IEEE Transactions on Consumer Electronics

Call for Papers

Special Section on "Edge Intelligence and Its Applications to Consumer Electronics"

Theme:

Recent advances in wireless communications, sensing, computation, and control technologies drive the evolution of conventional consumer electronics. The ever-increasing data sensed/generated at the end devices push the frontier of computation tasks, data transmissions, and intelligent services to the periphery of the network. In this regard, there is an urgent need to investigate new networking and computing paradigms in supporting future consumer electronics and applications featuring with massive data transmission, intensive computation demands, high-density connection and dynamic topologies.

Edge computing is envisioned as a promising solution to supporting low-latency and large-scale services by offloading computing, networking, storage, communication, and data resources closer to end users. However, existing research mainly focused on the vertical cooperation among end-device, edge nodes and cloud, whereas overlooked the significance of horizontal cooperation among nodes, resulting in problems including limited service coverage, inefficiency resource optimization, and unbalanced system performance, etc. On the other hand, the breakthroughs in artificial intelligence (AI) are shaping the characteristics of emerging consumer electronics towards cooperative and intelligent products, and it is imperative to bring the intelligence to the edge of the network. Although edge intelligence has received great attention in both academia and industry, the research on edge intelligence and its applications are still in its infancy stage, and there are still great challenges to be addressed.

With above motivation, this special issue focuses on the state-of-the-art in edge intelligence and its cutting-edge applications, aiming at fulfilling emerging devices, systems and applications, such as intelligent wearable devices, smart health-care systems, intelligent and connected vehicles, intelligent transportation systems, smart homes and smart cities, which impose stringent requirements on real-time processing, fast reaction, intensive computation and big data analytics. With that, this special issue targets at establishing a platform for researchers from both academia and industry institutions to exchange scientific ideas and practical experience, and inspiring new research work on consumer electronics.

Topics of interest in this Special Section include (but are not limited to):

- Theory of edge intelligence
- Platforms of edge intelligence
- Resource scheduling at network edges
- Edge intelligence enabled content distribution and caching
- End-edge-cloud cooperated architectures and services
- Security, privacy and trusty issues of edge intelligence
- Learning driven task offloading and resource allocation
- Deep Reinforcement learning enabled edge intelligence
- Edge intelligence for vehicular networks, smart homes, smart wearable devices and smart building, mobile crowdsensing
- Edge intelligence enabled IoT applications and services
- On-device artificial intelligence
- Green energy powered edge intelligence

- Federate learning theories or algorithms for IoT and edge computing
- Edge intelligence for cooperative sensing and information fusion

Important dates:

- Submissions Deadline: February 29, 2024
- Tentative Publication Date: 4th quarter 2024

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