Call for Papers

Special Focus on
Native-AI Empowered Wireless Networks

SCIENCE CHINA Information Sciences (SCIS) calls for papers for a Special Focus on Native-AI Empowered Wireless Networks. Future communication and networking systems aim to meet diverse service requirements to enable billions of connected Internet of Things devices supporting a wide range of emerging applications, i.e. in 6G and beyond scenarios. These requirements cannot be fully achieved with the existing technologies due to its complex and heterogeneous nature. To achieve these strict requirements, recently Machine Learning(ML) algorithms and techniques, especially Deep Learning(DL) has been drawing growing research attention. AI(Artificial Intelligence) service has demonstrated its huge potential of coming up with intelligence-based solutions for challenging problems without traditional analytical answers. It is envisioned that AI will become native and ubiquitous. Even though significant progress has been made in the area of ML-based wireless communications in the passing years, many critical questions remain to be addressed, such as how ML algorithms can be adapted to the time-varying nature of wireless environments. This special issue aims to raise the dissemination of high-quality research with emerging ideas, approaches, theories and practice to resolve the challenging issues related to native-AI empowered wireless networks. Topics covered will include but are not limited to:

- Concept, architectures, theories, and applications of native-AI in wireless networks
- Distributed learning architectures empowered by wireless networks: federated learning, split learning, in-device learning, collaborative inference, and so on
- Theory for communications and distributed AI/ML: information theory about the tradeoff between communication, computation, complexity, learning, and inference
- Source coding for native-AI wireless networks
- Transmission technologies for native-AI wireless networks: channel coding, modulation, waveform, and over-the-air computation
- Radio resource management for native-AI wireless networks
- Multi-agent reinforcement learning for and supported by native-AI wireless networks
- AI/ML empowered communications mechanisms, including PHY, MAC, and feedback control
- AI/ML empowered semantic and goal-oriented communications
- AI/ML empowered radio environment sensing and decision making
- AI/ML empowered advanced signal processing and interference mitigation technology
- Efficient/scalable neural network architectures and training algorithms for wireless communications
- Hardware implementations of AI/ML for wireless communications
- Prototyping, demo, test-beds, and field trials
Submission

The papers should be edited in the SCIS template, and should be submitted online through the manuscript submission system of the SCIENCE CHINA Information Sciences. Here is the submission website: https://mc03.manuscriptcentral.com/scis. You should choose Special Focus on Native-AI Empowered Wireless Networks. Information and guidelines on preparation of manuscripts are available on the journal website: http://scis.scichina.com.

Important Dates

Submission deadline: Jan. 20, 2022
Final manuscripts due: Apr. 30, 2022
Publication: Sep. 1, 2022

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