Patent Search

Invention Title	A SYSTEM FOR FORECASTING POWER FROM RENEWABLE ENERGY SOURCES USING CONVOLUTIONAL NEURAL NETWORK
Publication Number	08/2023
Publication Date	24/02/2023
Publication Type	INA
Application Number	202341007207
Application Filing Date	04/02/2023
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G06N0003040000, G06N0003080000, G06K0009620000, H02J0003380000, G06Q0010040000

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Abstract:

[043] The present invention discloses a system for forecasting power from renewable energy sources using convolutional neural network. The present invention prov forecasting for renewable energy power because accurate predictions of future power generation enable safe grid operation and lower the cost of running these ene Deep Learning algorithms have proven to be particularly effective in forecasting tasks, such as speech recognition or economic time series. Deep Learning algorithms forecast the performance of renewable energy generating facilities. The present invention introduces the potent methods in the domain of renewable energy power employing several Deep Learning and Artificial Neural Network algorithms, such as Deep Belief Networks, AutoEncoder, and LSTM. The present art may further comb algorithms to demonstrate to predict the energy output of power plants when compared to a normal MLP and a physical forecasting model. Accordingly, Deep Learni algorithms outperform Artificial Neural Networks and other reference models, such as physical models, in terms of forecasting. Accompanied Drawings [Figure 1-2]

Complete Specification

Description:[001] The present disclosure relates, in general, to the neural networks technique, and more particularly, to a forecasting power from renewable energ sources using neural network.

BACKGROUND OF THE INVENTION

[002] As society advances, the average person's level of living rises swiftly, and energy use also increases dramatically. As a clean, renewable energy source, powe help to minimize resource scarcity and, to a certain extent, can take the place of fossil fuels to lessen environmental pollution.

[003] Power also has a significant impact on people's daily life. However, because power is unpredictable, volatile, and intermittent, large-scale power generation provide considerable challenges for the secure and stable operation of the power grid when it is connected to the grid. In the past, everything was easier. Power pla were dispersed across the globe, and the output of each plant was changed in response to the need for electricity.

[004] Calendars and weather predictions were just two of the tools that power plants utilized to forecast the energy requirements of huge manufacturing facilities geographic areas. The situation is more difficult now. Wind and solar farms produce varied amounts of electricity depending on the weather, and traditional power must compensate for variations.

[005] Power supply management becomes more challenging as a percentage of fluctuating renewable energy sources increases; this problem impacts both powe suppliers and system operators The grid must always be supplied with the same amount of electricity as it is consumed in order to maintain stability. In order to av power outages when a power plant or other significant consumer malfunctions, the energy supply is either boosted or decreased, as appropriate.

[006] A specific quantity of both positive and negative controlling power must be supplied by every power plant. However, maintaining grid balance will become

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