

## Master thesis:

### Anomaly Detection for Building Energy Systems

Buildings consume almost 40 % of all primary energy in the European Union. Up to 30 % of this consumption may be due to errors and faults in building energy systems. Hence, the detection and diagnosis of this faults is an important aspect of reducing the environmental impact of our daily businesses. However, due to the increasing complexity of building energy systems, the manual inspection and maintenance of building energy systems is insufficient. Here, automated fault detection and diagnosis methods provide an invaluable tool set to reduce the energy impact of buildings.

#### Your task:

With the rise of artificial intelligence in the past years, many methods have been developed to detect, isolate and identify faults in various. One method is the detection of anomalies in measurement data. Based on earlier measurements, new values are either categorized as normal or faulty. Your task is to investigate the application of this method to building energy systems and evaluate the process using the monitoring data gathered from the E.ON ERC main building.

#### Our profile:

The E.ON Energy Research Center at RWTH Aachen University deals with sustainable energy supply concepts that take account of technical feasibility as well as social and economic aspects. The reduction of primary energy consumption in buildings and an increase of indoor comfort are among the research tasks of the institute.

#### Contact:

Gerrit Bode, M.Sc.  
Raum 02.09

RWTH Aachen University  
E.ON Energy Research Center  
Energy Efficient Buildings and Indoor Climate |  
EBC

Mathieustrasse 30  
52074 Aachen  
Germany

T +49 241 80-49796  
gbode@eonerc.rwth-aachen.de  
www.eonerc.rwth-aachen.de

