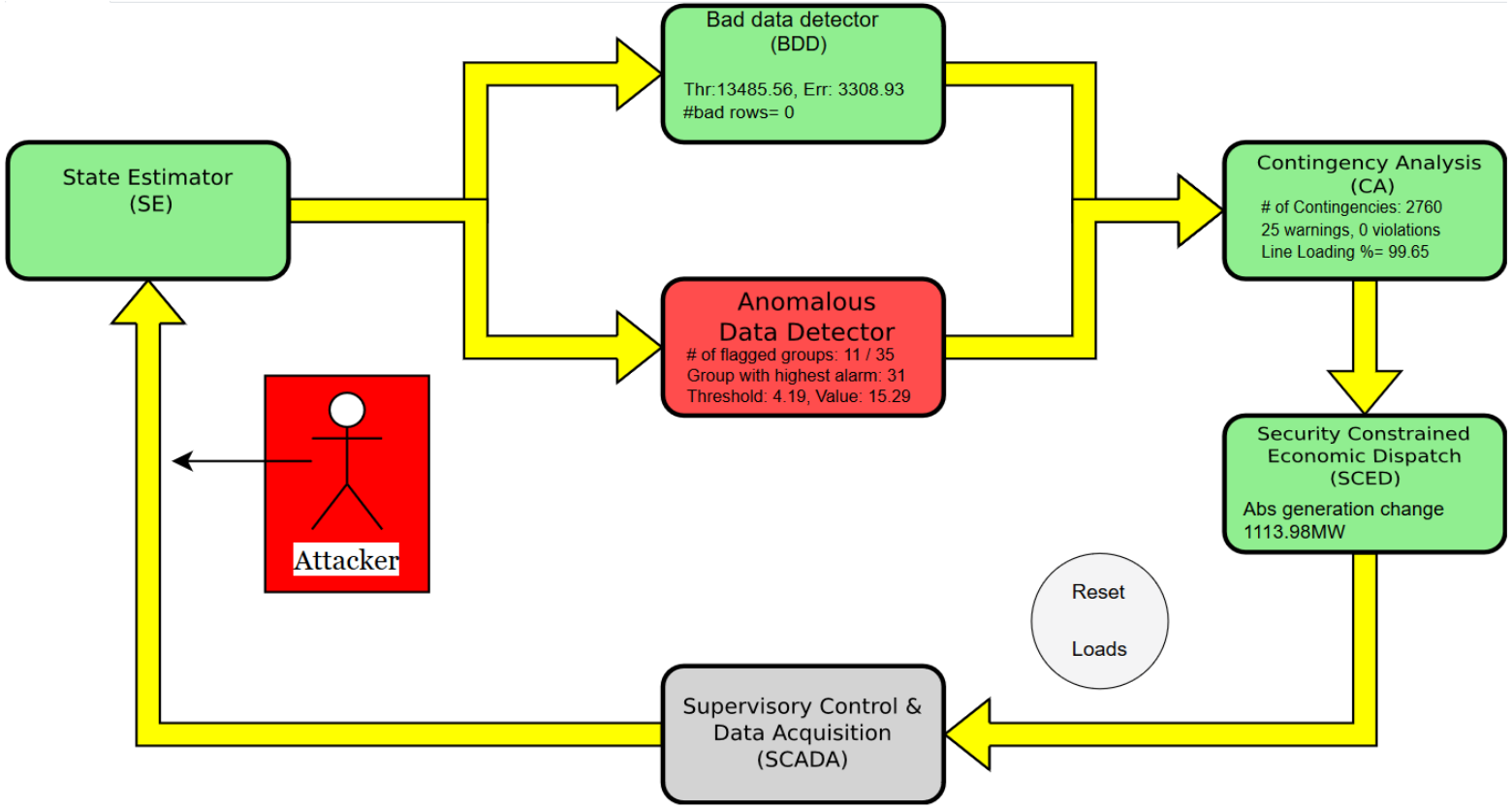
A Verifiable Framework for Cyber-Physical Attacks and Countermeasures in a Resilient Electric Power Grid

- Dr. Lalitha Sankar, Dr. Oliver Kosut, and Dr. Kory Hedman (ASU)
- Arizona State University
- https://ecee.engineering.asu.edu/project/lalitha-sankar/
- lsankar@asu.edu

- CPS:TTP:1449080
- Subcontractor: Dr. Robin Podmore, IncSys Inc.

Description

- Developed a realistic software simulation platform of the Energy Management System (EMS)
- Evaluated credible cyber-threats using the platform
- Developed and integrated machine learning-based anomalous load data detector



Findings

- Spoofed measurement data can (in principle) lead to bad dispatch, making system less resilient than it appears
- Optimization approach to find worst-case attacks, evaluate system vulnerability
- Data-driven load anomaly detection approach to detect attacks
- Systems operating conservatively are less vulnerable to cyber-attacks