING MODULATIONS, FRACTALS, AND CHAOS**

P. Maragos, A. G. Dimakis, I. Kokkinos, *National Technical University of Athens (Greece)*

#### **W2A.4**

##### **PARAMETER ESTIMATION OF BRANCHED TUBE MODELS BY ITERATIVE INVERSE FILTERING**

K. Schnell, A. Lacroix, *Goethe – University Frankfurt (Germany)*

#### **W2A.5**

##### **USING WAVELET TRANSFORM FOR THE RIDGES EXTRACTION OF A PARABOLIC FREQUENCY MODULATED SIGNAL – Part I**

C. Gordan, R. Reiz, *University of Oradea (Romania)*

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## **SESSION W2B**

### **Adaptive Signal Processing III**

Type: Lecture

Time & Place: 11.30 – 13.00, HALL B

Chairpersons: M. Valkama (*Finland*)  
T.Ramstad (*Norway*)

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#### **W2B.1**

##### **DIGITAL I/Q IMBALANCE COMPENSATION IN LOW-IF RECEIVERS: PRINCIPLES AND PRACTICE**

M. Valkama, K. Salminen, M. Renfors, *Tampere University of Technology (Finland)*

#### **W2B.2**

##### **AN APPLICATION OF ADAPTIVE FIR FILTER WITH NONLINEAR OPTIMAL INPUT DESIGN**

Z. Đ. Banjac, M. Đ. Veinoviæ, *Institute of Applied Mathematics and Electronic (Yugoslavia)*

B. D. Kovaèeviæ, M. M. Milosavljeviæ, *University of Belgrade (Yugoslavia)*

#### **W2B.3**

##### **A LOW-COMPLEXITY SILENCE SUPPRESSION ALGORITHM FOR MOBILE COMMUNICATION IN NOISY ENVIRONMENTS**

F. Beritelli, S. Casale, S. Serrano, *University of Catania (Italy)*

#### **W2B.4**

##### **ADAPTABLE NEURAL NETWORKS FOR MODELING RECURSIVE NON-LINEAR SYSTEMS**

N. Doulamis, A. Doulamis, T. Varvarigou, *National Technical University of Athens (Greece)*

#### **W2B.5**

##### **AN ADAPTIVE COMBINATION OF ADAPTIVE FILTERS FOR PLANT IDENTIFICATION**

M. Martinez-Ramón, J. Arenas-Garcia, A. Navia-Vázquez, A. R. Figueiras-Vidal, *Universidad Carlos III de Madrid (Spain)*

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## **SESSION W2C**

### **Analogue Signal Processing**

Type: Special Session

Time & Place: 11.30 – 13.00, HALL C

Chairperson & Organiser: I. Haritanis ( *Greece* )

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#### **W2C.1**

##### **A MICROPOWER COCHLEAR PROSTHESIS SYSTEM**

J. Georgiou, *Culham Science Centre ( U.K. )*

C. Toumazou, *Imperial College ( U.K. )*

#### **W2C.2**

##### **A DIGITALLY GENERATED EXPONENTIAL FUNCTION FOR dB-LINEAR CMOS VARIABLE GAIN AMPLIFIERS**

A. Ravindran, M. Ismail, *The Ohio State University ( U.S.A. )*

E. Vidal, *Universitat Politecnica de Catalunya ( Spain )*

#### **W2C.3**

##### **POWER OPTIMIZATION IN $\Sigma\Delta$ ADC DESIGN**

O. Bajdechi, J. H. Huijsing, *Delft University of Technology ( The Netherlands )*

G. Gielen, *Katholieke Universiteit Leuven ( Belgium )*

#### **W2C.4**

##### **APPLICATION OF HIGH-SPEED, HIGH-ACCURACY DACS FOR GENERATION OF MULTIPLE CHANNELS**

J. Deveugele, M. Steyaert, *Katholieke Universiteit Leuven ( Belgium )*

#### **W2C.5**

##### **NEW FRACTIONAL PHASE-LOCKED LOOP FREQUENCY SYNTHESIZER USING A SIGMA-DELTA MODULATOR**

M. Stork, *University of West Bohemia ( Czech Republic )*

#### **W2C.6**

##### **ANALOG CIRCUIT SYNTHESIS USING LINEAR AND NONLINEAR CURRENT AMPLIFIERS**

G. Souliotis, N. Fragoulis, I. Haritanis, *University of Patras ( Greece )*

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## **SESSION W2P**

### **Image & Multidimensional Signal Processing II**

Type: Poster

Time & Place: 11.30 – 13.00, POSTER AREA

Chairpersons : N. Papamarkos (*Greece*)

