



Call for Papers for the Special Session on

**DISTRIBUTED AND ENERGY-AUTONOMOUS INTELLIGENT SENSING FOR
CYBER-PHYSICAL INDUSTRIAL SYSTEMS**

Organized and co-chaired by

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Technical Outline of the Session and Topics

With the rapid advancement of cyber-physical systems, industrial infrastructures are becoming increasingly distributed, intelligent, and data-driven. Modern monitoring paradigms require scalable sensing architectures capable of operating autonomously under constrained energy and communication resources. Energy-autonomous sensing, distributed intelligence, and edge-native computation are emerging as transformative technologies that enable self-sustained, low-power, and resilient monitoring infrastructures.

Unlike conventional sessions centered solely on fault detection or centralized condition monitoring, this session emphasizes energy-autonomous operation, hardware–algorithm co-design, and distributed sensing intelligence for next-generation cyber-physical industrial systems. The goal is to bridge advances in intelligent sensing materials, embedded systems, distributed computation, and digital twin technologies to enable resilient, scalable, and sustainable monitoring architectures.

Topics of the session include, but are not limited to:

- Energy-harvesting and self-powered sensing systems
- Distributed intelligent sensing architectures
- Edge-native computation for industrial monitoring
- Digital twin-enabled distributed sensing
- Hardware–algorithm co-design for ultra-low-power systems
- Autonomous sensor nodes for harsh environments
- Wearable and flexible intelligent sensing systems
- Communication-efficient distributed monitoring frameworks
- Cyber-resilient sensing infrastructures

Timeline for Authors

All the instructions for paper submission are available on the conference website. Please visit www.iecon2026.org or scan the QR code for the timeline.

