



## **CONFERENCE PROGRAM**

# **The International Conference on Modelling, Simulation and Identification (MSI 2018), and The International Conference on Intelligent Systems and Control (ISC 2018) July 16 – 17, 2018 Calgary, Canada**

### **LOCATION**

Hyatt Regency Calgary  
700 Centre St SW  
Calgary, AB T2G 5P6

### **MODELLING, SIMULATION AND IDENTIFICATION (MSI 2018)**

#### **SPONSOR**

The International Association of Science and Technology for  
Development (IASTED)

#### **CONFERENCE CHAIR**

Prof. Zhangxing John Chen (University of Calgary, Canada)

#### **INTERNATIONAL PROGRAM COMMITTEE**

**C. Angeli** – University of West Attica, Greece  
**Z. Chen** – Concordia University, Canada  
**G. Huang** – University of Regina, Canada  
**S. Liu** – Tianjin University, China PR  
**Q. Peng** – University of Manitoba, Canada  
**Y. J. Son** – University of Arizona, USA  
**J. A. Tenreiro Machado** – Institute of Engineering,  
Polytechnic of Porto, Portugal

#### **ADDITIONAL PAPER REVIEWERS**

**E. Bentz** – University of Toronto, Canada  
**M. Liu** – University of California, Berkeley, USA

### **INTELLIGENT SYSTEMS AND CONTROL (ISC 2018)**

#### **SPONSOR**

The International Association of Science and Technology for  
Development (IASTED)

#### **INTERNATIONAL PROGRAM COMMITTEE**

**K. Leiviskä** – University of Oulu, Finland  
**M. Liu** – University of California, Berkeley, USA  
**A. J. Neves** – University of Aveiro, Portugal  
**N. Obeid** – University of Jordan, Jordan  
**Y. Okuyama** – Humanitech Laboratory, Japan  
**L. Samaranayake** – University of Peradeniya, Sri Lanka  
**C. Y. Su** – Concordia University, Canada  
**F. Yang** – Tsinghua University, PR China

#### **ADDITIONAL PAPER REVIEWERS**

**Z. Chen** – Concordia University, Canada  
**G. Huang** – University of Regina, Canada  
**C. L. Shih** – National Taiwan University of Science and  
Technology, Taiwan

#### **PLEASE NOTE**

- ❖ Paper presentations are 15 minutes in length with an additional 5 minutes for questions.
- ❖ Report to your Session Chair 15 minutes before the session is scheduled to begin.
- ❖ Presentations should be loaded onto the presentation laptop in the appropriate room prior to your session.
- ❖ End times of sessions vary depending on the number of papers scheduled.

## Monday, July 16, 2018

### 08:00 – REGISTRATION

Location: Doll Conference Room

### 08:40 – WELCOME NOTE

Location: Doll Conference Room

### 09:00 – MSI AND ISC SESSION 1 – ROBOTICS, MECHATRONICS, CONTROL, AND APPLICATIONS

Chair: TBA

Location: Doll Conference Room

857-013

Calibration Procedure for a Geometrically Reconfigurable 3-DoF Cable-Driven Parallel Robot

Marcus Hamann, Christoph Ament (Germany)

857-018

New Formulas for Approximation of Multi-Inertial Systems, by the FOLPD Models, Based On Two-Point Identification

Jędrzej Byrski, and Witold Byrski (Poland)

857-023

Fractional Order Sliding Mode Control of a Quadrotor

Arturo Govea Vargas, Rafael Castro Linares (Mexico),

Norelys Aguila Camacho, and Manuel A. Duarte Mermoud (Chile)

### 10:00 – 10:30 – COFFEE BREAK

Location: Herald Conference Room

### 10:30 – MSI AND ISC SESSION 1 – ROBOTICS, MECHATRONICS, CONTROL, AND APPLICATIONS– CONTINUE

Chair: Witold Byrski and Pramila Goyal

Location: Doll Conference Room

857-021

Multivariate Polynomial Response Surface Analysis - Combining Advantages of Multilinear Regression and Artificial Neural Networks

David A. Vaccari (USA)

857-024

Comparison and Evaluation of Multimodality Brain Image Registration Methods

Ching-Fen Jiang and Jia-Yin Li (Taiwan)

858-013

Control Method for a Power-assisted Cart Based on Operational Force

Go Hirano (Japan)

858-015

Robot Navigation Model in a Multi-Target Domain Amidst Static and Dynamic Obstacles

Michael K. Ayomoh (South Africa), Oyindamola A.

Omotuyi (Nigeria), Adriaan J.G. Roux (South Africa), and

Oluwole A Olufayo (Canada)

858-016

A Stable Hybrid Force/Vision Control Scheme for Planar, Torque-driven Robotic Manipulators

Carlos A Vidrios-Serrano, Isela Bonilla-Gutierrez, and

Marco O. Mendoza-Gutierrez (Mexico)

858-020

Multicopter Modeling and Quadrotor Control Flow Diagram Matrix based Control

Alejandro J. Malo Tamayo, Juan M. Ibarra Zannatha, and

Santos M. Orozco Soto (Mexico)

### 12:30 – LUNCHEON

Location: Herald Conference Room

### 14:00 – MSI AND ISC SESSION 1 – ROBOTICS, MECHATRONICS, CONTROL, AND APPLICATIONS– CONTINUE

858-006 (Remote)

