

There are massive volumes of data in all aspects of the energy systems. We are looking into mining actionable insights from the data via machine learning and data analytics to promote system efficiency and stability.



# Machine Learning and Data Analytics for Energy Systems

School of EE&T

## Competitive advantage

- The most cost-effective way to maximise the value of the industrial data
- Rich and extensive experience in dealing with a variety of problems for the energy industry
- Agile implementation and flexible deployment
- Technologies not limited to applications in energy systems

#### Recent research projects

- Load disaggregation framework based on smart meter data and AMI
- Time-series data forecasting and uncertainty assessment, including granular load forecasting for individual customers and small local areas, and renewable generation forecasting
- Machine learning based power grid stability assessment
- Residential demand simulator based on behavioural models
- Wind turbine fault diagnosis and monitoring through operational data

#### Facilities and infrastructure

(we rely on open-source resources to design our data analytics solutions).



Source: W. Kong, Z. Y. Dong, and D. J. Hill, "A Hierarchical Hidden Markov Model Framework for Home Appliance Modelling," IEEE Transactions on Smart Grid. vol. PP. no. 99. no. 1-1. 2016.

## Our experts

Microgrid and energy systems research (Mr Ashton, Dr Chen, Prof Dong, Dr Kong, Dr James, Dr Luo, Dr Meng, Dr Tong, Dr Wang)

### **More information**

**Prof Z.Y. Dong or Dr W. Kong** *Professor, School of EE&T, UNSW, Sydney* 

T: +61 (0) 2 9385 4477

E: Joe.Dong@unsw.edu.au