**Title: Detection of electricity theft cyber-attacks in smart power grids using machine learning algorithms**

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Abstract

Electricity stealing is a major problem for power companies and national power grids not only due to the high financial losses but also the grid overload and negative impact. To enable the energy consumption monitoring task in power grids, many power companies are currently deploying advanced metering infrastructures (AMIs) with smart meters mounted in the customers’ premises to regularly track the energy consumption data. Unfortunately, AMIs are subject to cyber electricity thefts. Malicious customers can hack AMIs and change the integrity of the energy consumption readings, and thus, currently there is an acute need to develop efficient algorithms to detect such cyber attacks.

The goal of this talk is first to review the machine learning algorithms that have been proposed in literature to detect electricity theft cyber-attacks in smart power grids and then to investigate their detection performance and identify the challenges that lie ahead.