



9TH International Conference on Control, Automation, and Diagnosis



for more information, Check us out at:
www.iccad-conf.com

July 1-3, 2025
Barcelone, Spain

Submission
deadline: **January 31, 2025**

CALL FOR PAPERS SPECIAL SESSION ON

Emerging Trends in Predictive Maintenance for Electrical Machines, Power Electronics, and Drives

**for ICCAD 2025
July 1-3, 2025, Barcelona, Spain**

Session Co-Chairs:

- Lotfi Saidi, University of Sousse- Tunisia, lotfi.saidi@ieee.org
- Mohamed Benbouzid, University of Brest, UMR CNRS 6027 IRDL, France, mohamed.benbouzid@univ-brest.fr
- Eric Bechhofer, Green Power Monitoring Systems- USA, eric@gpms-vt.com

Session description:

This special session deals with the problem of Predictive Maintenance (PdM) for Electrical Machines, Power Electronics and Drives (EMPED). Indeed, the increasing complexity of industrial operations necessitates advanced methodologies to ensure optimal performance and reduce downtime. In this context, PdM emerges as a pivotal strategy for managing EMPED. By leveraging data-driven analytics and machine learning algorithms, PdM enables organizations to forecast potential failures before they occur, thereby significantly minimizing unplanned outages and associated costs, and enhancing equipment reliability facilitating better resource allocation and operational efficiency.

The goal is to explore the principles of PdM, its benefits compared to traditional maintenance strategies, and the technologies that drive its implementation. Ultimately, understanding these dynamics will elucidate how PdM can transform industrial practices, ensuring sustainability and profitability in an increasingly competitive landscape. As the landscape of electrical engineering evolves, the integration of PdM techniques will likely become increasingly sophisticated, driven by advancements in data analytics and the Internet of Things (IoT). Future trends indicate a shift from traditional maintenance paradigms to more proactive strategies that leverage real-time data monitoring and artificial intelligence (IA).

The topics of interest include, but are not limited to:

- Application of AI for PdM in EMPED
- AI-based fault diagnosis and prognosis for early detection of anomalies
- Fault-tolerant diagnostics and control of EMPED
- Advanced signal processing for EMPED health analysis.
- Advanced methodologies for quantifying uncertainty in prognosis processes.
- Fault detection and diagnostics of multiple failures.

Papers must be submitted electronically for peer review by **January 31, 2025**

<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).