

Welcome Message from the Chairpersons

On behalf of the steering and organizing committees, it is our great pleasure to welcome you to the twenty-third annual IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (IEEE CIVEMSA 2018), held in Ottawa, Canada, on June 12-13, 2018.

This conference is co-sponsored by the IEEE Computational Intelligence and IEEE Instrumentation and Measurement Societies. It focuses on all aspects of computational intelligence, virtual environments and human-computer interaction technologies for measurement systems and related applications. We believe that the organizing and steering committees have put together a very exciting and interesting program. This latter includes peer-reviewed papers that highlight standpoints on some latest recent advances to address some critical computational intelligence challenges for intelligent measurement, virtual reality systems, machine & deep learning for intelligent systems, and applications. In this twenty-third year of the conference, we have made a few changes to add to what was already previously a strong program. For one, we initiated opening this conference to external sponsors from academia, industry and organization entities, in addition to the two existing IEEE co-sponsors societies. Additionally, to acknowledge excellence and merit in a conference paper candidate, we also started an IEEE Best Paper Award, from the IEEE co-sponsors societies, based on paper novelty, clearness, ingenuity and groundbreaking research in the respective area.

We believe that the keynote speaker topic shelters a highly relevant set of materials that we trust will bring some conference participants to share viewpoints and thoughts on this topic. In particular, the two-day conference program aims to provide a forum for the attendees to carry out presentations, information exchanges, and extensive discussions on theory, methodology and application in the field of interest of the conference. This is 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 allocated to presenters not only to introduce their achievements, but also to engage in extended discussions with the participants.

This year we have participants from more than twelve countries. Participants are welcome to benefit from the rich research work that will be presented and enjoy the hospitality and diversity of Ottawa. The town is the administrative heart of Canada and the University of Ottawa's main campus is located in the core downtown area, just minutes from the Parliament Hill, numerous museums, the world-renowned Rideau Canal, UNESCO World Heritage Site, and the ByWard Market with its vibrant cultural life, a wide variety of boutiques, restaurants and accommodations. May and June offer the most beautiful weather conditions of the year, making it the ideal time for exploring the capital.

We hope you will find IEEE CIVEMSA 2018 a challenging and productive experience, celebrating the twenty second-year anniversary of this conference, since its inception in 1996 as "*IEEE Workshop on Emerging Technologies for Instrumentation and Measurement*". We trust that you will also enjoy the location, the culture and the food: Ottawa will be an exciting experience!

We are looking forward to meeting everyone at the conference in June.

Honorary Chair Rafik Goubran, *Carleton University, Ottawa, Canada*

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Keynote Speakers

Tuesday, June 12, 10:45-12:00

Dr. Emil M Petriu

Professor, University Research Chair University of Ottawa
School of Electrical Engineering and Computer Science, Ottawa, Ontario, Canada

"Haptic Sensors and Interfaces for Interactive Dexterous Robotic Telemanipulation"



Abstract:

The presentation will discuss haptic sensors and human interfaces, and intelligent control algorithms for human-like multi-finger robot hands able to dexterously explore, grasp, and in-hand manipulate objects. These emergent technologies will allow the development of a new generation of remotely controlled intervention robots able to interactively perform complex telemanipulation operations in high-risk operational environments like nuclear power stations, underwater, highly infectious rooms, robotic surgery, or war zones.

Dr. Petriu's Biography:

Dr. Emil M. Petriu, IEEE Fellow, is a Professor in the School of Electrical Engineering and Computer Science at the University of Ottawa, Canada. His research interests include biology-inspired robot sensing and perception, soft computing, and human-computer interaction.

Program Schedule – Tuesday, June 12

8:00 – 9:00	Registration
9:00 – 9:15	Opening Session, Chair Welcome
9:15 – 10:15	Session 1 Human Behavior and Performance Monitoring
10:15 – 10:45	Coffee Break
10:45 – 12:00	Plenary Talk Dr. Emil Petriu <i>“Haptic Sensors and Interfaces for Interactive Dexterous Robotic Manipulation”</i>
12:00 – 13:00	Luncheon
13:00 – 15:00	Session 2 Machine Learning and Classification
15:00 – 15:30	Coffee Break
15:30 – 16:30	Session 3 Virtual Environments
18:00 - 20:00	Dinner at the “Metropolitan Brasserie Restaurant” <i>700 Sussex Dr, Ottawa, ON K1N 1K4, Canada</i>

***All sessions will take place in the Demarais building, room*

Program Schedule – Wednesday, June 13

8:30 – 9:00	Registration
9:00 – 10:00	Session 4 Decision Systems
10:00 – 10:30	Coffee Break
10:30 – 12:10	Session 5 Intelligent Measurement Systems
12:30 – 13:00	Luncheon
13:00 – 15:00	Session 6 Robotics and Autonomous Systems
15:00 – 15:30	Coffee Break
15:30 – 16:10	Session 7 Control Systems
16:10 – 17:00	Best Paper Awards Ceremony and Closing Remarks

***All sessions will take place in the Demarais building, room 1110*