



The 52nd Annual Conference of the IEEE Industrial Electronics Society

Call for Papers for the Special Session on

Multimodal Foundation Models and Agentic AI for Intelligent Industrial Electronics and Manufacturing Systems

Organized and co-chaired by

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Technical Outline of the Session and Topics

The convergence of industrial electronics, manufacturing, and artificial intelligence is opening new horizons for intelligent, sustainable, and resilient production ecosystems. Emerging paradigms such as multimodal large language models (MLLMs), foundation models, and agentic AI architectures enable seamless integration of heterogeneous industrial data sources, including sensor signals, controller logs, machine vision, and textual process documentation. Their synergy with embedded electronics and edge-AI platforms promises advancements in predictive maintenance, adaptive control, quality inspection, and process optimization. This special session aims to explore methodologies, architectures, and applications that connect AI with industrial electronics, addressing scalability, trustworthiness, and deployment challenges in real-world manufacturing.

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

- Multimodal Large Language Models in Manufacturing and Industrial Electronics
- Foundational Models in Manufacturing and Industrial Electronics
- Agentic AI and Autonomous Decision-Making in Smart Factories
- Edge AI and Embedded Intelligence for Real-Time Industrial Systems
- AI-Enabled Predictive Maintenance and Fault Diagnosis
- Vision-Language Models for Industrial Inspection and Quality Control
- Trustworthy and Explainable AI for Industrial Automation
- Self-Learning and Continual AI Systems for Manufacturing
- AI-Enabled Human–Machine Collaboration in Industry 5.0
- Scalable Architectures for Multimodal Industrial AI

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.

