

WELCOME MESSAGE FROM THE CHAIRPERSONS

The organizing committee welcomes you to the 2013 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (IEEE CIVEMSA 2013), held in Milan, Italy, on July 15-17, 2013. This meeting, co-sponsored by the IEEE Computational Intelligence Society and the IEEE Instrumentation and Measurement Society, is the first of a new series that extends its roots back to the 1996 IEEE Workshop on Emerging Technologies for Instrumentation and Measurement, and inherits and merges the decennial success of IEEE CIMSA and IEEE VECIMS. This new conference series will continue the interdisciplinary experience of the previous technical meetings by filling this gap in knowledge and practice. In particular, it focuses on all aspects of computational intelligence, human-computer interaction technologies, and virtual environments for measurement systems and the related applications, from the points of view of both theory and practice.

The three-day conference program aims to provide a forum for the attendees to carry out presentations, information exchanges, extensive discussions on theory, methodology and applications in the field of interest of the conference, as well as to foster networking, planning for future collaborations and new research projects that will further advance the use of computational intelligence and virtual environments in the instrumentation and measurement field and the related applications. We hope the conference will foster and discuss opportunities and challenges in using computational intelligence and virtual environments breakthroughs aiming to the advancement of instrument performance and measurement capabilities, and all related applications in a broad spectrum of areas. To promote interaction and discussion in the audience, sufficient time is allotted to presenters not only to introduce their achievements, but also to engage in extended discussions with the participants. Subjects of discussion include, but are not restricted to, critical evaluation of approaches and results, the rationale underlying particular methodologies, experimental and theoretical examinations, practical difficulties, insights, and extensions to other application areas.

We hope you will find IEEE CIVEMSA 2013 a challenging and productive experience. We trust that you will also enjoy the location, the culture and the food: Milan will be an exciting experience!

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David Zhang, Hong Kong Polytechnic University, China
Jiyong Zhao, University of Ottawa, Canada

Monday, July 15, 2013

- 9:00 AM** **Registration Opens**
- 9:50 AM** **Opening Session**
Room: Sala Napoleonica
Vincenzo Piuri (Università degli Studi di Milano, Italy)
- 10:00 AM - 11:00 AM** **Session: 1A - Assisted Living**
Room: Sala Napoleonica
Session Chair: *Vincenzo Piuri (Università degli Studi di Milano, Italy)*
- 10:00 AM** **Multilevel Simulation of Daily Activities: Why and How?**
Balázs Kormányos (Budapest University of Technology and Economics, Hungary)
Béla Pataki (Budapest University of Technology and Economics, Hungary)
- 10:30 AM** **An Indoor Position Tracking Technique based on Data Fusion for Ambient Assisted Living**
Payam Nazemzadeh (University of Trento, Italy)
Daniele Fontanelli (University of Trento, Italy)
David Macii (University of Trento, Italy)
- 11:00 AM - 11:30 AM** **Break**
- 11:30 AM - 1:00 PM** **Session: 1B - Human-Computer Interface**
Room: Sala Napoleonica
Session Chair: *Stefano Ferrari (Università degli Studi di Milano, Italy)*
- 11:30 AM** **An Infrared-Based Depth Camera for Gesture-Based Control of Virtual Environments**
Dan Ionescu (University of Ottawa, Canada)
Viorel Suse (University of Ottawa, Canada)
Cristian Gadea (University of Ottawa, Canada)
Bogdan Solomon (University of Ottawa, Canada)
Bogdan Ionescu (University of Ottawa, Canada)
Shahidul Islam (Mgestyk Technologies, Canada)
- 12:00 PM** **Facial Expression Cloning with Fuzzy Set Clustering**
Patrick J Santos (University of Ottawa, Canada)
Emil M. Petriu (University of Ottawa, Canada)
- 12:30 PM** **A Bayesian-Learning Technique for Automatic Pre-emptive Loads Through I/O Devices Via The Mouse Pointer**
Dalila B. Megherbi (University of Massachusetts, Lowell, USA)
- 1:00 PM - 2:00 PM** **Lunch**

