

Special Issue

Advances in Machine Learning Applications in Stability Analysis and Optimal Operation of Power Systems

Message from the Guest Editors

The increasing penetration of renewable energy sources (RESs), such as solar and wind, presents significant challenges to the stability and optimal operation of modern power systems. The inherent intermittency and stochasticity of RESs lead to critical challenges, such as increased frequency deviations, voltage instabilities, and operational constraints. Machine Learning (ML) approaches offer a promising, data-driven paradigm to address these challenges. This Special Issue seeks to consolidate cutting-edge research and innovative applications of machine learning for enhancing the stability and operational efficiency of power systems. Topics of interest for publication include, but are not limited to:

- Renewable generation/load forecasting;
- Power system dynamics modeling and identification;
- Power system stability/security assessment;
- Power system fault/event detection;
- Optimal power flow;
- Economic dispatch;
- Network planning;
- Distribution network reconfiguration;
- Preventive and corrective cyber-defense;
- Cyber-resilient control;
- Cybersecurity enhancement.

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Message from the Editor-in-Chief

Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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