Special Session: Artificial Intelligence Empowered Efficient and Secure 6G Networking and Communications

Compared with previous generations of wireless communication networks, the sixth-generation (6G) networks are envisioned to be transformative, evolving from "connected things" to "connected intelligence" followed by more strict performance requirements as follows: very high data rates, very high energy efficiency, massive low-latency control, very broad frequency bands, ubiquitous uninterrupted broadband global network coverage, and connected intelligence.

To realize the aforementioned requirements, artificial intelligence (AI) is a promising technology for next-generation networks. AI has been utilized as a new paradigm for the design and optimization of 6G with high-level intelligence. It can be explored to solve NP problems with uncertain, time-variant, and complex features of 6G. On the other hand, as attacking and malicious behaviors may cause severe damage to networks, security and privacy issues are of the highest priority to 6G.

Due to the importance of efficiency and security for 6G, this special session focuses on AI-empowered technologies and state-of-the-art research contributions for efficient and secure 6G networking and communications, such as tiny cells, intelligent surfaces, edge computing, and blockchain, etc. Thereby, the goal of this half-day workshop is to bring together researchers and experts from academia, industry, and governmental agencies to discuss the development of research in order to overcome the major challenges in AI-enabled efficient and secure 6G.

The scope of this workshop includes but is not limited to the following topics:
- AI-based network design and resource allocation for efficient 6G networks
- AI-aided efficient next-generation multiple access (NGMA)
- AI-aided control and orchestration of intelligent surfaces-enabled efficient 6G networks
- AI for quality-of-service (QoS) improvements in 6G networks
- AI-aided physical layer security for efficient 6G networks
- AI-inspired privacy preservation in 6G
- Efficient architecture and new protocol design for the integration of AI and blockchain in wireless networks
- Incentive scheme and consensus design in blockchain for intelligent 6G
- Intelligent data processing, communications, and integration in edge intelligence for 6G
- Efficient resource management for edge intelligence in 6G

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