IEEE Internet of Things Journal Special Issue
on Integrated Sensing and Communications for 6G IoE

From the vision of ubiquitous wireless intelligence, the sixth-generation (6G) networks are expected to support a massive number of devices in an intelligent way in Internet-of-Everything (IoE) such as smart transportation, industry 4.0, smart energy, smart cities, and make them capable of simultaneously sensing environment and communicating. This will drastically increase the demands for information sensing and transmission, thus the integration of sensing and communication (ISAC) will become one of the key enablers for 6G IoE. The sensing and communication functions influence each other in multiple domains, and reveal highly coupled characteristics.

The ISAC for 6G IoE has various advantages in terms of improving the utilization of wireless resources and hardware architecture, thus is attracting fast-growing research interests. However, the establishment of ISAC theory remains challenging, and much more efforts should be devoted to these aspects including theoretical performance boundaries and tradeoffs, new transceiver designs, synergy of ISAC with other emerging technologies like reconfigurable intelligent surfaces, backscatter communication, and non-terrestrial networks. This special issue aims to collect the latest advances and new contributions on ISAC for 6G IoE. Theoretical, experimental studies, and also case studies are encouraged. Topics of interest include, but are not limited to:

- Theoretical performance limits for ISAC in 6G IoE
- ISAC channel modelling for 6G IoE systems
- ISAC system architecture/transport protocol/frame design
- Transmitter (e.g., pre-coding, waveform, modulation) design for ISAC
- Receiver (e.g., signal detection, sensing algorithms) design for ISAC
- Multi-domain resource allocation optimization for ISAC systems
- Security and privacy designs for ISAC in 6G IoE
- ISAC with mmWaves/Thz technology
- ISAC for non-terrestrial networks and space-terrestrial integrated networks
- ISAC design for wireless vehicular networks
- Signal backscattering enabled passive ISAC design
- ISAC design assisted by reconfigurable intelligent surfaces
- Optimization and game theories for ISAC design
- Machine learning/artificial intelligence/edge computing/data mining for ISAC
- System-level simulation, prototyping, and field-tests for ISAC systems

Submission Guidelines:
All original manuscripts or revisions to the IEEE IoT Journal must be submitted electronically through IEEE Manuscript Central, http://mc.manuscriptcentral.com/iot. When the authors reach the "Article Type" step in the submission process, they should select "SI: Integrated Sensing and Communications for 6G IoE." Solicited original submissions must not be currently under consideration for publication in other venues. Author guidelines and submission information can be found at http://ieee-iotj.org/guidelines-for-authors/.

Important Dates:
~~Submission Deadline: March 15, 2024~~
Extended manuscript submission: April 1, 2024
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