L. Sousa (*Portugal*)

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#### **W2P.1**

##### **A DIFFERENTIAL ENHANCEMENT TO THE MULTIPLE WINDOW CONFIGURATION (MWC) IMAGE RESTORATION FILTER**

E. S. Hore, B. Qiu, H. R. Wu, *Monash University (Australia)*

#### **W2P.2**

##### **EDGE DETECTION AND IMAGE SEGMENTATION BASED ON NONLINEAR ANISOTROPIC DIFFUSION**

S. A. Bakalexis, Y. S. Boutalis, B. G. Mertzios, *Democritus University of Thrace (Greece)*

#### **W2P.3**

##### **A HYBRID APPROACH FOR SOLVING THE CLUSTER VALIDITY PROBLEM**

A. Chong, T.D. Gedeon, L. T. Koczy, *Murdoch University (Australia)*

#### **W2P.4**

##### **N DIMENSIONAL MOJETTE TRANSFORM. APPLICATION TO MULTIPLE DESCRIPTION.**

P. Verber, J. Guidon, *Ecole Polytechnique de l'Universiti de Nantes (France)*

#### **W2P.5**

##### **IMAGE RETRIEVAL USING A FRACTAL SIGNATURE EXTRACTION TECHNIQUE**

N. Papamarkos, N. Nikolaou, *Democritus University of Thrace (Greece)*

#### **W2P.6**

##### **PRESERVING IMAGE FEATURES IN DIGITAL HALFTONING WITH A MULTISCALE ERROR DIFFUSION TECHNIQUE**

Sin-Ming Cheung, Yuk-Hee Chan, *The Hong Kong Polytechnic University (China)*

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## PLENARY 6

### DSP IN MAMMOGRAPHY

Y. Attikiouzel, R Chandrasekhar (*Australia*)

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## SESSION W3A

### DSP in Biomedical Systems

Type: Special Session

Time & Place: 15.30 – 17.00, HALL A

Chairpersons & Organisers : C. Toumazou (*U.K.*)

A.Bharath (*U.K.*)

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#### W3A.1

##### CLASSIFICATION OF JPEG200 COMPRESSED CT IMAGES

K. Steineöfel, C.F. Dewey Jr., *MIT (U.S.A.)*

D. Janssens, B. Macq, *Katholieke Universiteit Leuven (Belgium)*

#### W3A.2

##### ENSEMBLE HIDDEN MARKOV MODELS FOR BIOSIGNAL ANALYSIS

I. Rezek, S. J. Roberts, *University of Oxford (U.K.)*

#### W3A.3

##### SIMULATED ATRIAL FIBRILLATION IN A COMPUTER MODEL OF HUMAN ATRIA

V. Jacquemet, S. Zozor, N. Virag, O. Blanc, J.-M. Vesin, *EPFL (Switzerland)*

C.S. Henriquez, E. Pruvot, L. Kappenberger, *CHUV, Lausanne (Switzerland)*

#### W3A.4

##### 3D MORPHOLOGICAL ANALYSIS OF BRAIN MRI USING WAVELETS

S. C. D. Pinto, L. da F. Costa, R. M. Cesar-Jr, *University of São Paulo (Brazil)*

D. Gokcay, *Swartz Center for Computational Neuroscience (U.S.A.)*

#### W3A.5

##### ENHANCEMENT OF DNA MICROARRAY CHIP IMAGES

M. K. Szczepansk., B. Smolka, *Silesian University of Technology Akademicka (Poland)*

K. N. Plataniotis, A. N. Venetsanopoulos, *University of Toronto (Canada)*

#### W3A.6

##### MULTI-MODAL MEDICAL IMAGE REGISTRATION: FROM INFORMATION THEORY TO OPTIMIZATION OBJECTIVE

T. Butz, O. Cuisenaire, J. Thiran, *Swiss Federal Institute of Technology (Switzerland)*

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## **SESSION W3B**

### **Signal & Image Processing**

Type: Lecture

Time & Place: 15.30 – 17.00, HALL B

Chairpersons: N. Papanikolopoulos ( *U.S.A.* )

