

Can artificial intelligence predict solar power?

Solar power prediction is a critical aspect of optimizing renewable energy integration and ensuring efficient grid management. The chapter explores the application of artificial intelligence (AI) techniques for accurate solar power forecasting.

Could AI be the future of solar energy?

One promising path is integrating AI into the growing market of solar energy systems that offer clean and affordable energy to grid systems. According to the IEA, power sector investment in solar photovoltaic (PV) technology is projected to exceed \$500 billion in 2024, surpassing all other generation sources combined.

How can artificial neural networks improve solar power forecasting?

Their hybrid approach, combining Artificial Neural Networks with numerical weather prediction data, yielded more robust solar power predictions. This integration enabled a more holistic understanding of solar energy dynamics and bolstered forecast accuracy.

Can AI improve solar power prediction?

Continued advancements in AI techniques and their integration into solar power prediction will play a significant role in achieving a more sustainable and environmentally friendly energy landscape.

How is AI transforming solar energy?

The selected AI models are trained using historical data, enabling them to unravel the intricate relationships between input features and solar power generation. Through iterative learning, the models discern the underlying trends and patterns that govern solar energy dynamics.

Can artificial intelligence revolutionise solar energy management?

In this context, Artificial Intelligence (AI) in general and deep learning, in particular, emerge as a promising technology with significant potential to revolutionise solar energy management, primarily through the provision of accurate forecasts (Alam et al. 2022; Rai et al. 2021). In this regard, we postulate the following research questions.

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