- 2:00 PM - 3:30 PM** **Session: 1C - Virtual Design Environments**
Room: Sala Napoleonica
Session Chair: *Yonghua Chen (Hong Kong University, Hong Kong)*
- 2:00 PM** **A Software-in-the-Loop Simulation of an Intelligent MicroSatellite within a Virtual Environment**
Kaveh Hassani (University of Ottawa, Canada)
Won-Sook Lee (University of Ottawa, Canada)
- 2:30 PM** **A Novel Virtual Environment for Molecular System Design**
Rajab Alsayegh (Brunel University, United Kingdom)
- 3:00 PM** **Accurate 3D Fingerprint Virtual Environment for Biometric Technology Evaluations and Experiment Design**
Ruggero Donida Labati (Università degli Studi di Milano, Italy)
Angelo Genovese (Università degli Studi di Milano, Italy)
Vincenzo Piuri (Università degli Studi di Milano, Italy)
Fabio Scotti (Università degli Studi di Milano, Italy)
- 3:30 PM - 4:00 PM** **Break**
- 4:00 PM - 6:00 PM** **Session: 1D - Haptics and Robotics**
Room: Sala Napoleonica
Session Chair: *Dan Ionescu (University of Ottawa, Canada)*
- 4:00 PM** **A fuzzy model relating vibrotactile signal characteristics to haptic sensory evaluations**
Liviu-Cristian Dutu (Université de Savoie, France)
Gilles Mauris (Université de Savoie, France)
Philippe Bolon (Université de Savoie, France)
Stéphanie Dabic (Université Lumière Lyon 2, France)
Jean-Marc Tissot (Valeo Annemasse, France)
- 4:30 PM** **Development of a low cost dataglove based on arduino for virtual reality applications**
Lucas Silva (UFRN, Brazil)
Rummenigge Dantas (UFRN, Brazil)
André Pantoja (UFRN, Brazil)
Antonio Pereira (UFRN, Brazil)
- 5:00 PM** **The Extraction of Key Posture Frames from the Video of 3-D Motion of a Human**
Chih-Lyang Hwang (National Taiwan University of Science and Technology, Taiwan)
- 5:30 PM** **Adaptive Visual Tracking via Learning Detector of Specific Landmarks**
Chih-Lyang Hwang (National Taiwan University of Science and Technology, Taiwan)

Tuesday, July 16, 2013

- 8:30 AM** **Registration Opens**
- 9:00 AM - 11:00 AM** **Session: 2A - Medical Applications**
Room: Sala Napoleonica
Session Chair: *Dalila B. Megherbi (University of Massachusetts, Lowell, USA)*
- 9:00 AM** **Automatic ECG artifact removal in the real-time SEMG recording system**
Yong Hu (University of Hong Kong, Hong Kong)
- 9:30 AM** **Haptic Simulation of Bone Drilling Based on Hybrid 3D Part Representation]**
Yonghua Chen (Hong Kong University, Hong Kong)
- 10:00 AM** **Ensemble Learning of Colorectal Cancer Survival Rates**
Chris Roadknight (Nottingham University Malaysia Campus, United Kingdom)
Uwe Aickelin (University of Nottingham, United Kingdom)
John Scholfield (University of Nottingham, Malaysia)
Lindy Durrant (University of Nottingham, United Kingdom)
- 10:30 AM** **Intelligent SVM Based Food Intake Measurement System**
Parisa Pouladzadeh (University of Ottawa, Canada)
Shervin Shirmohammadi (University of Ottawa, Canada)
Tarik Arici (Sehir University, Turkey)
- 11:00 AM - 11:30 AM** **Break**
- 11:30 AM - 1:00 PM** **Session: 2B - Psychology Applications**
Room: Sala Napoleonica
Session Chair: *Yong Hu (University of Hong Kong, Hong Kong)*
- 11:30AM** **Inferential Measurements for Situation Awareness**
Prapa Rattadilok (Robert Gordon University, United Kingdom)
Andrei V. Petrovski (Robert Gordon University, United Kingdom)
- 12:00 PM** **Conceptual Model for e-Learners Performance Improvement based on Game Theory**
Khaled M. Suwais (Arab Open University, Saudi Arabia)
Ayham Fayyouni (Al-Imam University, Saudi Arabia)
Anis Zarrad (University of Ottawa, Canada)