P. Tsakalides ( *Greece* )

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#### **W3B.1**

##### **A CAUSAL OPTIMAL FILTER OF THE SECOND ORDER**

A. Torokhti, P. Howlett, *University of South Australia ( Australia )*

C. Pearce, *University of Adelaide ( Australia )*

#### **W3B.2**

##### **NEURAL NETWORK SCHEMES FOR BLIND SEPARATION OF SOURCES FROM NONLINEAR MIXTURES**

W. L. Woo, S. Sali, *University of Newcastle ( U.K. )*

#### **W3B.3**

##### **SAR IMAGE DENOISING: A MULTISCALE ROBUST STATISTICAL APPROACH**

A. Achim, A. Bezerianos, *University of Patras ( Greece )*

P. Tsakalides, *National Observatory of Athens ( Greece )*

#### **W3B.4**

##### **AN ANALYSIS OF SUB-PIXEL ESTIMATION ERROR ON AREA-BASED IMAGE MATCHING**

M. Shimizu, M. Okutomi, *Tokyo Institute of Technology ( Japan )*

#### **W3B.5**

##### **USEFULNESS OF PARAMETRIC DYNAMIC CONTOURS VS. LEVEL SETS FOR REAL-TIME COMPUTER VISION**

D. Perrin, N. Papanikolopoulos, *University of Minnesota ( U.S.A. )*

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## **SESSION W3C**

### **DSP Education & Implementations**

Type: Lecture

Time & Place: 15.30 – 17.00, HALL C

Chairpersons : J.Jackson (*U.S.A.*)

E. Zigouris (*Greece*)

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#### **W3C.1**

##### **SYNCHRONOUS AND ASYNCHRONOUS DISTRIBUTED DSP EDUCATION**

M. H. Hayes III, J. R. Jackson, *Georgia Institute of Technology (U.S.A.)*

#### **W3C.2**

##### **DSP TELEOPERATION FOR DIGITAL SIGNAL PROCESSING TEACHING AND TRAINING VIA INTERNET**

C. Couturier, K. Kpalma, J. Ronsin, *CNRS – INSA (France)*

#### **W3C.3**

##### **IMPULSE NOISE REMOVAL ON AN EMBEDDED, LOW MEMORY SIMD PROCESSOR**

J. Kim, S. Ryu, L. M. Wills, D. Scott Wills, *Georgia Institute of Technology (U.S.A.)*

A. Gentile, *Università di Palermo (Italy)*

#### **W3C.4**

##### **PARAMETRIC ARCHITECTURE FOR IMPLEMENTING MULTIMEDIA ALGORITHMS**

N. Kavvadias, S. Nikolaidis, *Aristotle University of Thessaloniki (Greece)*

#### **W3C.5**

##### **SOLVING DIFFERENTIAL EQUATIONS WITH NEURAL NETWORKS: IMPLEMENTATION ON A DSP PLATFORM**

K. Valasoulis, D. I. Fotiadis, I. E. Lagaris, A. Likas, *University of Ioannina (Greece)*

#### **W3C.6**

##### **A PROGRAMMABLE IMAGE SIGNAL PROCESSING ARCHITECTURE FOR EMBEDDED VISION SYSTEMS**

S. McBader, *NeuriCam S.p.A (Italy)*

P. Lee, *University of Kent at Canterbury (U.K.)*

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## SESSION W3P

### Adaptive Signal Processing IV

Type: Poster

Time & Place: 15.30 – 17.00, POSTER AREA

Chairpersons : K. L. Ho (*Hong Kong*)

A. Rontogiannis (*Greece*)

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#### W3P.1

##### TIME-VARYING ALLPASS FILTERS USING SPECTRAL-SHAPED NOISE FOR SIGNAL DECORRELATION IN STEREOPHONIC ACOUSTIC ECHO CANCELLATION

N. Tangsangiumvisai, *Chulalongkorn University (Thailand)*

J. A. Chambers, *King's College, London (U.K.)*

A. G. Constantinides, *Imperial College, London, (U.K.)*

#### W3P.2

##### ACOUSTIC INTERFERENCE CANCELLATION FOR HANDS-FREE TERMINALS

S. J. Park, D. H. Youn, S. H. Park, *Yonsei University (Korea)*

#### W3P.3

##### A TIMING RECOVERY CRITERION DERIVED FROM THE TAP WEIGHTS OF A DECISION FEEDBACK EQUALIZER FOR QAM DIGITAL SUBSCRIBER LINE SYSTEMS

