Model solar power generation

This study first presents a comprehensive and comparative review of existing deep learning methods used for smart grid applications such as solar photovoltaic (PV) generation ...

The findings highlight the effectiveness of the hybrid machine learning model in accurately forecasting solar power generation. Future research directions could include developing web ...

Radiation, sunshine, and air temperature emerged as significant predictors of solar power generation. The Random Forest Regressor was identified as the best-performing model, achieving an R-squared ...

Abstract: Solar energy adoption is rapidly growing as a sustainable option, with solar panels used on residential buildings, commercial properties, and large-scale farms. However, the unpredictable ...

Model a low-fidelity, three-phase, grid-connected wind power system by using a Simplified Generator block. Use this low-fidelity electrical model for planning and pitch control studies.

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 ...

Our proposed machine learning model for forecasting the efficiency of the solar panels is presented in Sect. 4, along with the experimental findings. Section 5 summarizes the main works and ...

To achieve rapid and accurate online prediction, we propose a method that combines Principal Component Analysis (PCA) with a multi-strategy improved Squirrel Search Algorithm (SSA) ...

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 ...

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