Intelligent Community Energy Storage to Augment the Value of Residential Solar

Kate McArdle, Electrical & Computer Engineering Department
Advised by Dr. Christine Julien

Motivation:
✧ Homeowner ROI on rooftop solar is often >10 years
✧ Feed-in tariffs are declining
✧ Solar energy generation is misaligned with residential energy consumption and with peak demand

Research Goals:
(1) Develop a multivariate time-series algorithm to predict residential energy consumption at the single-home level
(2) Develop a software system to make real-time, automated decisions for the storage, sale, and purchase of electricity for a residential community with generation capacity and community energy storage (CES)