Research in Synthetic Energy Data Generation

Energy system design is a broad research field that covers all topics related to the energy system of the future, including the smart grid. In this field, various types of data are collected and used. Unfortunately, due to privacy restrictions and missing measurements, energy time series data are not always available for research. Most recently, the generation of realistic synthetic time series data has shown to be a promising approach for developing methods in energy time series analysis. However, no systematic overviews and comparisons exist that describe available synthetic time series generation techniques for the domain of energy.

Therefore, within the Machine Learning for Time Series and Images (ML4Time) group at IAI, we are looking for a motivated student who would want to evaluate techniques for synthetic energy data generation in energy system design. You would be working together with doctoral researchers, conduct systematic literature reviews on synthetic energy time series generation, and implement relevant methods. By preparing systematic reviews and implementing important approaches, you lay the foundation for future research projects and, if interested, you can participate in the preparation of a scientific publication.

Please note: If you are interested, it is possible to write a seminar, bachelor, or master thesis on a related topic later on.

Requirements:
- Interest in energy system design, smart grids, or related topics
- Knowledge of or motivation to learn systematic literature and data reviews
- Basic knowledge of time series data analysis is an advantage
- Earliest start date: 01.04.2021

To apply or inquire about this position, please write an email to kaleb.phipps@kit.edu