



IEEE-International Conference on Electrical and Electronics for Sustainable Innovations 2026 (ICEESI 2026)

(Hybrid Conference with IEEE Record Number #68020)

27th & 28th March 2026

Special Session on

SS 04: Intelligent Fault Detection and Prognostic Frameworks for Sustainable Power Systems

Organized & Co-Chaired by:



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CALL FOR PAPERS

This special session aims to advance the research and application of sophisticated artificial intelligence (AI) and machine learning (ML) frameworks, integrated with Internet of Things (IoT) cyber-physical systems, for transformative prognostic health management (PHM) in renewable energy and power electronics. This session is dedicated to addressing the critical scientific challenge of ensuring unwavering reliability and fault tolerance within increasingly complex and decentralized energy grids. We seek to foster a discussion on pioneering methodologies that transition maintenance paradigms from reactive or scheduled practices to truly predictive and prescriptive operations, thereby significantly enhancing asset longevity, maximizing energy availability, and minimizing operational expenditures.

TOPICS OF INTEREST, BUT NOT LIMITED TO:

We invite original research contributions and case studies on (but not limited to):

- Novel AI/ML Algorithms for Predictive Maintenance of Renewable Systems
- Deep Neural Networks for Incipient Fault Detection in DC-AC Inverters and Power Converters
- Developing High-Fidelity Digital Twins for Real-Time System Diagnostics and Failure Prognosis
- IoT-Enabled Condition Monitoring: From Smart Sensor Data Acquisition to Feature Extraction
- Enhancing Transparency in AI-Driven Diagnostics: Techniques in Explainable AI (XAI) and Interpretable ML
- Advanced Time-Series Analysis (e.g., LSTMs, TCNs) for Anomaly Detection in Complex Power Systems Data
- Decentralized Intelligence: Federated Learning for Collaborative Fault Monitoring Across Geographically Dispersed Assets
- Integrated Cloud-Edge Architectures for Deploying Real-Time Predictive Maintenance Models
- Validating AI-Driven Health Monitoring in Critical Power Electronic Infrastructure

IMPORTANT DATES:

Paper submission opens: July 25, 2025

Paper submission closes: December 15, 2025

Paper acceptance notification: January 01, 2026

Early Bird Registration opens: January 02, 2026

Last date of Early Bird Registration: January 31, 2026

Normal Registration opens: February 01, 2026

Last Date of Camera-ready paper submission: February 15, 2026

Last Date of Normal Registration: February 16, 2026

Conference Date: 27-28 March 2026

The detailed information can be found here:

Conference URL: <https://iceesi2026.opju.ac.in/>

Submission Link: <https://cmt3.research.microsoft.com/ICEESI2026>

(Please Submit Under SS 04: Intelligent Fault Detection and Prognostic Frameworks for Sustainable Power Systems

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