

Welcome Message from the Program Co-Chairs

The organizing committee welcomes you to the 2011 IEEE International Conference on Virtual Environments, Human-Computer Interfaces, and Measurement Systems (IEEE VECIMS 2011), held in Ottawa, Ontario, Canada, on 19-21 September, 2011. This meeting, sponsored by the IEEE Instrumentation and Measurement Society, is the ninth of a successful series that extends its roots back to the 1996 IEEE Workshop on Emerging Technologies for Instrumentation and Measurement, as a profound evidence of the continuous and even increasing interest in this research and applications area.

The three-day conference program aims to provide a forum for the attendees to carry out presentations, information exchanges, extensive formal and informal 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 extend and advance the use of virtual environments and human-computer interaction in the instrumentation and measurement field. We hope the conference will foster and discuss opportunities and challenges in using virtual environment and human-computer interfacing breakthroughs aiming to the advancement of instrument performance and measurement capabilities, and related applications. 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.

The IEEE VECIMS 2011 conference is held in parallel with the 2011 IEEE International Conference on Computational Intelligence for Measurement Systems and Applications (IEEE CIMSA 2011). Due to their many common aspects and shared technologies, this parallel organization will foster vivid and rewarding interaction among the participants of the two events, and contribute to sharing advanced knowledge and producing stimulating experiences as well as potential research synergies.

We hope you will find IEEE VECIMS 2011 a challenging and productive experience. We trust that you will also enjoy the location, the culture and the food: Ottawa will be an exciting experience!

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Stefano Ferrari, Università degli Studi di Milano, Italy
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Technical Program Chairs

Francesco Bellocchio, Università degli Studi di Milano, Italy
Jiyang Zhao, University of Ottawa, Canada
Subhas C. Mukhopadhyay, Massey University, New Zealand

IEEE VECIMS 2011 Organizers

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Monday, September 19, 2011

9:00 - 10:15 **Registration**

10:15 - 10:30 **Coffee Break**

10:30 - 10:45

Opening Session

Room: 12110

10:45 - 12:15

Interactions in Virtual Environments

Room: 12110

10:45 **Real-time Information Profiling for Smart Objects**

Kevin O' Mahony, Cork Institute of Technology

Jian Liang, Cork Institute of Technology

Kieran Delaney, Cork Institute of Technology

11:15 **Comparison of 3D Navigation Interfaces**

Joshua McClymont, York University

Dmitri Shuralyov, York University

Wolfgang Stuerzlinger, York University

11:45 **Comparison of multiple 3D rotation methods**

Yao Jun Zhao, York University

Dmitri Shuralyov, York University

Wolfgang Stuerzlinger, York University

12:15 - 13:45 **Lunch**

13:45 - 15:15

Automotive Applications

Room: 12110

13:45 **Intelligent Driver Drowsiness Detection through Fusion of Yawning and Eye Closure**

Mona Omidyeganeh, University of Ottawa

Abbas Javadtalab, University of Ottawa

Shervin Shirmohammadi, University of Ottawa

14:15 **LBP-based Driver Fatigue Monitoring System with the Adoption of Haptic Warning Scheme**

Niloufar Azmi, University of Ottawa

Abu Saleh Md. Mahfujur Rahman, University of Ottawa

Shervin Shirmohammadi, University of Ottawa

Abdulmotaleb El Saddik, University of Ottawa

14:45 **Evaluating the Angular Sensitivity of Corner Detectors**

Nadia Kanwal, University of Essex

Shoaib Ehsan, University of Essex

Erakn Bostanci, University of Essex

Adrian F. Clark, University of Essex

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

15:30 - 16:30

Environmental Applications

Room: 12110

15:30 **Virtual Environment For Synthetic Smoke Clouds Generation**
Angelo Genovese, Università degli Studi di Milano
Ruggero Donida Labati, Università degli Studi di Milano
Vincenzo Piuri, Università degli Studi di Milano
Fabio Scotti, Università degli Studi di Milano

16:00 **An eco-feedback system for improving the sustainability performance of Universities**
Dora B. Heras, University of Santiago de Compostela
David Otero, University of Santiago de Compostela
Francisco Argüello, University of Santiago de Compostela

Tuesday, September 20, 2011

9:00 - 10:30

Haptics

Room: 12110

9:00 **Texture Compensation for Haptic Feedback Signal Compression**
Fernanda Brandi, Munich University of Technology
Rahul Chaudhari, Munich University of Technology
Eckehard Steinbach, Munich University of Technology

9:30 **Improved Haptic Rendering through Tuning the Mechanical Impedance of Human Arm**
Xiong Lu, Nanjing University of Aeronautics and Astronautics
Ai-guo Song, Southeast University
Yong-qiang Ye, Nanjing University of Aeronautics and Astronautics

10:00 **Model-based Telehaptic Systems With Time Varying Communication Delay**
Shafiqul Islam, University of Ottawa
Peter Liu, Carleton University
Abdulmotaleb El Saddik, University of Ottawa

