PUBLICATIONS

AI-Powered Internet of Everything (IoE) Services in Next-Generation Wireless Networks

Publication Date

2022

Manuscript Submission Deadline

31 August 2021

Special Issue

Call for Papers

Next-generation of wireless networks are undergoing a major revolution, connecting billions of machines and millions of people. These networks are marketed as the key enabler of an unprecedented Internet of Everything (IoE) services. Services include eXtended reality (XR) (encompassing virtual, mixed, and augmented reality), connected autonomous systems, telemedicine, haptics, flying vehicles, etc. To successfully enable these IoE applications, wireless systems must simultaneously provide ultra low latency, high reliability, and high data rates, for heterogeneous devices, through downlink and uplink. In addition, an end-to-end co-design of computing, control and communication functionalities are also required by the emerging IoE services. To meet these requirements, next-generation networks are expected to address unique challenges to transform wireless systems into self-sustaining and intelligent systems, in order to dynamically provision and orchestrate computing-control-communication-storagesensing resources tailored to the IoE services' requirements.

Besides, AI will bring many key research directions for emerging wireless networks. In fact, the revolution of next-generation networks is driven by massive availability of data trend which moves from big and centralized data towards distributed, massive, and small data. Future wireless systems must exploit both big and small data sets at their infrastructure, to optimize network functions. This trend motivates the use of new deep/machine learning techniques that go beyond classical ones. Furthermore, scalable, low-latency, high-reliability Deep/machine learning models must be deployed over wireless systems to deliver IoE applications.

This Special Issue intends to bring together researchers from industry and academia to explore recent advances and studies exploiting AI techniques, to enable IoE services in Next Generation Wireless Networks. Possible topics include, but are not limited to:

- New AI-enabled architectures of next-generation wireless networks
- New models, concepts, and frameworks supporting AI of next-generation wireless networks
- AI-powered energy-efficient network orchestration
- AI-based key performance management in next-generation wireless networks

- New Key performance indicators for AI-based next-generation wireless networks
- AI empowered radio resources scheduling and management in next-generation wireless networks
- Scalable distributed learning for next-generation wireless networks (e.g., federated learning)
- Computation, communication and energy efficient machine learning in next-generation wireless networks
- Security issues in AI-enabled next-generation wireless networks
- Deep Learning for IoE services in next-generation wireless networks
- Big data Analytics for IoE services in next-generation wireless networks
- AI powered dynamic resource allocation techniques for IoE services • Decentralized AI for IoE services
- Optimization techniques (e.g. Haris Hawk, search and rescue etc.) for IoE services
- AI-based game theories for IoE services
- AI-enabled IoE applications: smart cities, smart grid, smart home, smart E-health, smart mobility, etc.

The papers for rigorous and well-coordinated peer-review process will be collected through the Manuscript Central System for ***IEEE Transactions on Network Science and Engineering***.

Submission Guidelines

Prospective authors are invited to submit their manuscripts electronically, adhering to the ***IEEE Transactions on Network Science and Engineering*** guidelines. Note that the page limit is the same as that of regular papers. Please submit your papers through the online system and be sure to select the special issue or special section name. Manuscripts should not be published or currently submitted for publication elsewhere. Please submit only full papers intended for review, not abstracts, to the ScholarOne portal. If requested, abstracts should be sent by e-mail directly to the Guest Editors.

Important Dates

Paper Submission Deadline: 31 August 2021
Feedback to Authors: 30 November 2021
First Revision Submission Deadline: 15 January 2022
Notification of Final Decision: 31 March 2022
Final Manuscript (Camera Ready) Submission Deadline: 30 April 2022
Issue of Publication: 2022

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