Machine Learning Models Application in Daily Forecasting of Hourly Electricity Usage

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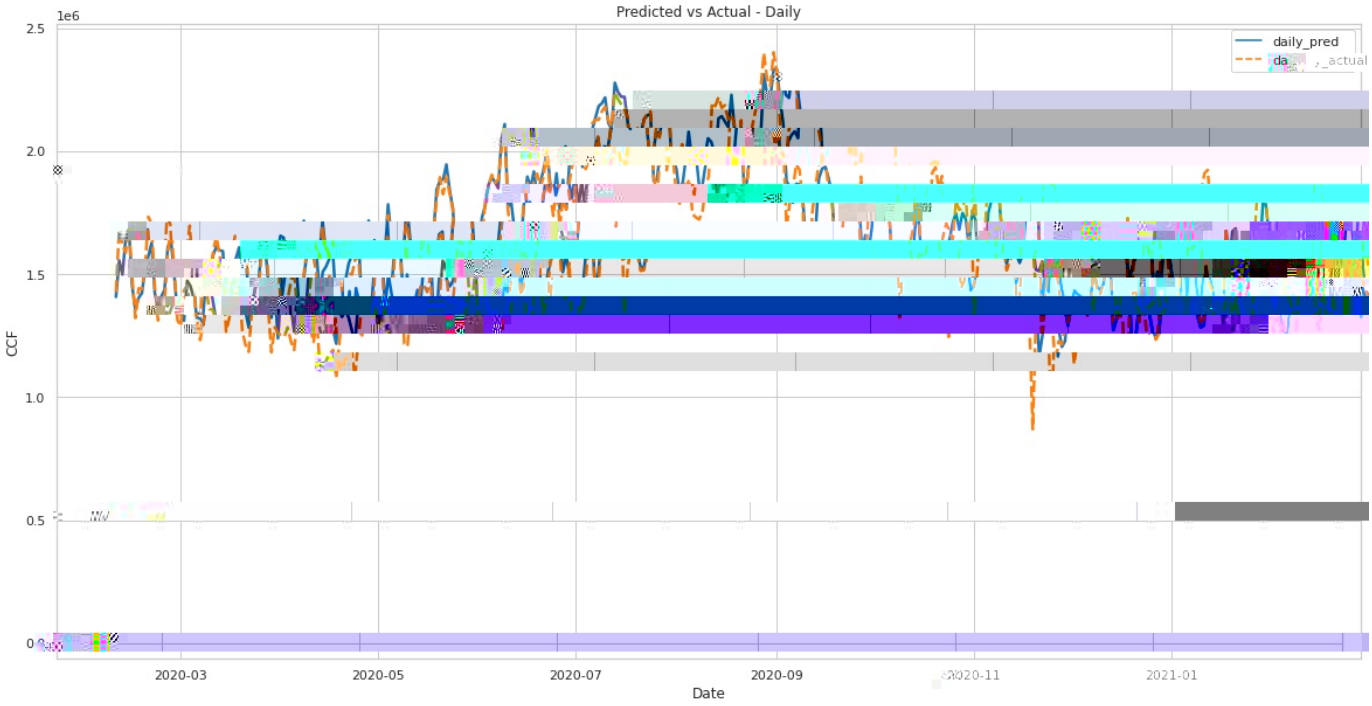
II. Related Works

Using traditional statistical techniques, such as Autoregressive Integrated Moving Average (ARIMA) models, is a popular option for generating a short-term, daily forecast for a time series [23]–[26]. A linear regression model is another option [27], [28]. In this context, in addition to "lagged" variables, other exogenous variables that could be linearly related to the variable of interest could be incorporated into the model.

Machine learning algorithms have also been used in time series analysis. The Support Vector Regression (SVR) algorithm, for example, has been used to forecast individual electricity consumption [29]. In addition, some ensemble methods are also used to generate accurate time-series forecasts [30], [31].

Multiple Layer Perceptron (MLP) is another algorithm that has been used in time series forecasting [30]–[33]. This algorithm allows for discovering non-linear relationships between the variable of interest and various numerical or categorical features. On the other hand, any "autocorrelation" or calendar effects in the variable of interest must be explicitly expressed as additional input features or through a transformation tech-



[3] Y. Khmelevsky, V. Ustimenko, G. Hains, C. Kluka, E. Ozan, and