

## Multitasking a deep neural network for time series load forecasting

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### Abstract

The purpose of this study is to offer a new model for the load forecasting of individual customers that is based on a pooling-based multitasking deep neural network (PMT-DNN) equipped with BiLSTM and dropout. Through multitasking, PMT-DNN is able to learn about the uncertainties present in the smart meter dataset. Customers are grouped together using agglomerative hierarchical clustering based on the consumption patterns that are most similar to one another. In order to prevent overfitting, a load profile pooling method is utilized in each cluster. This strategy increases both the volume of data and the variety of the data. Using the MATLAB 2019b platform, the framework was validated by conducting experiments on the Irish CER real-time smart meter dataset, which included 986 residential users chosen at random. The proposed PMT-DNN framework outperforms the LSTM dropout and pooling-based LSaTM techniques in terms of prediction accuracy, input data learning, and convergence rate. These metrics can be found in the table below. In addition, the values of the evaluation parameters RAISE, MAE, and MAPE have been greatly improved.

(Keywords:)

Time Series , load Forecasting , Deep Learning , clustering , Multitasking , profile pooling

## REQUEST FOR FULL TEXT

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