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A Literature Review on Solar Energy Output Prediction using Various Machine Learning Techniques

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Abstract: *This literature survey explores various machine learning and deep learning models used for solar energy forecasting. A total of 15 papers published between 2020-2023 were reviewed. The objective of the survey was to identify the advancements made in the field of solar energy forecasting using machine learning and deep learning techniques. The survey found that most studies focused on using artificial neural networks (ANN) and deep learning models such as long short-term memory (LSTM) and convolutional neural networks (CNN) for solar energy forecasting. Several studies used ensemble models, such as stacking and bagging, to improve the accuracy of solar energy forecasts. Other studies used feature selection techniques and autoencoders to reduce the dimensionality of data and improve the accuracy of predictions. The survey also found that the availability of data is crucial for accurate solar energy forecasting. Many studies used data from meteorological agencies, such as NASA, NOAA, and ECMWF, along with satellite images and sky cameras to generate accurate forecasts. The use of IoT devices and sensors was also explored in some studies to obtain real-time data for improved forecasting. Overall, the literature survey found that machine learning and deep learning techniques have shown great promise in improving the accuracy of solar energy forecasting. The use of ensemble models, feature selection techniques, and autoencoders has improved the accuracy of forecasts. However, the availability of data is crucial for accurate forecasting. The use of IoT devices and sensors can provide real-time data that can be used for accurate forecasting.*

Keywords: Slime mould algorithm, LGBM, KNN, Random Forest, DNN, Photovoltaic

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