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# Literature Review

## Introduction

In this literature review we will be analyzing the article put forward by Stefan Hosein and Patrick Hosein, referred to as the authors hereinafter. This literature review discusses: factors for short-term load forecasting (STLF) and STFL methods. A series of articles will be used to evaluate the integrity of The authors’s article.

## Factors for Short-Term Load Forecasting

In 2005, author Eugene Feinberg and Genethliou Dora wrote a chapter entitled “Load Forecasting” in the book ‘Applied mathematics for restructured electric power systems’. The chapter was aimed at the importance of load forecasting in the electric industry and its applications towards energy purchasing and infrastructure development, among other things.

Feinberg and Genethliou outlines several factors that need to be considered for short-term load forecasting. Some of the factors they mentioned were [1]: time, weather and customer class. They described time factors to include: time of year, day of the week, hour of the day, differences in weekends and weekdays. They also described weather conditions to be the most influential towards the energy load and include factors like: temperature and humidity. The authors (2017) in their article, “Load Forecasting using Deep Neural Networks”, claims the dataset uses: hourly samples, electrical load readings per time interval, average per 24 hours, average per week, day of the week, hour of the day, if it is a weekend, if it is a holiday, temperature and humidity. In comparing these practices by Feinberg and Genethliou to the authors, it was observed that the authors chose the ideal features for their dataset and stayed true to the specifications for STLF.

## Parametric and Non-Parametric Short-Term Load Forecasting Methods

Anitha Gs and Kuldeep Shiruru (2016) in their article ‘Short Term Load Forecasting Methods, A Comparative Study’ spoke about short-term load forecasting methods and broadly described them as parametric and non-parametric. They said parametric methods are [2]: regression and time series, and non-parametric methods are: artificial intelligence models like ANN, Fuzzy logic and expert systems. The authors made use of both types of forecasting methods in their paper, however, instead of using a weighted moving average model, a Kalman filter technique model could be used alongside the other parametric methods. According to Anitha Gs and Kuldeep Shiruru (2016), Kalman filter technique is a recursive estimation method which works on non-linear datasets. They state [2] the present state is obtained by the operation between past value extrapolation on the present values. Although this method may not yield the most accurate results, it is still worth doing since it functions differently from the other parametric methods chosen by the authors, and may shed some more light on the data being used. There are not many drawbacks of using this method since it is not computationally expensive nor does it have a long runtime.

## Conclusion

In the literature reviewed, we aimed to verify the integrity of the authors’ work by critically reviewing aspects of their case. We did research to ensure the authors followed the correct factors of STLF and recommended a new model they can use for training and testing. Overall the article was well written and covered the scope the problem expertly with minimal room for critiquing.

# Word Counts



# References

1. Feinberg, Eugene A., and Dora Genethliou. "Load forecasting." In *Applied mathematics for restructured electric power systems*, pp. 269-285. Springer, Boston, MA, 2005.
2. Gs, Anitha & Shiruru, Kuldeep. (2016). SHORT TERM LOAD FORECASTING METHODS, A COMPARATIVE STUDY. International Journal of Advance Research and Innovative Ideas in Education. 1. 31-37.