CALL FOR PAPERS
SPECIAL SESSION ON

Intelligent Diagnostics and Prognostics in Industry 5.0: Methods, Technologies, and Applications

for ICCAD 2026
July 7-9, 2026, Lisbon, Portugal

Session Co-Chairs:
- Lotfi chaouech, University of Tunis, Tunisia.
- Jaouher Ben Ali, University of Tunis, Tunisia.
- Demba Diallo, Paris-Saclay University, France.

Session description:

The transition toward Industry 5.0 marks a new era of smart manufacturing characterized by human-centric design, sustainability, resilience, and advanced digital integration. In this emerging paradigm, intelligent diagnostics and prognostics are critical enablers for ensuring reliability, safety, productivity, and sustainable industrial operations. The integration of artificial intelligence, cyber-physical systems, industrial IoT, digital twins, and edge/cloud computing is reshaping traditional maintenance strategies and enabling predictive and prescriptive decision-making.

This Special Session aims to explore cutting-edge methodologies and real-world implementations of intelligent fault diagnosis, anomaly detection, and prognostics within modern industrial environments.

The session welcomes contributions addressing theoretical developments, algorithmic innovations, and applied case studies related to:

- ✓ Data-driven and physics-informed fault diagnosis;
- ✓ Prognostics and Health Management (PHM) frameworks;
- ✓ Remaining Useful Life (RUL) prediction models;
- ✓ Predictive and prescriptive maintenance strategies;
- ✓ Machine learning and deep learning for condition monitoring;
- ✓ Digital twin–enabled diagnostics;
- ✓ Cyber-physical production systems;
- ✓ Edge and cloud-based industrial analytics;
- ✓ Human–AI collaboration in smart factories;
- ✓ Reliability modeling and risk assessment;
- ✓ Sustainable and resilient maintenance strategies.

Particular emphasis will be placed on solutions that align with Industry 5.0 principles, including human–machine collaboration, energy efficiency, system resilience, and explainability of AI models in industrial decision-making.

This Special Session seeks to bring together researchers, engineers, and industry practitioners to discuss emerging challenges, share innovative solutions, and identify future research directions for intelligent diagnostics and prognostics in next-generation industrial systems.

SUBMISSION

Papers must be submitted electronically for peer review by**: Mars 31, 2026**
https://www.iccad-conf.com/submission/

All papers must be written in English and should describe original work. The length of the paper is limited to a maximum of 6 pages (in the standard IEEE conference double column format).