

MESSAGE FROM THE CHAIRPERSONS

On behalf of the WISP'2011 Organizing Committee, it is our pleasure to welcome you to the 7th *IEEE International Symposium on Intelligent Signal Processing* and to Malta, this beautiful historic island in the Mediterranean Sea.

The 7th IEEE International Symposium on Intelligent Signal Processing will take place in Floriana, part of the enchanting capital of Malta, Valleta, a venue chosen to enhance interaction between participants as well as to give the event an appropriate setting. As a tradition, WISP'2011 is planned to offer a possibility for scientific communities working in the fields of intelligent systems and signal processing to exchange ideas and experiences. WISP 2011 aims to bring together scientists, researchers, and engineers to present the state-of-the-art of both sides, to understand each others counteractions, to impress each other, and to result in new theoretical and practical achievements and innovations related to intelligent signal processing in complex, distributed, embedded, and real-time systems.

As recognition of the symposium, the *IEEE Transactions on Instrumentation and Measurement* intends to promote the best results presented at WISP'2011. All published papers, fitting into the focus of IEEE TIM can be submitted to TIM via a special submission procedure. However, the manuscripts must be significantly extended beyond the scope of the proceedings papers.

The venue of the symposium, Floriana, Valleta, Malta is a unique place where so much of the historic past is visible today – from the 5000 years old temples to the immerse fortifications and palaces built by the Knights of St. John in the middle ages. There is much to discover: the magnificent fortified town, the busy street of the Knights, the glorious harbour, and not at least the sandy beaches and sunny landscape itself.

We would like to express our deep appreciation to the International Scientific Program Committee Members for offering their time in reviewing the submitted papers in such a short space of time. We would like to thank to the Conference Secretariat and to the Local Organizers for their efforts in the preparation of the event. Our pleasant duty is to gratefully acknowledge the support provided by the sponsors of the conference: the *IEEE Instrumentation and Measurement Society* and the *IEEE Hungary Section*.

Finally, we wish to thank to the plenary speakers of the symposium, to Professors Dong Hwa Kim and Toshio Fukuda for accepting our invitation and to you for coming to WISP'2011 – the success of the symposium depends on your contributions. We wish you a pleasant stay in Malta and we hope that you will enjoy the symposium and the enchanting island and capital of Malta, Valleta.

September 19, 2011

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Kaoru Hirota and Emil M. Petriu
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Junzo Watada, Japan

Yeung Yam, Hong Kong, China

Monday, September 19, 2011

13:30 - 14:00 **Opening**

14:00 - 15:00

Plenary Session

Chair: *A.R. Várkonyi-Kóczy*

14:00 **Toshio Fukuda**
*Dept. of Micro and Nano Systems Engineering, Center for Micro and Nano
Mechatronics, Nagoya University*

15:00 - 15:30 **Coffee Break**

15:30 - 17:30

Mo1: Sensors and Embedded Systems

Chair: *Gyula Simon*

15:30 **Monitoring Workers Through Wearable Transceivers for Improving
Work Safety**
*Burak Sezer (TUBITAK BILGEM, TR)
Oguzhan Urhan (University of Kocaeli, TR)*

15:50 **Indoor Location System based on ZigBee devices and Metric
Description Graphs**
*Samuel Fernández (University of Alcala, ES)
David Gualda (University of Alcala, ES)
Juan Carlos García (University of Alcala, ES)
Juan J. García (University of Alcala, ES)
Jesus Ureña (University of Alcala, ES)
Raquel Gutiérrez (University of Alcala, ES)*

16:10 **Implementation of an intelligent sensor for measurement and
prediction of solar radiation and atmospheric temperature**
*João Gomes (Universidade do Algarve, PT)
Pedro Ferreira (University of Algarve, PT)
Antonio Ruano (University of Algarve, PT)*

16:30 **Design of a Sensor Network Based Security System**
*Gergely Vakulya (University of Pannonia, HU)
Gyula Simon (University of Pannonia, HU)*

16:50 **Comparison and improvement of Dempster-Shafer models**
*Bassam Abdellatif (Institut TÃ©IA@com, TÃ©IA@com Bretagne, FR)
Abdel-Ouahab Boudraa (IRENav Ecole Navale, FR)
Christophe Osswald (ENSIETA, FR)
Jean-Marc Boucher (Telecom Bretagne, FR)*

