IEEE Transactions on Industrial Informatics

CALL FOR PAPERS

for Special Section on

Edge Intelligence for Industrial Internet of Things

Theme: Edge has evolved into a revolutionary set of proficiencies that are already reshaping many of the leading communication companies and latest technology on the planet. To propel the world's latest technology companies so as to help accelerate the Industrial Internet-of-Things (IIoT) revolution towards next generation operational efficiency and computing connectivity, the intelligent edge expands the frontier for faster, less expensive, and more secure operations from robotics systems to virtual reality to Internet-of-Things (IoT). There have been various exciting developments in latest technology that may contribute to improving the robustness of IIoT services like automated manufacturing, industrial monitoring, shipping, Artificial Intelligence (AI) and data analytics. The development and adoption of intelligent edge computing methodologies to support fast response time, low latency and efficient use of visibility and bandwidth is however a challenge. The reason is that intelligent edge is a cloud-to-edge architecture where some components which run on centralized clouds cause severe security and storage issues. In addition, the way computations operate on various parts of the data journey may further affect the speed of services on various distributed architecture based on their needs. Further, there are certain best practices and standard issues with the security and interoperability that remain yet to be focused on. Therefore, sophisticated intelligent edge schemes are required that are able to provide integration of data across multiple sectors with coordination and effective implementation capabilities. The major challenge to an intelligent edge approach is in predicting the accuracy and expressiveness while computing simultaneously. Neural networks along with the AI methods have shown noticeable better performance in comparison to their conventional counterparts in terms of accuracy of the outcomes. However, it also brings more interoperability and complexity issues and hence, arise serious challenges regarding the validity and verifiability of these approaches.Thus, this special issue aims to bring together the leading researchers, both from academia and industry, to share their new ideas, recent findings, and state-of-the-art solutions related to the integration of edge intelligence with IIoT.

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

- UNovel theories, concepts, and paradigms of the Convergence of Edge and IIOT
- Security and Trust models for Edge enabled IIoT systems
- Edge-Cloud computing technologies for IIoT
- Privacy-aware data sharing schemes for IIoT
- Trajectory data analytics in IIoT
- Distributed AI-based big data analysis for Edge enabled IIoT
- Energy-efficient communication protocols for IIoT systems powered by Edge
- Blockchain powered architectures for architectures for emerging IIoT applications
- Cyber-physical security in Edge powered IIoT
- Real/Industrial IIoT application based on Edge
- Identification of heterogenous data collection from sensors
- Multimodality in industrial monitoring
- Technologies, protocols, or algorithms for Edge enabled IIoT systems
- Other applications and use-cases in Industry 4.0 and beyond

Manuscript Preparation and Submission

Follow the guidelines in "Information for Authors" in the IEEE Transactions 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 **Edge Intelligence for Industrial 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.

Timetable: Deadline for manuscript submissions **December 30, 2021**
Expected publication date (tentative) August 2022

Guest Editors:

Dr. Sahil Garg, École de Technologie Supérieure, Montreal, Canada. sahil.garg@ieee.org

Dr. Geetanjali Rathee, Netaji Subhas University of Technology, New Delhi, India. geetanjali.rathee123@gmail.com

Prof. Neeraj Kumar, Thapar Institute of Engineering & Technology, India neeraj.kumar@thapar.edu

Dr. Danda B. Rawat, Howard University, Washington, DC, USA db.rawat@ieee.org

Editor-in-Chief: Prof. Dr.-Ing. Ren C. Luo tii@ira.ee.ntu.edu.tw

http://www.ieee-ies.org/pubs/transactions-on-industrial-informatics