CALL FOR PAPERS

Digital Twin and Edge Computing for Cyber Physical System: Communication, Modeling, and Learning (DTEC 2022)

in conjunction with the 8th IEEE International Conference on Smart Data (SmartData 2022)

August 22 - 25, 2022, Espoo, Finland

Aims and Scope

With the ever-increasing development of the Internet of Things and Big Data analytics technologies, the studies of cyber-physical system (CPS) have attracted extensive interest and been a popular topic in many fields, including process control, computer science, and mobile communication. The success of CPS relies on dynamic perception and intelligent decision-making, which is difficult to conceive due to the massive heterogeneous datum, the high requirement of real-time transmission in communication, and the sophisticated operation strategy. The emergence of digital twin and edge computing is revolutionizing CPS with the digitalization ability, which provides a feasible solution to sense the complex physical environment and help to produce predictive and intelligent strategies with the insurance of a reliable communication system. Therefore, digital twin contributes to building a virtual representation of physical entities, timely updated with the physical entities at a specified fidelity and frequency in support of edge computing. The integration of digital twins and edge computing enables to largely reduce the communication delay by offloading data for delay-sensitive application and is suitable for increasingly large-scale applications. Although current research attempted to develop high-fidelity models and digitalization of physical objects, there are still a number of challenges that have not been discussed yet. For instance, building digital twin-based models for large-scale CPS, developing real-time synchronization between digital and physical objects, designing edge computing network for CPS. To fill the gap, this special section solicits high-quality and unpublished work on recent advances in digital twins and edge computing for CPS.

Topics of Interest

This workshop will focus on (but not limited to) the following topics:

- Advanced data analysis, modeling, and control for CPS
- Resource allocation for digital twin empowered CPS
- Communication mechanisms for CPS
- Digital twin methods for self-recovery mechanism
- Digital twin methods for health monitoring, fault diagnosis
- Advanced offloading schemes
- Edge computing architecture design and protocol
- Emerging artificial intelligence or machine learning methods
- Industrial IoT networking for digital twin
- Applications and test-beds for CPS

Submission Instructions:

The submission link: https://edas.info/N29463.
The proceedings of the SmartData2022 Workshops will be published by IEEE (IEEE-DL and EI indexed) and will be made available to all conference registrants on site.
A workshop submission in PDF is limited to 6 pages following the IEEE proceedings format (or up to 8 pages with an additional charge for extra pages), including tables, figures, references and appendices.

Important dates:

Due date for submissions: April 15, 2022
Notification of decision to authors: June 10, 2022
Camera-ready of accepted papers: June 25, 2022
Workshop: August 22-25, 2022

General Chairs:

- Prof. Zhe Wu, National University of Singapore,
- Prof. Xunyuan Yin, Nanyang Technological University, Singapore,

Technical Program Committee Chairs:

- Yin Qin, Nanyang Technological University, Singapore,
- Xinmin Li, Southwest University of Science and Technology, China,