Solar Power Generation Intelligence

Photovoltaic power generation forecasting is short term by considering climatic data such as solar irradiance, temperature, and humidity. Moreover, we have proposed a novel hybrid deep ...

Therefore, this research underscores the potential of AI-based prediction in fostering efficient solar energy management and enhancing Smart Grid reliability and efficiency. 1. Introduction.

The integration of XAI with machine learning and deep learning technologies has markedly advanced the field of solar power generation. The proposed SPXAI model effectively tackles the unpredictability ...

A combination of AI, smart materials, adaptive solar cells, and blockchain power distribution provides a new solution towards weather-independent and autonomous solar power ...

Solar Intelligence Predictive Models for Power Generation and Radiation play a pivotal role in optimizing the efficiency and reliability of solar energy systems.

Understanding the inner workings of a prediction model based on AI can give insights into the application field. Such insight can provide improvements to the solar PV forecasting models and ...

Accurate short-term forecasting of PV generation is therefore essential for secure grid operation and efficient energy dispatch. Forecasting horizons are commonly categorized into short-term (1-24 h), ...

This paper proposes a model called X-LSTM-EO, which integrates explainable artificial intelligence (XAI), long short-term memory (LSTM), and equilibrium optimizer (EO) to reliably ...

Abstract: The rapid adoption of solar photovoltaics (PV) in power distribution systems demands accurate models for power generation and solar radiation prediction.

In this paper, a comprehensive study using ML and XAI methods to forecast solar generation has been presented. The main goal here is to support electricity providers and their ...

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