Use AI to predict wind power generation

In 2021, renewable energy accounted for 13 % of the total power generation, with wind and solar power providing the greatest contributions. This corresponded to an increase of approximately ...

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 power ...

One key area where AI has been instrumental is in the maintenance, monitoring, operation, and storage of renewable energy sources. 34 AI has enabled better management of renewable energy generation ...

Wind energy production has had accelerated growth in recent years, reaching an annual increase of 17% in 2021. Wind speed plays a crucial role in the stability required for power grid operation. However, wind ...

Wind farms would benefit from optimization of their design and operation. Harrison-Atlas et al. report an artificial intelligence-aided optimization approach that shows the ...

Using a neural network trained on widely available weather forecasts and historical turbine data, we configured the DeepMind system to predict wind power output 36 hours ahead of actual generation. Based on ...

The prediction of wind power output is part of the basic work of power grid dispatching and energy distribution. At present, the output power prediction is mainly obtained by fitting and regressing the historical data. The ...

One potential solution is the use of long-term weather forecasting and AI to better predict the wind resources at individual locations and inform designs for turbines that suit those sites. Climate ...

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