17:30 **Welcome Reception**

Tuesday, September 20, 2011

9:00 - 10:40

Tul: Bioengineering

Chair: Juan Carlos Garcia

- 9:00** **An add-on solution to take measures automatically from critical care urine meters**
Abraham Otero (University San Pablo CEU, ES)
Roemí Fernández (Centre for Automation and Robotics CSIC-UPM, ES)
Andrey Apalkov (Centre for Automation and Robotics CSIC-UPM, ES)
Manuel Armada (Centre for Automation and Robotics CSIC-UPM, ES)
Francisco Palacios (Hospital Universitario de Getafe, ES)
- 9:20** **Is the average duration of apneas, hypopneas and desaturations useful in the diagnosis of SAHS?**
Abraham Otero (University San Pablo CEU, ES)
Paulo Félix (University of Santiago de Compostela, ES)
Jesús Presed (University of Santiago de Compostela, ES)
Miguel Rodríguez (University of Santiago de Compostela, ES)
- 9:40** **Enhancing Time-Frequency Parameters Estimation for Doppler Ultrasound Blood-Flow Signals (MR)**
Behrooz Zabihian (University of Algarve, PT)
Maria Ruano (University of Algarve, PT)
- 10:00** **Solving Practical Issues of a Portable Doppler Ultrasound System for Blood Flow Assessment During Coronary Graft Surgery (MR)**
Behrooz Zabihian (University of Algarve, PT)
Maria Ruano (University of Algarve, PT)
Julio Solano (UNAM, MX)
Demetrio Fabián García (IIMAS, Universidad Nacional Autónoma de México, MX)
Martín Fuentes (IIMAS, Universidad Nacional Autónoma de México, MX)
- 10:20** **Activity Monitoring and Emergency Warning with Location Information of the user**
Raquel Gutiérrez (University of Alcalá, ES)
Juan J. García (University of Alcalá, ES)
Juan Carlos García (University of Alcalá, ES)
Liam Marnane (University College, Cork, IE)
David Gualda (University of Alcalá, ES)
Samuel Fernández (University of Alcalá, ES)
Enrique García (University of Alcalá, ES)
- 10:40 - 11:10** **Coffee Break**

11:10 - 13:10

Tu2: Soft Computing Techniques

Chair: *Maria da Graca Ruano*

- 11:10** **Towards a More Analytical Training of Neural Networks and Neuro-Fuzzy Systems**
Antonio Ruano (University of Algarve, PT)
Cristiano Cabrita (University of Algarve, PT)
Pedro Ferreira (University of Algarve, PT)
- 11:30** **Exploiting the functional training approach in Radial Basis Function Networks**
Cristiano Cabrita (University of Algarve, PT)
Antonio Ruano (University of Algarve, PT)
Pedro Ferreira (University of Algarve, PT)
- 11:50** **Improved Back-Propagation Algorithm for Neural Network Training**
Annamaria Varkonyi-Koczy (Obuda University, HU)
Balazs Tusor (Integrated Intelligent Systems Japanese-Hungarian Laboratory, HU)
- 12:10** **Genetic Algorithm for searching a Doppler Resilient Multilevel Complementary Waveform**
Enrique Garcia (University of Alcala, ES)
Jesus Ureña (University of Alcala, ES)
Juan Garcia (University of Alcala, ES)
Maria Carmen Perez (University of Alcala, ES)
Fernando Alvarez (University of Extremadura, ES)
F. Daniel Ruiz (University of Alcala, ES)
David Gualda (University of Alcala, ES)
Raquel Gutiérrez (University of Alcala, ES)
- 12:30** **A Solution for Delivery Problem Based on HIMS Model and Service Science**
Fangyan Dong (Tokyo Institute of Technology, JP)
Kewei Chen (CDI Inc, JP)
Kaoru Hirota (Tokyo Institute of Technology, JP)
- 12:50** **Intelligent IP Traffic Matrix Estimation by Neural Network and Genetic Algorithm**
Azadeh Omidvar (IUST, IR)
Hadi Shahriar Shahhoseini (Iran University of Science and Technology, IR)
- 13:10 - 14:30** **Lunch**
- 14:30 - 15:30**
- Plenary Session**
Chair: *Kaoru Hirota*
- 14:30** **Dong Hwa Kim**
Hanbat National University

15:30 - 16:50

Tu3: Analog, Digital, and Mixed Signal Processing

Chair: *Dusan Kocur*

- 15:30** **Experimental Analyses of Mutual Shadowing Effect for Multiple Target Tracking by UWB Radar**
Dusan Kocur (Technical University of Kosice, SK)
Jana Rovnakova (Technical University of Kosice, SK)
Daniel Urdzik (Technical University of Kosice, SK)
- 15:50** **MMSE speech enhancement based on GMM and solving an over-determined system of equations**
Sarang Chehresa (Shahid Beheshti university, IR)
Mohammad Hasan Savoji (ECEP, Shahid Beheshti University, Tehran, IR)
- 16:10** **On the Use of NMF for Onset Detection in Polyphonic Piano Music**
Giovanni Costantini (University of Tor Vergata, Rome, IT)
Massimiliano Todisco (University of Tor Vergata, Rome, IT)
Renzo Perfetti (University of Perugia, IT)
Giovanni Saggio (University of Tor Vergata, Rome, IT)
- 16:30** **Chaos Synchronization in Duffing Systems with Robust Fixed Point Transformations**
Teréz Várkonyi (Óbuda University, HU)
József Tar (Óbuda University, HU)
Imre Rudas (Óbuda University, HU)

16:50 - 17:15 **Coffee Break**

17:15 - 18:05

Tu4: Poster Session

Chair: *Antonio Ruano*

Pitfalls in Using Dual Tree Complex Wavelet Transform for Texture Featuring: a Discussion

