



Blockchain Solutions for Industrial Internet of Things

Theme: Industrial Internet of Things (IIoT) is reshaping various industrial sectors, such as manufacturing, logistics, transportation, healthcare, energy and utilities. IIoT consists of various smart objects distributed throughout the whole industrial system to collect massive industrial data, which can then be used to troubleshoot faults, identify performance bottlenecks and detect malicious behaviours consequently enforcing effective and efficient control to the physical world. However, there are several challenges posed on IIoT before the formal adoption of IIoT across various industrial sectors. Among them, security and privacy preservation on IIoT data are the most crucial concerns. On the other hand, the blockchain technology is transforming industries by enabling anonymous and trustful transactions in decentralized and trustless environment. As a result, blockchains help to reduce system risks, mitigate financial fraud and cut down operational cost.

The integration of IIoT with blockchains may potentially overcome the deficiencies of IIoT consequently resulting in the realization of IIoT in industrial sectors. Both industrial practitioners and academic researchers aim at realizing general, scalable and deployable blockchain-based IIoT platforms in various application domains while there are a number of challenges like scalability, data analytics with privacy-preservation and incentive mechanisms in IIoT systems. To fill the gap, this special section solicits high quality and unpublished work on recent advances in Blockchains for IIoT.

Topics include, but are not limited to, the following research topics and technologies:

Advanced technologies for blockchain-enabled IIoT:

- New consensus algorithms for blockchain-enabled IIoT
- New security mechanisms for blockchain-enabled IIoT
- New privacy preservation mechanisms for blockchain-enabled IIoT
- New scalable blockchain platforms for IIoT
- Advances in edge/cloud computing orchestration for blockchain-enabled IIoT
- Advances in federated learning/machine learning for blockchain-enabled IIoT
- Advances in big data analytics in blockchain-enabled IIoT

Applications for blockchain-enabled IIoT:

- Design, development and application of blockchain technology in IIoT
- Intelligent manufacturing based on blockchain-enabled IIoT
- Energy/smart grids/utilities applications based on blockchain-enabled IIoT
- Smart supply chain applications based on blockchain-enabled IIoT
- Intelligent transportation applications based on blockchain-enabled IIoT
- Applications of big data analytics in blockchain-enabled IIoT

Manuscript Preparation and Submission

Follow the guidelines in “Information for Authors” in the IEEE- IES website: <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

Blockchain Solutions 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** **July 30, 2020**
 Expected publication date (tentative) **December 2020**

Guest Editors:

Prof. Yan Zhang, University of Oslo, Norway, yanzhang@ieee.org

Prof. Zibin Zheng, Sun Yat-Sen University, China, zhzibin@mail.sysu.edu.cn

Prof. Hong-Ning Dai, Macau University of Science and Technology, Macau, hndai@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>