IECON 2026
Doha, Qatar | 18-21 October
The 52nd Annual Conference of the IEEE Industrial Electronics Society

Call for Papers for the Special Session on

Advanced data-driven performance assessment and fault-tolerant control for industrial automation systems

Organized and co-chaired by

Yuchen Jiang, Harbin Institute of Technology — yc.jiang@hit.edu.cn
Zhiwen Chen, Central South University — zhiwen.chen@csu.edu.cn
Jerzy Baranowski, AGH University of Krakow — jb@agh.edu.pl
Cheng Pang, INSPRO Science Ltd — cheng.pang@ieee.org

Technical Outline of the Session and Topics

Industrial automation systems increasingly require high performance, reliability, and resilience. Data-driven methods are becoming essential for performance assessment and fault-tolerant control, especially when conventional model-based approaches are challenged by system complexity, uncertain operating conditions, and heterogeneous multi-source data. This special session brings together researchers and practitioners to share recent advances, algorithms, and applications in data-driven performance monitoring, degradation assessment, fault diagnosis, and fault-tolerant control, with the goal of improving the intelligence, reliability, and fault tolerance of industrial automation systems.

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

- Advanced data-driven performance assessment algorithms for industrial automation systems
- Data-driven modeling for performance degradation assessment and prediction
- Intelligent data processing techniques for industrial system performance monitoring
- Advanced data-driven fault-tolerant control strategy design
- Adaptive and robust fault-tolerant control for complex industrial processes
- Statistical and machine learning-based fault modeling for industrial automation systems
- Applications in manufacturing, process control, and robotics
- Other related topics closely relevant to the theme

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.