



Kolloquium zur Masterarbeit

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„Detecting fundamental waveforms in microscopic electrical load signatures using a hierarchical clustering approach“

The smart metering technologies have made huge progress by providing a massive amount of data that measure the user power consumption for different appliances. An advantage of energy analytics is that the patterns from the power consumption data are providing information about user activities and devices in industrial, residential, and commercial settings.

The goal of this thesis is to find if the power consumption data have common waveshapes between different appliances. In order to answer this question, this research will analyze the ‘current’ consumption of various devices to extract the common patterns of waveshapes between the devices, and then create a library that contains these fundamental shapes. The process for implementing this research is going to be achieved by two main steps. The first one is the analysis of high-resolution data (microscopic data) that contains the ‘current’ consumption of different appliances to recognize a common pattern between them using unsupervised machine learning approach (Hierarchical clustering). The second step is to design a library that the user can use to classify the input data.

The results obtained after analyzing the dataset showed that there are common waveshapes between the different appliances and the number of these waveshapes is lower than the number of the appliances. Moreover, the input data current could be described as a linear equation, which contains a waveshape multiplied by the amplitude value and the phase shift.

Donnerstag, 01.08.2019, 10:00 Uhr,
Besprechungsraum 106, (D3) Julius-Albert-Str. 4