IEEE Transactions on Industrial Informatics

CALL FOR PAPERS

for Special Section on

Security and Privacy in 5G-enabled Industrial IoT: Current Progress and Future Challenge

Theme: The Industrial Internet of Things (IIoT) refers to the use of smart sensors and actuators to digitise physical manufacturing and industrial processes and implement data-driven automation and control operation. Being one of the underlying and enabling technologies of the Industry 4.0 initiative, the IIoT is expected to bring about unprecedented value creation opportunities in industry. Meanwhile, as a promising cellular network, 5G is billed to become the basis for the IIoT and shows great promise by integrating the emerging technologies, such as artificial intelligence (AI), edge computing, AR/VR etc., to form smart and intelligent IIoT ecosystems and significantly enhance the entire industrial procedure. However, the incorporation of the new embedded technologies and the interconnected networking advances in the automation and monitoring processes multiplies the functional complexities of the underlying control system, whilst increasing system security and data privacy risks. As a result, the security and privacy of the 5G-enabled IIoT becomes of paramount importance. Even though researchers around the world have already started to pay attention on this area, as well as related areas of cyber-physical system security and industrial network security, a multitude of issues remain to be addressed. In this special issue, we are expecting a large spectrum of research papers to cover the relevant security and privacy issues in 5G-enabled IIoT such as cyber-attacks on industrial control systems, critical data protection, situational awareness, incident responsiveness and system resilience.

We welcome high quality research papers from both academia and industry, with particular emphasis on novel ideas and techniques. Only technical papers describing previously unpublished, original, state-of-the-art research, and not currently under review by a conference or a journal will be considered. We recommend submission of multimedia with each paper as this significantly increases the visibility, downloads, and citations of articles.

Selection and Evaluation Criteria
- Relevance to the topics of this special issue
- Research novelty (e.g., new techniques) and potential impact
- Readability

Potential topics include, but are not limited to:

- Authentication for 5G-enabled IIoT environment
- Lightweight encryption and key management in 5G-enabled IIoT
- Privacy issues and mitigation techniques for 5G-enabled IIoT environment
- Accountability for 5G-enabled 5G-enabled IIoT
- Hardware security of smart devices in 5G-enabled IIoT
- Malware and intrusion detection in 5G-enabled IIoT
- Threat models and risk management in 5G-enabled IIoT
- AI enhanced security in 5G-enabled IIoT
- Access control and key-management for 5G-enabled IIoT
- Applied machine learning for 5G-enabled IIoT security and 5G-enabled privacy
- Blockchain-based security for 5G-enabled IIoT
- Trust management for 5G-enabled IIoT
- Testbed, prototype implementation and 5G-enabled IIoT-based security applications
- New paradigms facilitating secure 5G-enabled IIoT
- Data security in 5G-enabled IIoT

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 **Security and Privacy in 5G-enabled Industrial IoT: Current Progress and Future Challenges**

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) September 2022

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