IEEE Transactions on Consumer Electronics

Call for Papers

Special Section on "Neural Computing-driven Artificial Intelligence for Consumer Electronics"

Theme:

Recent advances in artificial intelligence (AI) technologies have driven the dramatic developments in key consumer applications, e.g., smart manufacturing, equipment conditions and fault diagnosis, quality inspection, autonomous decision-making, etc. In the Industry 4.0 era, AI has become the core technology to promote the revolution and development of consumer electronics intelligence. In practice, AI-driven consumer electronics integrate AI technologies and the domain knowledge of standard process and operations to achieve smart systems incorporated with techniques of the internet of things (IoT), neural computing, machine learning, and deep learning. However, many challenges are remained to implement AI-powered modes for consumer electronics by directly applying advanced neural computing techniques. Moreover, complex application context in consumer electronics environments and prior domain knowledge further make it challengeable to fulfill emerging intelligent consumer applications. On the other hand, recent years have witnessed the rapid development of neural computing in various AI tasks. In particular, deep neural networks have been widely applied in real-world application scenarios in consumer electronics manufacturing. Moreover, advanced techniques and approaches in data modeling and prediction, learning strategies, optimization and control theories are also incorporated and developed under various consumer application scenarios.

Therefore, this special issue on "Neural Computing-driven Artificial Intelligence for Consumer Electronics" concentrates on advanced techniques in neural computing-driven AI for consumer electronics. In summary, this special issue will mainly cover the theory and practice on neural computing-based AI for consumer electronics, with a focus on novel methods and techniques including, but not limited to, AI-enabled data acquisition for consumer applications, neural networks, data modeling and prediction, learning strategies, optimization and control theory, as well as specialized AI applications for consumer electronics in smart cities, such as smart grids, smart homes, smart buildings and smart retail, just to name a few. All of them should be benefited from applying AI technologies to the applications for consumer electronics.

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

- Neural network-based control systems and their integration for consumer electronics devices
- Machine learning and deep learning for data modeling and forecasting in consumer applications
- Computational intelligence-enabled optimization methods for engineering applications of consumer electronics
- Multi-agent control and decision making in smart manufacturing for consumer electronics
- Deep learning-driven pattern recognition and computer vision in the applications of consumer electronics
- Neural computing-based fault diagnosis and prognostic management for consumer electronics
- Multi-sensors fusion and ensemble learning for data from intelligent wearable devices

Important dates:

- End of submission of Manuscripts: **November 1, 2022**
- Expected publication date (tentative): March 2023

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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 **"Neural Computing-driven Artificial Intelligence for Consumer Electronics"** should be selected.

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