CALL FOR PAPERS - SPECIAL SESSION

"Advancements in Predictive Maintenance—Fault Detection and Condition Monitoring in Electromechanical Systems"

for CODIT 2026

July 13-16, 2026 ▪ Bari, Italy

Session Chair:

Dr. Dominik Łuczak, Faculty of Control, Robotics and Electrical Engineering, Poznań University of Technology, Poland - (E-mail: dominik.luczak@put.poznan.pl)

Expertise: Diagnostics of electromechanical systems; data-driven rotary-machine fault diagnosis; control algorithms for complex drives (including direct drives and fault tolerance); AI and IoT-based fault detection; precise motion control; system identification; real-time data analysis; IoT applications in batch and stream processing for fault diagnosis and system monitoring.

Session description:

This special session deals with the problem of ensuring reliability and operational safety of electromechanical systems, particularly electric drives, through advanced fault detection and condition monitoring techniques. Modern industrial and transportation systems rely heavily on these components, and unexpected failures can lead to costly downtime, safety hazards, and reduced efficiency. The session addresses challenges in developing robust diagnostic methods, integrating sensor data, and applying intelligent algorithms for predictive maintenance.

The goal is to bring together researchers and practitioners to share innovative solutions, methodologies, and case studies that enhance predictive maintenance and fault diagnostics in electromechanical systems. The session aims to foster collaboration between academia and industry, promote the adoption of AI-driven approaches, and explore emerging technologies such as digital twins and IoT-based monitoring for real-time fault detection.

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

- Fault detection and isolation in electric drives
- Sensor fault diagnostics and redundancy strategies
- Signal processing and feature extraction for condition monitoring
- AI and machine learning applications in predictive maintenance
- Digital twin modeling and simulation for diagnostics

- Prognostics and health management (PHM)
- Diagnostics in robotics and unmanned systems
- Cloud-based and edge-based diagnostic architectures
- Industrial case studies and deployment strategies

SUBMISSION

Papers must be submitted electronically for peer review through PaperCept by **February 07, 2026:** **http://controls.papercept.net/conferences/scripts/start.pl**.

In PaperCept, click on the **CoDIT 2026 link "Submit a Contribution to CoDIT 2026" and follow the steps.**

IMPORTANT: 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).

DEADLINES

February 07, 2026: deadline for paper submission

April 30, 2026: notification of acceptance/reject

May 20, 2026: deadline for final paper and registration