10:30 - 10:45 **Coffee Break**

10:45 - 12:15

Social Networks Applications

Room: 12110

10:45 **Bringing Virtual Events into Real Life in Second Life Home Automation System**
SK Alamgir Hossain, University of Ottawa
Abu Saleh Md. Mahfujur Rahman, University of Ottawa
Abdulmotaleb El Saddik, University of Ottawa

11:15 **Remote Rendering based Second Life Mobile Client System to Control Smart Home Appliances**
Abu Saleh Md. Mahfujur Rahman, University of Ottawa
Abdulmotaleb El Saddik, University of Ottawa

- 11:45** **TrendTV: An Architecture for Automatic Change of TV Channels Based on Social Networks with Multiple Device Support**
Hugo T. A. Sena, UFRN
Julio César Melo, UFRN
Ricardo Dias, UFRN
Aquiles M.F Burlamaqui, UFRN
- 12:15 - 13:45** **Lunch**
- 13:45 - 15:15**
- Motion Analysis and Tracking**
Room: 12110
- 13:45** **Separation and Extraction of Energy Variants from Human Motion using Temporal Minimization**
S. Ali Etemad, Carleton University
Ali Arya, Carleton University
- 14:15** **Simulation of a Virtual Reality Tracking System**
Kapil Patel, York University
Wolfgang Stuerzlinger, York University
- 14:45** **An Enhanced Mean-Shift and LBP-based Face Tracking Method**
Parisa Pouladzadeh, University of Ottawa
Mehdi Semsarzadeh, University of Tehran
Behnoosh Hariri, University of Ottawa
Shervin Shirmohammadi, University of Ottawa
- 15:15 - 15:30** **Coffee Break**
- 15:30 - 16:30**
- Medical Applications**
Room: 12110
- 15:30** **E-Dumbbell: An Electronic Dumbbell with Haptic Feedback for Wrist Rehabilitation**
Ali Karime, University of Ottawa
Abu Saleh Md. Mahfujur Rahman, University of Ottawa
Hussein Al Osman, University of Ottawa
Wail Gueaieb, University of Ottawa
Abdulmotaleb El Saddik, University of Ottawa
- 16:00** **Augmented reality for Artificial Optical Radiation measurement**
Vincenzo Di Lecce, Politecnico di Bari
Alessandro Quarto, MYHERMES srl
Rita Dario, ASL-Bari
Jessica Uva, Politecnico di Bari
- 19:30** **Banquet**

Wednesday, September 21, 2011

9:00 - 10:30

Entertainment Applications

Room: 12110

9:00 **Multimodal Control of Virtual Game Environments Through Gestures and Physical Controllers**

*Dan Ionescu, University of Ottawa
Bogdan Ionescu, University of Ottawa
Cristian Gadea, University of Ottawa
Shahidul Islam, Mgestyk Technologies*

9:30 **MultiArt - An API Specification to support production and distribution of Telematic Art**

*Ricardo Dias, UFRN
Hugo T. A. Sena, UFRN
Igor Silva, UFRN
Haroldo Teodosio, UFRN
Samuel Azevedo, UFRN
Aquiles M.F Burlamaqui, UFRN*

10:00 **Human modeling and real-time motion reconstruction for micro-sensor motion capture**

*Guanhong Tao, Graduate University of Chinese Academy of Sciences
Shuyan Sun, Graduate University of Chinese Academy of Sciences
Shuai Huang, Graduate University of Chinese Academy of Sciences
Zhipei Huang, Graduate University of Chinese Academy of Sciences
Jiankang Wu, Graduate University of Chinese Academy of Sciences*

10:30 - 10:45 **Coffee Break**

10:45 - 12:15

Educational Applications I

Room: 12110

10:45 **Heterogeneous Data Fusion for an Adaptive Training in Informed Virtual Environment**

*Loïc Fricoteaux, University of Technology of Compiègne
Indira Mouttapa Thouvenin, University of Technology of Compiègne
Jérôme Olive, University of Technology of Compiègne*

11:15 **Mixed reality educational environment for robotics**

*Abraham Priet, Universidade da Coruña
Gervasio Varela, Universidade da Coruña
Blanca Priego, Universidade da Coruña
Fernando Lopez Peña, Universidade da Coruña*

11:45 **An adaptive Game-Based exercising framework**

*Juan Silva, University of Ottawa
Abdulmotaleb El Saddik, University of Ottawa*

12:15 - 13:45 **Lunch**

13:45 - 15:00

Educational Applications II

Room: 12110

13:45

Scenario Authoring for Driver Behavioral Data Collection in 3D Virtual Environments

Kugamoorthy Gajananan, National Institute of Informatics

Arturo Nakasone, National Institute of Informatics

Edgar Santos, National Institute of Informatics

Helmut Prendinger, National Institute of Informatics

Marc Miska, Queensland University of Technology

14:15

Educ-AR: A tool for assist the creation of augmented reality content for education

Lucas Farias, UERN

Rummenigge Dantas, UFRN

Aquiles M.F Burlamaqui, UFRN

14:45- 15:00

Coffee Break