S. Haar, R. Zukunft, F. Vogelbruch, *Munich University of Technology (Germany)*

#### W3P.4

##### A GLOBAL GRADIENT DESCENT ALGORITHM FOR HIERARCHICAL FIR ADAPTIVE FILTERS

C. G. Boukis, D. P. Mandic, *Imperial College (U.K.)*

#### W3P.5

##### A ROBUST SUBSPACE TRACKING ALGORITHM FOR SUBSPACE-BASED BLIND MULTIUSER DETECTION IN IMPULSIVE NOISE

Y. Wen, S. C. Chan, K. L. Ho, *The University of Hong Kong (Hong Kong)*

#### W3P.6

##### $H_\infty$ BOUNDED OPTIMAL UPDATING - DOWN-DATING ALGORITHM

S. D. Kothari, *Indian Institute of Technology (India)*

#### W3P.7

##### A NEW ALGORITHM FOR EXPLICIT TIME DELAY ESTIMATION

Z. Cheng, T. T. Tjhung, *National University of Singapore (Singapore)*

#### W3P.8

##### IMPROVING THE SPEED AND PERFORMANCE OF ADAPTIVE EQUALIZERS VIA TRANSFORM BASED ADAPTIVE FILTERING

M. A. Shamma, *University Heights (U.S.A.)*

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## **SESSION W4A**

### **DSP in Defence**

Type: Special Session

Time & Place: 17.30 – 19.00, HALL A

Chairperson & Organiser: I. Proudler (U.K.)

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#### **W4A.1**

##### **COMPARING EFFICIENT BROADBAND BEAMFORMING ARCHITECTURES AND THEIR PERFORMANCE TRADE-OFFS**

S. Weiss, *University of Southampton (U.K.)*

I.K. Proudler, *QinetiQ Ltd (U.K.)*

#### **W4A.2**

##### **HIGH RESOLUTION SPATIAL SPECTRUM ESTIMATION IN A NON-STATIONARY ENVIRONMENT**

P.R. White, *University of Southampton (U.K.)*

#### **W4A.3**

##### **ADAPTIVE SPATIAL AND TEMPORAL DIVERSITY COMBINING IN SPREAD SPECTRUM, MULTI-ACCESS, SUB-EA ACOUSTIC COMMUNICATION RECEIVERS**

O. R. Hinto, C. C. Tsimenidis, B. S. Shartif, *University of Newcastle Upon Tyne (U.K.)*

#### **W4A.4**

##### **TARGET TRACKING - A BAYESIAN PERSPECTIVE**

S. Challa, R. J. Evans, D. Mušicki, *University of Melbourne (Australia)*

#### **W4A.5**

##### **SIGNAL SONAR PROCESSING**

G. Bienvenu, *Thales Underwater Systems (France)*

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## **SESSION W4B**

### **DSP in Communications III**

Type: Lecture

Time & Place: 17.30 – 19.00, HALL B

Chairpersons : C. Berberidis (*Greece*)

I. P. Marino (*Spain*)

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#### **W4B.1**

##### **TWO-STATES W-CDMA RECEIVER PERFORMANCE IN A MULTIPATH FADING CHANNEL**

L. Mucchi, L. S. Ronga, E. Del Re, *University of Florence (Italy)*

#### **W4B.2**

##### **SPACE-DOPPLER PARAMETER ESTIMATION FOR SPACE-TIME-DOPPLER RECEPTION IN TIME-VARYING MULTIPATH DS-CDMA SYSTEMS**

L.K. Huang, A. Manikas, *Imperial College (U.K.)*

#### **W4B.3**

##### **REDUCED COMPLEXITY FEEDFORWARD FREQUENCY OFFSET ESTIMATOR FOR AWGN COMMUNICATION CHANNELS**

M. Rezki, I. Kale, L. Sabel, *University of Westminster (U.K.)*

#### **W4B.4**

##### **FAST FREQUENCY SYNTHESIZER CONCEPT BASED ON DIGITAL TUNING AND I/Q SIGNAL PROCESSING**

C. C. Gaudes, M. Valkama, M. Renfors, *Tampere University of Technology (Finland)*

J. Ajanki, *Satel Oy (Finland)*

#### **W4B.5**

##### **A NOVEL CHANNEL CODING SCHEME BASED ON CONTINUOUS - TIME CHAOTIC DYNAMICS**

I. P. Mariño, L. López, M. A. F. Sanjuán, *Universidad Rey Juan Carlos (Spain)*

J. Míguez, *Universidade da Coruña (Spain)*

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## **SESSION W4C**

### **Biomedical Image Processing**

Type: Special Session

Time & Place: 17.30 – 19.00, HALL C

Chairperson & Organiser: Y. Attikiouzel (*Australia*)

