

IEEE Transactions on Consumer Electronics

Call for Papers

Special Section on

“ Complex Network Analysis and Applications in Next-Generation Consumer Electronics ”

Theme:

Thanks to the recent progress of emerging technologies, such as Internet-of-things (IoT), Artificial Intelligence (AI), Machine Learning (ML), 5G, etc., the market for consumer electronics has been growing tremendously. Consumer electronics refer to any kinds of devices and/or equipment for personal and household uses. Traditional consumer electronics include televisions, video recorders, cameras, etc. With the emerging technologies, consumer electronics are stepping into the next-generation consumer electronics with higher connectivity and intelligence. Smart appliances, wearable healthcare devices, smartphones, etc. are typical examples of next-gen consumer electronics, and most of them connect to the internet/other devices and deliver smart services.

The transformation from modern consumer electronics into next-gen consumer electronics may reveal the correlation between consumer behaviors and the development of technology. For instance, the recent advancement of AI and wireless technologies has led to the popularization of smart products on the market. Therefore, exploring the underlying correlation between consumer behaviors, the development of technology, and the research and development trend of consumer electronics could identify the essential research and development fields to sustain the continuous development of consumer electronics. Complex network analysis could be conceived as one of the efficient analytic approaches to identify and model the underlying relationship between various parties in consumer electronics. For example, social network analysis could reveal the current status and growth of the consumer electronics market by modeling the social network of households and their owned consumer devices and/or equipment.

In addition, the high-connectivity nature of the next-gen consumer electronics would proliferate the interaction between the physical and cyber worlds. The popularization of consumer electronics would significantly increase the amount of data available in both the physical and cyber worlds. Complex network analysis could help the analysis of information flow and exchange and identify the underlying vulnerability of consumer electronics networks, such as nodes carrying most network traffics, malicious nodes, unusual traffics, etc. Therefore, the complex network analysis could contribute to the better visualization of the consumer electronics ecosystem, and more importantly, improve the reliability of the consumer networks.

This Special Section on “Complex Network Analysis and Applications in Next-Generation Consumer Electronics” focuses on the complex network analysis, modeling, use cases, and applications for the next-gen consumer electronics.

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

- The current state and market model of consumer electronics
- Correlation analysis of the consumer electronics market, the development of technology, and consumer behaviors
- Social network analysis and modeling of virtual connections among consumer electronics
- Analysis and identification of the vulnerabilities in the consumer electronics networks and ecosystem
- Data flow modeling and analysis using complex network analysis
- Theory and applications of complex networks in consumer electronics
- Trusted architecture design for consumer electronics

Important dates:

- End of submission of Manuscripts: **October 31, 2022**
- Expected publication date (tentative): April 2023

Guest Editors:

- Dr. Chung Kit Wu, City University of Hong Kong, Hong Kong, Email: chungkwu4-c@my.cityu.edu.hk
- Dr. Chi Tsun Cheng, RMIT University, Australia, ben.cheng@rmit.edu.au
- Prof. Guanrong Chen, City University of Hong Kong, Hong Kong, eegchen@cityu.edu.hk
- Dr. Shahid Mumtaz, Instituto de Telecomunicações, Portugal, smumtaz@av.it.pt
- Dr. Kim Fung Tsang, City University of Hong Kong, Hong Kong, ee330015@cityu.edu.hk
- Dr. Yoko Uwate, Tokushima University, Japan, uwate@ee.tokushima-u.ac.jp

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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 **“Complex Network Analysis and Applications in Next-Generation Consumer Electronics”** should be selected.