

# IEEE Transactions on Consumer Electronics

## Call for Papers

### Special Section on “Consumer-centric Energy-efficient 6G Networks for Industry 5.0”

#### Theme:

Industries can play a crucial role in the solution to some of the most pressing social issues, such as resource management, reducing climate change, and fostering social stability. Industry 5.0, also called the Human-Tech partnership, represents an emerging paradigm in industrial development. A key component of Industry 4.0 is the combination of advanced technologies like artificial intelligence, robotics, and consumer electronics (For example, the Internet of Things (IoT), cyber-physical systems (CPS), or Wearables) with a strong emphasis on human creativity, innovation, and problem-solving abilities. Industry 5.0 focuses on collaboration between humans and machines, customization of products and services, environmental sustainability, decentralization of production, and adaptability to changing market conditions. It addresses global market competition, increased efficiency and quality demands, as well as general job satisfaction, productivity, and social responsibility. In the context of massive consumer electronics, 6G technology has a crucial role to play in improving communication reliability and efficiency in Industry 5.0 applications. Here, 6G-enabled networks enable seamless, low-latency, and high data rate communication, overcoming the challenges associated with consumer electronics large-scale coordination and synchronization. With the implementation of energy efficient 6G networks with the sustainability goals of Industry 5.0, CO2 emissions will be decreased, and resource depletion will be reduced. This would benefit consumer-oriented industrial applications in the future. Furthermore, generative AI and large language models (LLMs) can be used to generate solutions to unpredictable problems in Industry 5.0.

This issue aims to cover all the emerging trends and technologies on Consumer-centric Energy-efficient 6G Networks for Industry 5.0. The papers related to Industry 5.0 which use AI/ML, deep learning, optimization, casual inference, blockchain, 5G/6G, or beyond solutions, especially for consumer electronic centric, are strongly encouraged for this issue. It is highly encouraged to conduct research related to consumer electronics for 6G and Industry 5.0 regarding the use of large LLMs for unpredictable maintenance. The proposed special issue aims to attract, collate, and archive high-quality original research works from academic researchers and industry practitioners in these novel areas. It also aims to provide worldwide researchers and practitioners with an ideal platform to innovate cutting-edge solutions targeting vital challenges.

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

- Use of LLMs for consumer-centric 6G networks for Industry 5.0
- Generative AI for consumer-centric unpredictable maintenance in Industry 5.0
- Role of Mobile/Autonomous Vehicular systems in LLM computations for Consumer Electronics
- Consumer-centric trends, vision and goals of Industry 6.0 Toward Sustainability
- Ultra-reliable and low latency communication protocol for consumer-centric Industry 5.0
- Zero-touch provisioning for IoT configuration and Service management
- Intelligent reflecting surfaces for 6G network for Industry 5.0
- Privacy mechanisms and security protocols for 6G networks for Industry 5.0
- Collaborative AI-enabled approaches for consumer electronics in Industry 5.0
- Advanced/hybrid energy harvesting techniques for sustainable Industry 5.0
- Distributed AI for 6G networks for Industry 5.0
- Blockchain-enabled 6G network management and service provisioning in Industry 5.0
- Smart protocols and intelligent frameworks for Industry 5.0
- 6G-Enabled Consumer-centric Smart Supply Chain Management for Industry 5.0

- AI-enabled network virtualization for Industry 5.0
- Knowledge-driven 5G/6G networks for futuristic Industrial applications
- Intent-based performance management in Industry 5.0
- Case studies, Use case analysis, Testbed, Real-time experiments for energy efficient 6G networks (Healthcare 5.0, Industry 5.0, Agriculture 5.0, etc.)

#### Important dates:

- End of submission of Manuscripts: **July 31, 2024**
- Expected publication date (tentative): 2nd quarter 2025

#### Guest Editors:

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#### Instructions for authors:

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 “**Consumer-centric Energy-efficient 6G Networks for Industry 5.0**” should be selected.