

IEEE Transactions on Consumer Electronics

Call for Papers

Special Section on “Data-Driven Innovation and Adversarial Learning Models for Industry 5.0 towards Consumer Digital Ecosystems”

Theme:

Recently, the advancement of communication technologies (e.g., 5G), Artificial Intelligence (AI), industrial edge computing and adversarial Machine Learning (ML) are key accelerators in Industry 5.0 systems towards digital eco-systems of consumers. Given the global trend and the vast evolving context of data-driven innovation, adversarial ML models will be playing a significant role in achieving the service requirements and cyber security strategies of Industry 5.0 systems in the context digital eco-systems. The fifth industrial revolution, named Industry 5.0, incorporates numerous digital eco-systems and emerging technologies, including the Internet of Things (IoT), Cyber-Physical Systems (CPS), cloud computing, and AI, for developing smart, open, and secured factories. With the advancements in Internet and related technologies, numerous Industry 5.0 applications have emerged across the globe that employ actuators and sensors to sense, manipulate, and communicate the data for industrial automation towards digital eco-systems (smart home, autonomous vehicles, social web, etc.). Consequently, the adversarial ML paradigms can eliminate the need for a centralized authority and handle various associated security issues in industry 5.0 in the context of CPS and Cyber-Physical Social Systems (CPSS). Despite the data-driven industrial revolution, a new pattern is emerging, based on the clever combination of various technologies (e.g., Big Data, Blockchain) and Industry 5.0 will play an important role in future research on CPSS systems in the context of consumer digital eco-systems. In this special issue, we show a general way to adopt adversarial ML models and systems to provide accurate, data-driven innovation and efficient computational modelling of complex and interconnected processes implemented by secured real-time industrial systems. Future standards and best practices for assessment and management of the security of ML components of AI system towards CPS/CPSS in industry 5.0 is emphasized in this special issue. The main focus of this special issue is to investigate various knowledge-based complex systems, the data-driven approach to solving the cyber security issues in industry 5.0 systems and related system of systems. To this end, we seek impactful innovations and findings on applications of adversarial ML in industry 5.0 towards consumer digital eco-systems.

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

- Integrating Adversarial ML and data driven models in Industry 5.0 towards consumer digital eco-systems
- Adversarial ML for information security in digital eco-systems
- Predictive computational modelling for Industry 5.0 systems
- Adversarial ML for real time attacks in CPS and digital eco-systems
- Big data mining for industry 5.0 applications
- Deep learning framework for efficient detection of security attacks in industry 5.0 systems
- Meta-heuristic paradigm for secure real time systems in digital eco-systems
- Design and development of intelligent data driven framework for Industry 5.0 systems
- Cognitive data science for real-time security system & communication network in industry 5.0 systems
- Explainable machine learning for driving technological innovations across digital eco-systems

Important dates:

- End of submission of Manuscripts: **June 1, 2023**
- Expected publication date (tentative): May 2024

Guest Editors:

- ◆ Dr. Arun Kumar Sangaiah, National Yunlin University of Science & Technology, Taiwan, VIT University, India. Email: aksangaiah@ieee.org; arunks@yuntech.edu.tw
- ◆ Dr. Xizhao Wang, Shenzhen University, China. Email: xizhaowang@ieee.org; xzawang@szu.edu.cn
- ◆ Dr. Mohammad S. Obaidat, University of Jordan, Jordan. Email: m.s.obaidat@ieee.org; mobaidat@ju.edu.jo
- ◆ Dr. Patrick C.K Hung, Ontario Tech University, Canada. Email: patrick.hung@ontariotechu.ca
- ◆ Dr. Kannan Govindan, University of Southern Denmark, Denmark. Email: kgov@iti.sdu.dk

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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 **"Data-Driven Innovation and Adversarial Learning Models for Industry 5.0 towards Consumer Digital Ecosystems"** should be selected.