Forecasting the daily electricity load produced from wind energy of Turkey via stacked long short-term memory model with peephole connections

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It is vital to maintain a balance between demand and supply of electricity since it cannot be stored. If there exists an electrical shortfall, the economy might suffer billions of dollars in losses, and human lives could be put in danger. In this study, a stacked deep learning approach is used to model and forecast short-term electricity loads in Turkey using historical data. The use of long-short term memory (LSTM) in time series analysis is based on the accuracy and forecasting capacity on large volume of data with nonlinearities. To enhance the model, all network parameters of number of layers, number of neurons, percentage of data used for training, activation function and optimizer are evaluated throughout. A model with increased ability to cope with the situation is produced by optimizing parameters. According to the findings of the empirical research, the peephole LSTM produces greater forecasting power in comparison to the vanilla LSTM.

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