CALL FOR PAPERS
SPECIAL SESSION ON
Renewable Energy Prediction and Monitoring of Power Networks
for ICCAD 2025
July 1-3, 2025, Barcelona, Spain

Session Co-Chairs:
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Session description:

This special session deals with the problem of accurate state estimation, forecasting, and optimization in power networks including an important share of renewable energy generation, focusing on the integration of machine learning and data-driven methods to address the challenges posed by the partially stochastic nature of renewable energy sources, and by incomplete sensing of the load flow in a power grid. The session emphasizes the importance of reliable energy production forecasting and demand prediction to ensure energy system stability, avoid power quality issues, and align energy production with demand. Also, fault detection and localization methods in grids with incomplete load sensing are addressed, together with the integration of innovative sensing technology for low-cost state acquisition.

The goal is to bring together researchers, practitioners, and industry experts to explore innovative methodologies and applications of advanced computational intelligence in renewable energy systems. The session aims to foster collaboration and exchange on cutting-edge estimation and forecasting models, particularly those leveraging deep learning, hierarchical forecasting, and hybrid techniques, to optimize energy production, enhance fault detection, and support sustainable energy management.

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

- Data-driven modeling and time series analysis for energy systems
- Advanced methods for energy prediction and fault detection in renewable energy networks
- Deep learning techniques, including LSTM and transformer-based models, for energy forecasting
- Integration of system dynamics and computational intelligence in renewable energy management
- Smart grid control, automation, and hierarchical forecasting strategies
- Optimization and control strategies for PV, and hybrid energy systems

- Integration of renewable energy systems with IoT, and real-time analytics

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SUBMISSION

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).