

Master Thesis at EnBW (external) Predicting Unprecedented Power Prices by Using Tailored Machine Learning Methods

Background

For energy producers, power price prediction is an essential task and its accuracy is crucial for decisions in trading and risk management. Among the alternative methods for time series analysis, Machine Learning is becoming a promising alternative to predict power forecasting. However, the recent unprecedentedly high power prices compromises the direct use of Machine Learning techniques in an efficient way.

At EnBW, a method was developed to detrend power prices, making such data utilizable for Machine Learning. In this work, we will test alternative Machine Learning recipes (Neural Net, Random Forest etc.) and optimize both the model architecture and the feature space to use the model in production. This will create a robust tool to forecast power prices under the current unprecedented market conditions.

Content of the work

- Literature research on recent Machine Learning techniques for time series forecasting
- Testing State-of-the-Art Machine Learning models, use of advanced methods for (automated) architecture optimization
- Advancing the development of a forecasting method to be used in trading and production decisions

Requirements

- Proven, strong background in Machine Learning methods
- Python programming skills
- Good oral and written communication skills

The student will be employed by EnBW during the work with a competitive salary.

Contact

[Emil Kraft](mailto:emil.kraft@kit.edu) | 0721 608 44562 | emil.kraft@kit.edu

[Cihan Ates](mailto:cihan.ates@kit.edu) | 0721 608 44703 | cihan.ates@kit.edu

Geoffroy Chaussonnet | g.chaussonnet@enbw.com

