

Call for Papers for the Special Session on

AI-Driven Innovations in Renewable Energy: Challenges and Future Directions

Organizers and Co-chairs

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Technical Outline of the Session and Topics

The proposed special session aims to explore the transformative role of artificial intelligence (AI) in renewable energy systems. By addressing key challenges and presenting innovative solutions, the session will highlight cutting-edge research and applications in AI-powered optimization, predictive maintenance, system integration, and grid stability. Participants will engage with experts to understand how AI can enhance efficiency, sustainability, and scalability in renewable energy systems.

Topics of this Special Session Include but are not limited to

- Application of machine learning algorithms for energy production forecasting
- AI-driven optimization of wind, solar, and hydro energy resources
- AI techniques for real-time monitoring and fault diagnosis in renewable energy infrastructure
- Integration of renewable energy into smart grids using AI for load balancing and demand response
- AI models for grid stability and energy storage solutions
- AI-driven insights for improving energy efficiency in industrial and residential settings
- Use of AI to design low-carbon and environmentally friendly energy systems
- Data-driven approaches for short-term and long-term energy yield predictions
- Role of AI in assessing the environmental and social impacts of renewable energy projects
- Leveraging AI to analyze and predict material properties for renewable energy applications
- Development of AI-driven models to identify trends and enhance material performance
- Machine learning approaches for energy-efficient material design and evaluation

Timeline for Author

Deadline for submission of special session papers January 10, 2025

Notification of acceptance March 10, 2025

Deadline for submission of final manuscripts April 15, 2025

All the instructions for paper submission are available on the conference website.