Mihaela Costin (Romanian Academy, RO)
Anca Ignat (UAIC, RO)

Wavelet-based Image Enhancement Using Fourth Order PDE

Ehsan Nadernejad (Technical University of Denmark, DK)
Soren Forchhammer (Technical University of Denmark, DK)

Adaptive-Rate Inductive Impedance Based Coin Validation

Olev Martens (Tallinn University of Technology, EE)
Raul Land (Tallinn University of Technology, EE)
Alina Gavriajaseva (Tallinn University of Technology, EE)
Ago Molder (Tallinn University of Technology, EE)

Image inpainting using Sparse Approximation with Adaptive Window Selection

Sujit Sahoo (Nanyang Technological University, SG)
Lu Wenmiao (Nanyang Technological University, SG)

Intellectual software for analysis of histological images

Valery Starovoitov (United Institute of Informatics Problems of the National Academy of Sciences of Belarus, BY)
Alexander Nedzved (United Institute of Informatics Problems, BY)

19:00 **Conference Dinner – Restaurant Lo Squero**

Wednesday, September 21, 2011

9:00 - 10:40

We1: Intelligent Signal Processing

Chair: *Jean-Marc Boucher*

- 9:00** **Wideband Speech Coding Using ADPCM and a New Enhanced Bandwidth Extension Method**
Mohammad Ghaderi (ECEP, Shahid Beheshti University, Tehran, IR)
Mohammad Hasan Savoji (ECEP, Shahid Beheshti University, Tehran, IR)
- 9:20** **Vibration signals compression with time-frequency adaptive quantization**
Marius Oltean (SUPELEC Gif sur Yvette, FR)
José Picheral (SUPELEC Gif sur Yvette, FR)
Elisabeth Lahalle (Ecole Supérieure d'Electricité, FR)
Hani Hamdan (SUPELEC Gif sur Yvette, FR)
- 9:40** **Wavelet-based sensor validation: differentiating abrupt sensor faults from system dynamics**
Alexey Kozionov (Siemens LLC, Corporate Technology Department, RU)
Mikhail Kalinkin (Siemens LLC, Corporate Technology Department, RU)
Alexey Natekin (Siemens LLC, Corporate Technology Department, RU)
Alexander Loginov (Siemens LLC, Corporate Technology Department, RU)
- 10:00** **Towards Online Operation of a RBF Neural Network Model to Forecast the Portuguese Electricity Consumption**
Pedro Ferreira (University of Algarve, PT)
Antonio Ruano (University of Algarve, PT)
Rui Pestana (REN - Rede Eléctrica Nacional, S.A., PT)
- 10:20** **Possibilities for Intelligent Sensor Network Assistance of Product Definition**
László Horváth (Óbuda University, HU)
Imre Rudas (Óbuda University, HU)
- 10:40 - 11:20** **Coffee Break**

11:20 - 13:00

We2: Image Processing and Computer Vision

Chair: *Fangyan Dong*

- 11:20** **A Multi-Channel Representation for Images on Quantum Computers using the RGB Alpha Color Space**
Bo Sun (Tokyo Institute of Technology, JP)
Phuc Q. Le (Tokyo Institute of Technology, JP)
Abdullah M. Ilyasu (Tokyo Institute of Technology, JP)
Fei Yan (Tokyo Institute of Technology, JP)
J. Adrian Garcia (Tokyo Institute of Technology, JP)
Fangyan Dong (Tokyo Institute of Technology, JP)
Kaoru Hirota (Tokyo Institute of Technology, JP)

- 11:40** **A New Tool for Comparison and Evaluation of Medical Images**
Lucie Grafova (Institute of Chemical Technology in Prague, CZ)
Jan Horejs (Institute of Chemical Technology in Prague, CZ)
Ales Prochazka (Institute of Chemical Technology in Prague, CZ)
Magdaléna Kašparová (Charles University Prague, 2nd Medical Faculty, CZ)
Tatjana Dostálová (Charles University Prague, 2nd Medical Faculty, CZ)
- 12:00** **Fuzzy Modeling of Natural Terrain Elevation from a 3D Scanner Point Cloud**
Anthony Mandow (University of Malaga, ES)
Tomás Cantador (University of Malaga, ES)
Alfonso García-Cerezo (Universidad de Malaga, ES)
Antonio Reina (University of Malaga, ES)
Martínez Jorge (University of Malaga, ES)
Jesús Morales (University of Malaga, ES)
- 12:20** **Variable-resolution image processing for validation of coins**
Olev Martens (Tallinn University of Technology, EE)
Tonis Saar (Tallinn University of Technology, EE)
Alina Gavrijevaseva (Tallinn University of Technology, EE)
Ago Molder (Tallinn University of Technology, EE)
- 12:40** **Hand Gesture Interaction Using Color-Based Method For Tabletop Interfaces**
Abdelkader Bellarbi (Center for Development of Advanced Technologies, DZ)
- 13:00 - 13:15** **Closing**
- 13:15 - 14:45** **Lunch**