

This research proposes a novel AI-enhanced hybrid solar energy framework integrating spatio-temporal forecasting, adaptive control, and decentralized energy trading.

The development of a solar power generation model, multiple differential models, simulation and experimentation with a pilot solar rig served as alternate model for the prediction of ...

Hence, this study proposes the Extreme Gradient Boosting regression-based Solar Photovoltaic Power Generation Prediction (XGB-SPPGP) model to predict and classify the usage of ...

In this article, a method independent of the manufacturer's data for modeling solar panels is presented. This method enables accurate modeling of pre-installed solar power plants.

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 forecast solar ...

The above results support the use of empirical explicit (triple) and second-order differential models for the design and operation of power plants.

This study presents a new hybrid model combining Convolutional Neural Networks (CNN) and Deep Neural Networks (DNN) to improve the accuracy of photovoltaic solar energy forecasting.

This research uses deep learning techniques, the Long Short-Term memory (LSTM) model, to predict solar power generation from several environmental variables, including solar ...

Solar power generation in smart cities encompasses a wide array of applications, ranging from rooftop solar panels on residential buildings to expansive solar farms integrated into urban ...



# Solar power generation science model

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