INVITED SESSION ON

"Resilient Control in Large-Scale Networked Cyber-Physical Systems"

for CODIT'19

April 23-26, 2019 –Paris, France

Session Co-Chairs :

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Prof. Walter Lucia, *ConcordiaUniversity, Canada*
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Session description

This special session deals with the opportunities offered by the recent advances in sensing, communication and computing that have opened the door to the deployment of large-scale networks of sensors and actuators. For these paradigms, the appellation used by filed experts is Cyber-Physical Systems (CPS) because the dynamics among computers, networks and physical systems interact in a way that multidisciplinary technologies (embedded systems, computers, communications and control) are required to accomplish prescribed missions.Due to their reliance on communication channels, intentional jamming and false data injections lead to undesirable phenomena that are categorized as cyber-attacks. The main consequence is that measurement and actuator data integrity and availability might be compromised with a significant degradationof the control architecture performance.

The goal of this special session is to collect novel ideas and solutions concerned with cyber-attack countermeasures or resilient control. The topics of interest include, but are not limited to:

- Secure/Robust Control Systems
- Networked and Distributed Control Systems
- Detection of Integrity Attacks
- Cyber-attacks in Smart Grids
- Denial of Service management in sensor networks
- Trust management
- Multi-agent configurations
- Internet of Things Systems of Systems
- Applications in emerging domains (e.g. Internet of Vehicles, Smart Cities, Industry 4.0)

List of papers:

1. **Title**: Denial-of-Service Resilient Event-Triggered Average Consensus for Multiagent System
   Authors: Amir Amini, Amir Asif, and Arash Mohammadi
   Corresponding author: Dr. Arash Mohammadi, Assistant Professor,
   Concordia Institute for Information System Engineering (CIISE),
   email: arash.mohammadi@concordia.ca
2. **Title**: Zero Dynamics and Covert Attack Detection of Cyber-Physical Systems
   Authors: Amir Baniamerian and KashKhorasani
   Corresponding author: Dr.Kash Khorasani, Professor, ECE Department,Concordia University,
   email: kash@ece.concordia.ca
3. **Title**: Trust Management in IoT Systems of Systems
   Authors: Giancarlo Fortino, Domenico Rosaci, Giuseppe M. Sarnè
   Corresponding author: Dr. Giancarlo Fortino, Professor, DIMES Department,University of Calabria, Italy
   email: giancarlo.fortino@unical.it
4. **Title**: A resilient control strategy for constrained/networked Cyber-Physical Systems subject to Denial-of-Service attacks
   Authors: Giuseppe Franzè, Walter Lucia and Francesco Tedesco
   Corresponding author: Dr. Giuseppe Franzè, Professor, DIMES Department,University of Calabria, Italy
   email: giuseppe.franze@unical.it
5. **Title**: Prevention of Denial-of-Sleep Attacks in IoT Networks
   Authors: Antoine Gallais, Thin-HinenHedli, Valeria Loscri and Nathalie Mitton
   Corresponding author: Dr. Antoine Gallais, Professor, University of Strasbourg, France
   email:antoine.gallais@inria.frgallais@unistra.fr
6. **Title**: Replay Attack Detection Approach using Frequency-based Signatures
   Authors: Carlos Trapiello, Vicenç Puig, Damiano Rotondo and Gabriela Cembrano
   Corresponding author: Dr.Vicenç Puig, Professor, Universitat Politècnica de Catalunya, Spain
   email:vicenc.puig@upc.edu