IEEE Transactions on Consumer Electronics

Call for Papers

Special Section on "Enhancing Consumer IoT Security with Immersive Embedded Cyber-Physical Systems"

Theme:

Embedded cyber-physical systems that are immersive in nature and integrated into Consumer Internet of Things (CIoT) devices offer a host of benefits including: (a) Immerse Yourself: CIoT devices equipped with immersive technologies can provide interactive and engaging user experiences, including AR interfaces and multimedia content. (b) Contextual Intelligence: Immersive embedded systems allow CIoT devices to respond to contextual cues, providing personalized and adaptive functionalities based on user activities and environments. (c) Real-Time Responsiveness: Cyber-physical systems within CIoT can analyze data in real-time, offering instant feedback and dynamic adjustments in response to user input or environmental changes. (d) Virtual Companions: Immersive technologies integrated into CIoT devices can offer lifelike virtual assistants, enhancing user engagement and natural interactions within smart home environments. (e) Sensory Exploration: Immersive embedded systems can provide advanced sensory feedback, including haptic feedback, spatial awareness, and environmental responsiveness, enriching user interactions and environmental perception.

CIoT is revolutionizing modern society by integrating Artificial Intelligence and Cyber-physical approaches. CIoT (Connected IoT) is a system that helps enhance industrial performance and offers a range of services through the acquisition and analysis of secure big data. It enables better industrial asset management, higher productivity, maximized operational efficiency, and intelligent data analytics. Embedded systems seamlessly integrate hardware, software, and firmware solutions, offering high-speed system architecture design, validation, prototyping support, porting, optimization, edge devices, and power electronics.

The special issue proposal explores the significant role of immersive embedded Cyber-physical systems in CIoT, mainly focusing on their impact on intelligent decision-making systems.

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

- Embedded Cyber-physical software for CIoT
- Embedded Cyber-physical systems for smart energy and utilities
- AI-based environment monitoring and climate control
- Manufacturing and Agricultural automation in embedded Cyber-physical -CIoT
- Embedded-CIoT for smart healthcare and Industry 4.0
- Intelligent edge and smart devices for CIoT
- Intelligent End-to-End CIoT framework for embedded systems
- Verification and validation for embedded-CIoT
- Firmware approaches for embedded-CIoT
- Gateway Implementation and Integration for embedded-CIoT
- Edge intelligence and blockchain-empowered embedded-CIoT framework
- Advanced technologies and applications of the embedded-CIoT framework
- AR/VR/MR for embedded Cyber-physical -CIoT solutions
- Embedded high-performance Computing for CIoT
- Automation and Computational Intelligence using Smart Electronics
- Real-Time Operating Systems (RTOS) and microprocessors and microcontrollers for embedded-CIoT
- Methods and tools for modeling Embedded systems
- Model-driven development of embedded software for CIoT
- AI-driven traffic management and control for UAVs
- Autonomous vehicle integration in embedded-CIoT systems

Important dates:

- End of submission of Manuscripts: **October 31, 2024**
- Expected publication date (tentative): 3rd Quarter, 2025

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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 ***"Enhancing Consumer IoT Security with Immersive Embedded Cyber-Physical Systems"*** should be selected.

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