Case Study: 16-Channel DAQ Device and Its Application to Plant Monitoring Systems

Wadee Alhalabi (Saudi Arabia), Aqeel Farooq (Pakistan)

Ahad Alhudali, and Lujain Khafaji (Saudi Arabia)

### 14:20 – TUTORIAL SESSION– VISUAL ANALYTICS IN AUGMENTED AND VIRTUAL REALITY: APPLICATIONS TO MODELLING AND SIMULATION

Presenter: Mr. Stephen Cartwright (Canada)

Location: Doll Conference Room

**Abstract** - Data science, big data analytics, machine learning, artificial intelligence, visualization and human-computer interaction are advancing very quickly and converging to provide the next generation of tools to efficiently unlock insights from data. In step with this, investment in augmented and virtual reality is creating the opportunity to affordably work with data using these highly interactive and effective technologies. Integrating human insight into visual data analysis workflows provides visual analytics tools that are extremely beneficial to many disciplines including modelling and simulation. We present an overview of the tools and techniques supporting visual analytics, an overview of immersive technologies such as virtual and augmented reality and discuss how they can be applied to improve modelling and simulation workflows. An overview of future trends and possibilities will also be discussed. Our presentation will be

followed by open discussion and the opportunity to try a few immersive devices.

**Stephen Cartwright** has worked in the scientific and data intensive computing field for over 12 years in academia and industry. He is currently the technical director for a large world class modelling and simulation research group with many industrial projects. One of his responsibilities since 2013 is overseeing a visualization centre that uses advanced visualization and analysis techniques combined with virtual and augmented reality to deliver next generation tools that enable scientific discovery. He has a BSc. in Computer Science with a minor in pure mathematics and has almost completed an MSc. in Computer Science focusing on collaborative workflows in immersive environments. He also has formal training and significant experience in project management and management of development teams delivering prototypes incorporating virtual reality, augmented reality and machine learning.

### **15:20 – 15:50 – COFFEE BREAK**

Location: Herald Conference Room

### **15:50 – 16:30 CONTINUATION OF TUTORIAL SESSION**

## **Tuesday, July 17, 2018**

### **08:00 – MSI AND ISC SESSION 2 – APPLICATIONS**

Chair: TBA

Location: Doll Conference Room

857-009 (Remote)

Research on Real-Time Anomaly Detection Method of Space Imager Payload Based on Hierarchical Clustering  
*Haoran Liang, Lei Song, Zhongsong Ma, and Jiangyong Duan (PR China)*

857-011 (Remote)

Using Fully Convolutional Networks for Semantic Segmentation of Diabetic Retinopathy Lesions in Retinal Images  
*Jakob K. H. Andersen, William K. Juel, Jakob Grauslund, and Thiusius R Savarimuthu (Denmark)*

857-017 (Remote)

A New Thresholding Method Based on the Exponential Function for Specular Highlight Detection  
*Nouho Ouattara, Armand Kodjo Atiampo, Ghislain Koffi Pandry, and Georges Laussane Loum (Côte d'Ivoire)*

### **09:00 – MSI AND ISC SESSION 3 – CONTROL AND INTELLIGENT SYSTEMS**

Chair: Michael K. Ayomoh

Location: Doll Conference Room

858-012

Asymptotically Stable Adaptive  $H_\infty$  Consensus Tracking Control of Multi-Agent Systems on Directed Graph  
*Yoshihiko Miyasato (Japan)*

858-017

Analysis of High Ozone Pollution Episode using WRF/Chem Model over Megacity Delhi, India  
*Saurabh Kumar and Pramila Goyal (India)*

858-019

An Adaptive Stiffness Control Scheme for Robot Manipulators in Task-Space  
*Berenice R. Maldonado-Fregoso, Marco O. Mendoza-Gutierrez, and Isela Bonilla-Gutierrez (Mexico)*

### **10:00 – 10:30 – COFFEE BREAK**

Location: Herald Conference Room

### **10:30 – MSI AND ISC SESSION 4 – COMPUTATIONAL INTELLIGENCE, CONTROL, AND APPLICATIONS**

Chair: Jeffrey L. Sponsler, Genady Sagals

Location: Doll Conference Room

858-001

Automated Electromyography Analysis: Update  
*Jeffrey L. Sponsler and Charles Parker (USA)*

858-002

Lab Parser: A Parser for Medical Lab Data  
*Jeffrey L. Sponsler and Charles Parker (USA)*

858-010

Fluid Model Transformation in Pipelines for Fault Diagnosis Analysis  
*José A. Villanueva and María C. Verde (Mexico)*

858-014

Signal Time-Frequency Analysis for RF Emitter Detection and Location  
*Huai-Jing Du and Fred Dilkes (Canada)*

857-007

Finite Element Analysis of Walls with Alkali-Silica Reaction (ASR) Subjected to Constant Axial and Cyclic Lateral Loadings  
*Genady Sagals, Nebojsa Orbovic and Christopher Cole (Canada)*

857-003 (Remote)

Vegetation Detection Close to Transmission Lines using Cloud Data Points from Lidar in Brazil  
*Mauricio George Miguel Jardini, José Antonio Jardini, Ferdinando Crispino, Augustinho Jose Menin Simões, Jose Mauricio Scovino de Souza, and Walber Lemos dos Santos (Brazil)*

