IEEE Internet of Things Journal Special Issue on
"Towards Intelligence for Space-Air-Ground Integrated Internet of Things"

Due to the limitation of terrain and propagation environment as well as the high cost of building numerous base stations, the aerial platforms including airships, high-altitude platforms and unmanned aerial vehicles (UAVs) have long been regarded as the beneficial complement of smart platforms for diverse Internet-of-Things (IoT) applications. Compared with traditional terrestrial platforms, aerial platforms can be flexibly deployed to provide reliable connectivity and high-quality service for a large number of IoT devices. For example, the low-altitude aircrafts can be applied to carry out military as well as civilian tasks including emergency delivery, disaster monitoring, searching, rescuing and so on.

Various satellites, aerial platforms and ground stations can cooperate with each other to enable space-air-ground integrated networks, e.g., aerial vehicle swarm can be intelligently deployed to fill up the shortcomings of the limited data rate and unreliable data transmission. The integration of aerial vehicles and satellites provide broadband communication services in the inaccessible area. Armed with advanced artificial intelligence and 6G communication techniques, such as reconfigurable intelligent surface and Terahertz communications, it is now possible to build low-cost intelligent space-air-ground integrated IoT networks. However, facing with the high altitude/mobility, limited power storage, computation capability, and the mission-related payloads of aerial platforms, the studies of intelligent space-air-ground integrated IoT are far from mature. The interference cancellation among different aerial vehicles, the seamless operation of aircrafts, and the intelligent computation offloading algorithms are all urgent to be addressed. The studies of intelligent aerial platform networking and integrated communication architecture are also challenging. It is essential to develop advanced signal processing and AI techniques in support of intelligent space-air-ground integrated IoT. Both theoretical and experimental studies are encouraged. Topics of interest include, but are not limited to:

- Channel estimation and pilot decontamination for space-air-ground integrated communications
- Hybrid/integrated satellite and aerial communications
- Space-air-ground integrated IoT networks assisted by reconfigurable smart surfaces
- Joint trajectory design and resource allocation for space-air-ground integrated IoT networks
- Energy-efficient space-air-ground integrated IoT networks
- Spectrum management for space-air-ground integrated IoT networks
- Blockchain based security and privacy protocols for IoT networks
- Aerial platforms assisted massive MIMO for IoT connectivity
- Aerial swarm communication architectures, routing protocols and distributed scheduling
- Fog/Edge/Cloud computing in space-air-ground integrated IoT networks
- Deep/Reinforcement learning enabled intelligent IoT networks.
- Prototypes and test bed for space-air-ground integrated IoT networks

Important Dates:

Submission Deadline: November 1, 2022
First Review Due: December 15, 2022
Revision Due: January 31, 2023
Second Review Notification: February 28, 2023
Final Manuscript Due: March 15, 2023
Publication Date: 2023

Submission Guidelines:

All original manuscripts to the IEEE IoT-J must be submitted electronically through IEEE Manuscript Central, http://mc.manuscriptcentral.com/iot. 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/.

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