IEEE Transactions on Industrial Informatics

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for Special Section on

Advanced Collaborative Technologies for Artificial Intelligence of Things

Theme: Recently, a new IoT structure known as the Artificial Intelligence of Things (AIoT) comes into play. Broadly speaking, AIoT is a fusion of AI and IoT in practical applications. However, AIoT is not a simple AI + IoT, but adopts technologies such as AI and the IoT, supported by big data and cloud computing, using semiconductors as algorithm carriers, network security technologies as implementation guarantees, and 5G as a catalyst to Integrate data, knowledge, and intelligence. AIoT aims to realize the dataization of all things and the intelligentization of everything. It applies intelligence to the edge and gives devices the ability to understand the data, observe the environment around them, and decide what to do best. With the power of AI, IoT devices are not just messengers feeding information to the control center, but have evolved into intelligent machines capable of performing self-driven analytics and acting independently. AIoT disruptive changes and unique opportunities to modern society through personalized services, tailored content, improved availability and accessibility, and cost-effective delivery.

Although the advent of AIoT has spawned a large number of new technologies and applications, the fusion of IoT and AI also poses several emerging research challenges. For example, the training of AI demands huge computation and memory resources, the training process is preferred to be done in cloud. How to effectively combine AIoT with other advanced technologies, such as 5G, cloud computing, and blockchain, calls for extensive attention from both academia and industry. Advanced collaborative technologies can provide a high level of quality in key attributes such as latency, availability, and real-time analytics. However, the link among cloud, edge, blockchain, and AIoT, poses many challenges that call for collaborative approaches and rethinking of the entire architecture, communication, and processing to meet requirements in latency, reliability, and so on. The purpose of this special issue is to provide the academic and industrial communities a venue covering all aspects of state-of-the-art collaborative approaches, methods, and systems at the crossing of AI and IoT, to advance their joint applications.

Therefore, this special issue focuses on the crossroads among scientists, industry practitioners, and researchers from the domains in IoT, AI, industrial internet, deep learning, 5G, edge computing, cloud computing, blockchain, etc. This special issue will cover comprehensively collaborative algorithms, frameworks, and technologies for AIoT.

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

1. Collaborative AI-enabled IoT operation and maintenance
2. Simulation tools, methodologies, and performance evaluations for collaborative AIoT
3. Novel network and communication protocol for collaborative AIoT
4. Distributed large scale systems and framework for collaborative AIoT
5. Reliability, security, privacy, and trust in collaborative AIoT
6. Industrial big data process and application for collaborative AIoT
7. Collaborative AIoT approaches for intelligent transportation systems
8. Collaborative AIoT approaches for smart home/city/healthcare/grid
9. Intelligent resource management models and solutions for collaborative AIoT
10. Intelligent sensing and network communication for collaborative AIoT
11. Novel collaborative frameworks/algorithms/applications that combining AI with IoT

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 **Advanced Collaborative Technologies for Artificial Intelligence 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 **January 31, 2021**
Expected publication date (tentative) August 2021

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