

Special Session on: Artificial Intelligence Advances in Internet of Things, Big Data, and Cyber-Physical Sensory Systems

Summary:

In recent years, Artificial Intelligence (AI) has acquired rapidly growing attention through addressing computational problems that were formerly considered hard or even unsolvable. Along with AI, other recent technologies such as Internet of Things (IoT), Big Data, and Cyber-Physical Sensory Systems (CPS) have emerged. The IoT presents a technology that enables loosely coupled decentralized systems to cooperate smart objects of autonomous physical-digital devices, augmented with sensing/actuating, processing, and networking capabilities. On the other hand, the keystone of Big Data utilization is to leverage the existing datasets to create new information and predict future happenings and to enrich the decision value chain. Hence, manipulating AI for coupling the IoT and Big Data has become an essential component for extracting value from data, continuously collected by the IoT about the surrounding living environments, for providing a promising application area of Big Data Analytics.

Furthermore, Cyber-Physical Systems (CPS) are emerging from the integration of embedded computing devices, smart objects, people, and physical environments, which is typically tied by a communication infrastructure. So, the design of CPS and the implementation of their applications need to rely on IoT-enabled architectures and protocols that, both locally and globally, enable collecting, managing, and processing big datasets and support complex processes to manage and control such systems.

Scope:

The goal of this special session is to provide a platform for researchers, engineers, and industrial practitioners from different fields to share and exchange their ideas, research results, and experiences in the field of AI Advances and developments in IoT, Big Data, and Cyber-Physical Systems (CPS). Contributions to this special session are welcome to present novel methods, algorithms, frameworks, architectures, platforms, and applications.

Potential topics of interest include, but are not limited to the following:

- Advances in AI, Machine Learning, Deep Learning
- Testing and validation of AI applications
- Risks, limitations, and challenges of AI
- Smart cities and autonomous robots
- Telepresence robots and IoT-based CPS
- Architecture design and development of smart systems
- Standards, protocols, and methodologies for CPS and IoT
- Context-aware sensing and computing in IoT-based CPS
- CPS and wearable devices tracking
- Remote monitoring and interoperability in IoT
- AI and Big Data developments in life quality and healthcare
- Ambient intelligence and intelligent platforms for collaborative test-beds
- Open IoT platforms for modeling, simulation, and testing
- AI for IoT and CPS applications in environmental monitoring, transportation, and healthcare
- AI and CPS applications in Industry 4.0
- Big Data Analytics
- Human-Machine Interaction
- AI for IoT and Cloud Computing Integration

All papers submitted to this special session must be novel and original, and may not have already been submitted for publication elsewhere. Papers must be formatted according to Springer format <http://www.springer.com/series/11156> (Papers maximum length is 10 pages). For paper submission template and instructions, please see the ISDA2019 Conference website.

Important Dates:

Paper submission due: 10 September, 2019

Notification of paper acceptance: 15 October, 2019

Registration and camera-ready due: 30 October, 2019

Conference: 3-5 December, 2019

Special Session Organizers:

Nashwa El-Bendary

Arab Academy for Science, Technology and Maritime Transport (AASTMT)

Egypt

(nashwa.elbendary@ieee.org; nashwa.elbendary@aast.edu)

Qing Tan

Athabasca University

Canada

(qingt@athabascau.ca)

Jose Ramon Villar Flecha

University of Oviedo

Spain

(villarjose@uniovi.es)