

Cloud-Edge Computing for Cyber-Physical Systems and Internet-of-Things

Theme: Cyber-Physical Systems (CPSs), characterized by the deep integration of physical processes with information and communication technologies, can be generally modelled as a complex network of interacting Internet of Things (IoT) elements with a huge amount of data that involve heavy computation load to tackle significant challenges in a variety of aspects such as performance, security, reliability, scalability, flexibility and sustainability. Handling such complex CPSs certainly require innovative computation architectures and salient computation techniques. In the past years, cloud-assisted IoT has become a popular paradigm that enables intelligent and self-configuring IoT devices and sensors to be connected with the cloud in a CPS context. However, such a centralized infrastructure model would suffer from significant latency, security and privacy issues. The emergence of the edge computing paradigm, facilitating to process CPS tasks at the edges close to the IoT devices, provides a relief. However, the limited computation and storage resources on the edge servers are often insufficient to support data-intensive computation with performance requirements. This motivates the development of the emerging edge-cloud computing paradigm that can offer the highly desired balance and flexibility to deploy the computation load in CPS applications jointly at cloud servers and the edges in an intelligent and efficient fashion. While there have been some preliminary attempts in this emerging research area of cloud-edge CPS and IoT, many technical challenges are left open. This special issue will promote the state-of-the-art research covering all aspects of design, optimization, implementation, and evaluation of advanced cloud-edge solutions for data-driven CPS/IoT applications.

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

- Smart Systems/Smart Production Systems/Smart Cities Interoperability
- Cyber-Physical Systems Modelling and Applications
- Industrial IoT for Logistics Systems
- Industrial IoT Enterprise Systems
- Industrial IoT for Sensing Systems
- Industrial IoT for the Control of Smart Cities
- Ontology-based Models for Industrial IoT
- Industrial IoT Advances for the Future Internet Enterprise Systems
- Model-driven Sensing Engineering
- Frameworks for CPS-based System Development
- Human-in-the-loop Control for CPSs

Manuscript Preparation and Submission

Follow the guidelines in “Information for Authors” in the IEEE Transaction on Industrial Informatics <http://www.ieee-ies.org/pubs/transactions-on-industrial-informatics>. Please submit your manuscript in electronic form through Manuscript Central web site: <https://mc.manuscriptcentral.com/tii>. On the submitting page #1 in popup menu of manuscript type, select: SS on **Cloud-Edge Computing for Cyber-Physical Systems and Internet-of-Things**

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Regular manuscript length is 8 pages.

Note: The recommended papers for the section are subject to final approval by the Editor-in-Chief. Some papers may be published outside the special section, at the EIC discretion.

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| Timetable: | Deadline for manuscript submissions | March 15, 2020 |
| | Expected publication date (tentative) | September 2020 |

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