12:30 PM	<p>The Impact of Motion in Virtual Environments on Memorization Performance <i>Polina Häfner (Karlsruhe Institute of Technology, Germany)</i> <i>Christina Vinke (Karlsruhe Institute of Technology, Germany)</i> <i>Victor Häfner (Karlsruhe Institute of Technology, Germany)</i> <i>Wolfgang Schotte (University of Stuttgart, Germany)</i> <i>Jivka Ovtcharova (Karlsruhe Institute of Technology, Germany)</i></p>
1:00 PM - 2:00 PM	<p>Lunch</p>
2:00 PM - 3:30 PM	<p>Session: 2C - Fault Detection Room: Sala Napoleonica Session Chair: <i>Fabio Scotti (Università degli Studi di Milano, Italy)</i></p>
2:00 PM	<p>Machine Fault Detection During Transient Operation Using Measurement Denoising <i>Yu Zhang (University of Lincoln, United Kingdom)</i> <i>Chris Bingham (University of Lincoln, United Kingdom)</i> <i>Zhijing Yang (Guangdong University of Technology, P.R. China)</i> <i>Michael Gallimore (University of Lincoln, United Kingdom)</i> <i>Jill Stewart (University of Lincoln, United Kingdom)</i></p>
2:30 PM	<p>Sensor Fault Detection and Diagnosis Based on SOMNNs for Steady-State and Transient Operation <i>Yu Zhang (University of Lincoln, United Kingdom)</i> <i>Chris Bingham (University of Lincoln, United Kingdom)</i> <i>Michael Gallimore (University of Lincoln, United Kingdom)</i> <i>Zhijing Yang (Guangdong University of Technology, P.R. China)</i> <i>Jun Chen (University of Lincoln, United Kingdom)</i></p>
3:00 PM	<p>Probing while driving for oil well surface profile measurement <i>Yonghua Chen (Hong Kong University, Hong Kong)</i> <i>Qingyou Liu (Southwest Petroleum University, Hong Kong)</i> <i>Tao Ren (Southwest Petroleum University, Hong Kong)</i></p>
3:30 PM - 4:00 PM	<p>Break</p>
4:00 PM - 6:00 PM	<p>Session: 2D - Monitoring Room: Sala Napoleonica Session Chair: <i>Fernando Lopez Peña (University of A Coruña, Spain)</i></p>
4:00 PM	<p>The SEMONT information network for intelligent EM field continuous monitoring <i>Dragan Kljajic (University of Novi Sad, Serbia)</i></p>

- 4:30 PM** **A Proactive Risk-Aware Robotic Sensor Network for Critical Infrastructure Protection**
Jamieson McCausland (University of Ottawa & Larus Technologies, Canada)
George Di Nardo (Larus Technologies Corporation, Canada)
Rafael Falcon (Larus Technologies Corporation, Canada)
Rami Abielmona (Larus Technologies Corporation, Canada)
Voicu Groza (University of Ottawa, Canada)
Emil M. Petriu (University of Ottawa, Canada)
- 5:00 PM** **Monitoring experiments using mobile devices - A practice case with Android**
Jesús L. Muros-Cobos (University of Granada, Spain)
Juan Antonio Holgado-Terriza (University of Granada, Spain)
Miguel Cabrerizo-Vilchez (University of Granada, Spain)
- 5:30 PM** **Measurement Uncertainty on Smart Phone**
Maria Grazia D'Elia (University of Salerno, Italy)
Antonio Del Giudice (University of Salerno & ENEA, Italy)
Giorgio Graditi (ENEA, Italy)
Vincenzo Paciello (University of Salerno & ENEA, Italy)
- 8:00 PM - 11:00 PM** **Dinner**

