IEEE Transactions on Consumer Electronics

Call for Papers

Special Section on "Neuromorphic Computing Technologies for Consumer Electronics"

Theme:

Recently, consumer electronics have moved toward data-centric applications due to the development of artificial intelligence (AI) technologies. With the growing demand for large memory capacity, fast processing speed, and complex data computation in consumer electronics, neuromorphic computing has been emerged as the next-generation technology to promote the revolution and development of consumer electronics.

Neuromorphic computing technologies offer tremendous potential for computing beyond Moore's law, which have been involved in all aspects of consumer electronics applications. Specifically, neuromorphic computing technologies with extreme energy efficiency will be indispensable for smart device applications such as intelligent monitoring system, unmanned aerial vehicle, service robotic, etc. In addition, neuromorphic computing technologies inspired by human brain can handle the avalanche of unstructured data, which are well poised to become the AI accelerators in personal computing devices such as smart phones, laptops, and desktops. Furthermore, neuromorphic computing technologies promise a massively parallel, efficient, and scalable computational solution with large implications such as smart manufacturing, smart grids, smart home, and smart city on the daily lives of consumers.

To promote the development of neuromorphic computing and related fields in consumer electronics, this special section will provide a platform for researchers to exchange the latest research and practitioner findings. The special section will focus on the hot topics of neuromorphic computing, the latest progress of emerging devices and hardware implementations for consumer electronics, brain-inspired computing structures and learning methods in consumer electronics, the interdisciplinary applications of neuromorphic computing in consumer electronics, etc. This special section aims to achieve the deep integration of advanced materials science, computer science, and electronic science and technology, which is expected to accelerate the development of neuromorphic computing systems and the adoption for consumer electronics applications.

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

- Evolving consumer materials, attributes, and functionality in neuromorphic computing systems
- Emerging neuromorphic computing devices, circuits, and algorithms for consumer electronics applications
- Integration of sensing, storage, and processing in consumer electronics
- Consumer behavior analysis with neuromorphic computing systems
- Brain-inspired neuromorphic computing architecture in consumer electronics
- Hardware and software interaction and codesign in consumer electronics
- Emerging neuromorphic computing applications and their cases studies in consumer electronics

Important dates:

- End of submission of Manuscripts: September 30, 2023
- Expected publication date (tentative): Third Quarter, 2024

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Manuscripts should be prepared following guidelines at: https://ctsoc.ieee.org/publications/ieee-transactions-on-consumer-electronics.html and must be submitted online following the IEEE Transactions on Consumer Electronics instructions: https://ctsoc.ieee.org/publications/ieee-transactions-on-consumer-electronics.html. During submission, the Special Section on **"Neuromorphic Computing Technologies for Consumer Electronics"** should be selected.