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#### **W4C.1**

##### **ADAPTATION OF THE DAUGMAN-DOWNING TEXTURE DEMODULATION TO HIGHLIGHT CIRCUMSCRIBED MASS LESIONS ON MAMMOGRAMS**

S. M. Kwok, R. Chandrasekhar, Y. Attikiouzel, *The University of Western Australia (Australia)*

#### **W4C.2**

##### **AN ADAPTIVE WAVELET-BASED METHOD FOR MAMMOGRAPHIC IMAGE ENHANCEMENT**

P. Sakellariopoulos, L. Costaridou, G. Panayiotakis, *University of Patras (Greece)*

#### **W4C.3**

##### **UNCONVENTIONAL EDGE DETECTOR: PRELIMINARY THEORETICAL INVESTIGATION**

R. Chandrasekhar, P. Houlis, Y. Attikiouzel, *The University of Western Australia (Australia)*

#### **W4C.4**

##### **MAMMOGRAPHIC MASS CLASSIFICATION USING TEXTURAL FEATURES AND DESCRIPTIVE DIAGNOSTIC DATA**

M. E. Mavroforakis, H. V. Georgiou, S. Theodoridis, *University of Athens (Greece)*

D. Cavouras, *Technological Education Institution of Athens (Greece)*

N. Dimitropoulos, *EUROMEDICA Medical Center (Greece)*

#### **W4C.5**

##### **MULTI-RESOLUTION MORPHOLOGICAL ANALYSIS AND CLASSIFICATION OF MAMMOGRAPHIC MASSES USING SHAPE, SPECTRAL AND WAVELET FEATURES**

M. E. Mavroforakis, H. V. Georgiou, S. Theodoridis, *University of Athens (Greece)*

D. Cavouras, *Technological Education Institution of Athens (Greece)*

N. Dimitropoulos, *EUROMEDICA Medical Center (Greece)*

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## **SESSION W4P**

### **Image & Multidimensional Signal Processing III**

Type: Poster

Time & Place: 17.30 – 19.00, POSTER AREA

Chairpersons : D. Tzovaras ( *Greece* )

A. Kim ( *Norway* )

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#### **W4P.1**

##### **BLOCKINESS REDUCTION IN JPEG CODED IMAGES**

G. A. Triantafyllidis, D. Sampson, D. Tzovaras, M. G. Strintzis, *Informatics and Telematics Institute Thessaloniki (Greece)*

#### **W4P.2**

##### **COMPRESSION PERFORMANCE OF JPEG ENCRYPTION SCHEME**

C. Kailasanathan, R. Safavi Naini, *University of Wollongong (Australia)*

#### **W4P.3**

##### **IMAGE COMPRESSION USING PERIODIC HAAR PIECEWISE-LINEAR PHL TRANSFORM**

A. Dziech, B. Tibken, *University of Wuppertal (Germany)*

P. Slusarczyk, *Technical University of Kielce (Poland)*

#### **W4P.4**

##### **A HYBRID FRACTAL/DCT IMAGE COMPRESSION METHOD**

K. M. Curtis, *University of the West Indies (Jamaica)*

G. Neil, *University of Nottingham (U.K.)*

V. Fotopoulos, *University of Patras (Greece)*

#### **W4P.5**

##### **COMPARING PERFORMANCE OF ENTROPY CONSTRAINED SCALAR QUANTIZER AND OTHER SCALAR QUANTIZERS**

A. N. Kim, Tor A. Ramstad, *NTNU (Norway)*

#### **W4P.6**

##### **AUTOMATIC DETECTION AND RECOGNITION OF HAZARDOUS CHEMICAL AGENTS**

J. Ilonen, J. - K. Kamarainen, H. Kälviäinen, *Lappeenranta University of Technology (Finland)*

O. Anttalainen, *Environics, Ltd. (Finland)*

#### **W4P.7**

##### **NOISE TOLERANT OBJECT RECOGNITION USING GABOR FILTERING**

J.-K. Kamarainen, V. Kyrki, H. Kälviäinen, *Lappeenranta University of Technology (Finland)*

#### **W4P.8**

##### **A POSSIBLE GENETIC-ALGORITHM BASED METHOD FOR OPTIMIZING A CLASS OF ANN TRANSFER FUNCTIONS.**

M. P. Beddoess, R. K. Ward, *University Of British Columbia (Canada)*