Wednesday, July 17, 2013

- 9:00 AM - 11:00 AM** **Session: 3A - Industrial Applications**
Room: Sala Napoleonica
Session Chair: *Richard J. Duro (Universidad de la Coruña, Spain)*
- 9:00 AM** **Kalman Filter-based compensation of disturbance forces and torques for AGVs**
Gerasimos Rigatos (Industrial Systems Institute, Greece)
Pierluigi Siano (University of Salerno, Italy)
Giovanni Ingenito (University of Salerno, Italy)
- 9:30 AM** **Low-Cost Neuro-Fuzzy Control Solution for Servo Systems with Variable Parameters**
Alexandra-Iulia Stinean (Politehnica University of Timisoara, Romania)
Stefan Preitl (Politehnica University of Timisoara, Romania)
Radu-Emil Precup (Politehnica University of Timisoara, Romania)
Claudia-Adina Dragos (Politehnica University of Timisoara, Romania)
Mircea-Bogdan Radac (Politehnica University of Timisoara, Romania)
Emil M. Petriu (University of Ottawa, Canada)
- 10:00 AM** **A Virtual Environment for the Simulation of 3D Wood Strands in Multiple View Systems for the Particle Size Measurements**
Ruggero Donida Labati (Università degli Studi di Milano, Italy)
Angelo Genovese (Università degli Studi di Milano, Italy)
Vincenzo Piuri (Università degli Studi di Milano, Italy)
Fabio Scotti (Università degli Studi di Milano, Italy)
- 10:30 AM** **An ANN Based System for Forecasting Ship Roll Motion**
Fernando Lopez Peña (University of A Coruña, Spain)
Marcos Miguez Gonzalez (University of A Coruña, Spain)
Vicente Díaz Casás (University of A Coruña, Spain)
Richard J. Duro (University of A Coruña, Spain)
Daniel Pena Agras (University of A Coruña, Spain)
- 11:00 AM - 11:30 AM** **Break**
- 11:30 AM - 12:30 PM** **Session: 3B - Communications**
Room: Sala Napoleonica
Session Chair: *Ruggero Donida Labati (Università degli Studi di Milano, Italy)*

- 11:30 AM** **Fuzzy Entropies by Adequacy and Non-Adequacy Applied to the Analysis of Combs Spectra Stability**
Javier Botia (University of Antioquia & UdeA, Colombia)
Ana Cárdenas Soto (University of Antioquia, Colombia)
Hernán Yepes Montoya (HUAWEI Technologies co, Colombia)
Gladys Quintero (UdeA, Colombia)
- 12:00 PM** **An Empirical Study based on a Fuzzy Logic System to Assess the QoS/QoE Correlation for Layered Video Streaming**
Mohammed Alreshoodi (University of Essex, United Kingdom)
- 12:30 PM - 1:30 PM** **Session: 3C - Biology Applications**
Room: Sala Napoleonica
Session Chair: *Vincenzo Piuri (Università degli Studi di Milano, Italy)*
- 12:30 PM** **Computational Intelligence based Construction of a Body Condition Assessment System for Cattle**
Rafael Tedín (University of A Coruña, Spain)
Jose A. Becerra (University of A Coruña, Spain)
Richard J. Duro (University of A Coruña, Spain)
Fernando Lopez Peña (University of A Coruña, Spain)
- 1:00 PM** **An Efficient Comparative Machine Learning-based Metagenomics Binning Technique Via using Random Forest**
Helal Saghir (Center for Computer Machine/Human Intelligence Networking Distributed Systems, USA)
Dalila B. Megherbi (University of Massachusetts, Lowell, USA)
- 1:30 PM - 2:30 PM** **Lunch**