Special Issue

Advances in Deep Learning-Based Wireless Communication Systems

Message from the Guest Editors

Artificial intelligence (AI), especially deep learning (DL), is becoming a key enabler for solving a broad range of problems, such as network management and optimization, multiple access, coding, signal detection, and channel feedback, from the physical layer to the application layer in wireless communication systems. Emerging communication technologies, such as semantic communications, integrated sensing and communications (ISC), and reconfigurable intelligent surface (RIS), have brought new challenges and research opportunities for the design and optimization of the functional modules in wireless communications, and DL can play a vital role in these new scenarios.

On the other hand, AI as a service (AIaaS) will be an essential functionality in future wireless networks to meet the growing demand for AI services for both the user side and the network side. In future years, we expect DL techniques will have a significant impact on the design and management of wireless communications systems, but DL for wireless communication is still in its infancy, and its advantages compared to conventional communication schemes still need to be explored.

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