Title: Data Driven AC Power Systems State Estimation

Duration: August 2013 – August 2014

Sponsor: ABB Cooperation

Contributing Faculty: Marija Ilic, Rohit Negi

Contributing Students: Yang Weng

Description:
AC power system state estimation process aims to produce a real-time "snapshot" model for the network. Therefore, a grand challenge to the newly built smart grid is how to optimally estimate the state with increasing uncertainties, such as intermittent wind power generation or intermittent vehicle charging. In this project, we focus on several special features of smart grid, such as nonlinearity, ways of utilize historical data, and special pattern of power grid data. The goal is to answer three problems:

1) How to conduct robust data-driven State Estimation in real time;
2) How to achieve global optimum of AC Electric Power System State Estimation.