Special Issue

Artificial Intelligence for Energy Integration and Efficiency in Photovoltaic and Thermal Solar Systems

Message from the Guest Editors

This Special Issue seeks to collate high-quality contributions that demonstrate the use of AI in enhancing the efficiency, reliability, and scalability of solar systems. Topics of interest include, but are not limited to, the following:

- Intelligent forecasting of solar irradiance and energy demand;
- AI-based optimization of PV and thermal system performance;
- Smart control systems for hybrid solar configurations;
- Predictive maintenance using AI for solar installations;
- Energy integration in smart grids with AI-enhanced coordination;
- Deep learning approaches for fault detection and diagnostics;
- Reinforcement learning for adaptive energy management;
- Case studies in real-world applications and industrial implementations. The aim of this Special Issue is to foster interdisciplinary research and share innovative solutions that bridge the gap between AI and sustainable energy engineering. We welcome the submission of original research articles, reviews, and case studies that explore novel methodologies, implementations, and theoretical insights.

Guest Editors

Prof. Dr. Juvenal Rodriguez-Resendiz

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Dr. Marcos Aviles

Dr. Perla Sevilla-Camacho

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Message from the Editor-in-Chief

Technologies, provides a single focus for reporting on developments of all technologies, regardless of their application. It is our intention that *Technologies* becomes the journal of choice for both researchers wanting to publish their work and technologists wishing to exploit the high quality research across a wide range of potential applications. Through its open access policy, its quick publication cycle, *Technologies* will facilitate the rapid uptake and development of the research presented, ultimately providing benefit to the wider society.

Editor-in-Chief

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