Traditional electrical grids are evolving to *smart grids* thanks to massive deployment of Advanced Metering Infrastructures, formed by heterogeneous networks of devices able to communicate and to be remotely controlled. One of the major challenges in this context is the ability to analyze and validate in a real-time fashion the data produced by sensors before the latter is fed to other applications (e.g., load balancing, accounting or demand-response ones).

The main idea of this thesis is to analyze readings reported by meters and forecast future readings which will be later compared with observed ones in order to spot suspicious or wrong values.

**Challenge**

This thesis targets the design and implementation of a forecast and validation application that analyzes energy consumption readings in a real time fashion. During the thesis, you will (1) get familiar with existing energy consumption forecast techniques, (2) design data validation applications that rely both on validation rules and forecasting techniques and (3) implement and evaluate them using data from collected from a real metering environment.

For details and further questions please contact us. Just come over for a coffee and discuss this thesis with us...

---

**Background & Requirements**
- Computer Science or related programs
- Classes in computer networks, distributed systems, or related ones
- Experience in Java or C++

**Environment**
- We offer you a stimulating work atmosphere and motivated advisors.

**Contact**
- Vincenzo Gulisano
- Magnus Almgren
- Marina Papatriantafilou
- vinmas@chalmers.se
- Dep. of Computer Science and Engineering