

IEEE Internet of Things Journal

Special Issue on Blockchain-enabled Internet of Things

Blockchain, a constantly evolving peer-to-peer (P2P) distributed ledger technology with characteristics such as decentralization, security, interoperation, and trust establishment, and consequently can potentially lower the costs of the underpinning infrastructure and maintenance in comparison to conventional centralized systems. Consequently, the distributed structure of blockchain is naturally suitable for the Internet of Things (IoT), which can be used to build distributed IoT. Despite the advances made in applying blockchain to IoT in the past few years, a number of challenges remain to be addressed, including of the poor scalability, heterogeneous IoT Devices, and the impact of integration on network performance. Hence, the objective of the special section is to compile recent research efforts dedicated to the study of Blockchain-based IoT and its applications, particularly relating to heterogeneity, security and mobility (in wireless scenario), new theoretical systems and technical schemes for the Blockchain-based IoT, and so on. This special issue will provide both academic and industry researchers a forum to present their research on the design, implementation, and evaluation of systems using the concept of Blockchain-based IoT in a broad range of applications in the wired/wireless network environment (including 5G/B5G). We also seek to identify new application areas within this developing field, and strongly encourage original research articles related to this topic, as well as high-quality review articles describing the current state of the art. The topics of interest include, but are not limited to:

- New network architecture design for blockchain-based IoT
- Consensus algorithm design in the wireless blockchain-based IoT environment for mobility, limited resources and large-scale deployment
- Protocols for management and access control in blockchain-based IoT
- Heterogeneous blockchain-based IoT
- Blockchain-based IoT architectures tailored for domain-specific applications
- Security and privacy of blockchain-based IoT
- Blockchain-based IoT robustness against maliciousness
- Performance metric design, modeling and evaluation of blockchain-based IoT
- Communication, cache, network and computing optimization in blockchain-based IoT
- Blockchain for wireless IoT/sensor networks
- Blockchain-enabled IoT ecosystem and its applications, e.g., finance, healthcare, energy, supply chain, entertainment, etc.
- Joint deployment of minor nodes and base stations in blockchain-based IoT
- Experimental prototyping and testbeds for blockchain-based IoT

Important Dates:

Submission Deadline: March 15, 2021

First Review Due: May 31, 2021

Revision Due: July 15, 2021

Sec. Reviews Due/Notification: August 15, 2021

Final Manuscript Due: August 30, 2021

Publication Date: 2021

Submission Format and Guideline

All submitted papers must be clearly written in excellent English and contain only original work, which has not been published by or is currently under review for any other journal or conference. Author guidelines and submission information can be found at <http://iot.ieee.org/journal>. All manuscripts and any supplementary material should be submitted through IEEE Manuscript Central, <http://mc.manuscriptcentral.com/iot>. The authors must select as "SI: Blockchain-enabled Internet of Things" when they reach the "Article Type" step in the submission process.

Guest Editors

Bin Cao (E-mail: caobin@bupt.edu.cn), Beijing University of Posts and Telecommunications, China

Lei Zhang (E-mail: lei.zhang@glasgow.ac.uk), University of Glasgow, Scotland, UK

Tony Q.S. Quek (E-mail: tonyquek@sutd.edu.sg), University of Technology and Design, Singapore

Sichao Yang (E-mail: ysc@ntlabs.io), Nakamoto & Turing Labs, USA