Machine Learning with Domestic Energy Use Data

Sam Stern (s1134468)

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Abstract

As part of the UK Government's insentive to reduce the Nation's energy consumption, smart meters are being rolled out to households and small businesses accross the UK. In this project aims to assess some of the security risks associated with gathering data relating to a households energy consumption.

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Following the example of EU Countries such as Italy, Sweden, Finland, Switzerland and Germany [3][4],

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Feature Exploration and Extraction

According to [2], possible features that are interesting for classification of house-hods based on energy consumption are: consumption figures, ratios, temporal properties, and statistical properties. Consumption figures are the average, maximum and minimum energy consumption over some time period. Ratios are features that calculate the ratio between consumption figures and can capture relevant patterns that occure through different time intervals. Temporal features capture the first (or last) time some event takes place which or at what time the daily maximum occures. Finally, statistical properties such as variance, give insight into the consumption curve (for example how a households energy consumption correlates with itself.

3.1 Building Features from Energy Readings

Bibliography

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