Bachelor Thesis
AutoML: Automated Machine Learning for Electrical Load Forecasting

Problem
AutoML aims to automate elements of machine learning pipelines that previously had to be designed iteratively. Thereby the time to application is considerably reduced and the rapidly growing demand for forecast models can be satisfied. In this thesis, established AutoML frameworks will be benchmarked to identify the strengths and weaknesses of these approaches in energy-related regression problems. The model development requires a good understanding of machine learning pipeline design and programming skills in Python. The resulting model will be used in the further course of the project (outside the scope of this bachelor thesis) for a transfer learning application in the Living Lab Energy Campus.

Tasks
• Literature research and introduction into AutoML and time series forecasting.
• Benchmarking of established AutoML frameworks.
• Design and validation of an automated machine learning pipeline for energy-related regression problems.

Skills
• Qualification: Engineering or scientific studies.
• Personality: Highly motivated and proactive.
• Problem solving: Conscientiously and independently.
• Experience and Know-How: Interests in machine learning and energy informatics. First experiences in the area of data-driven modeling and Python programming skills are advantageous. The thesis should be written in English.
• Enthusiasm: Interest in applying the theoretical knowledge and programming skills gained in the studies within the scope of an application- and future-oriented field of research.