

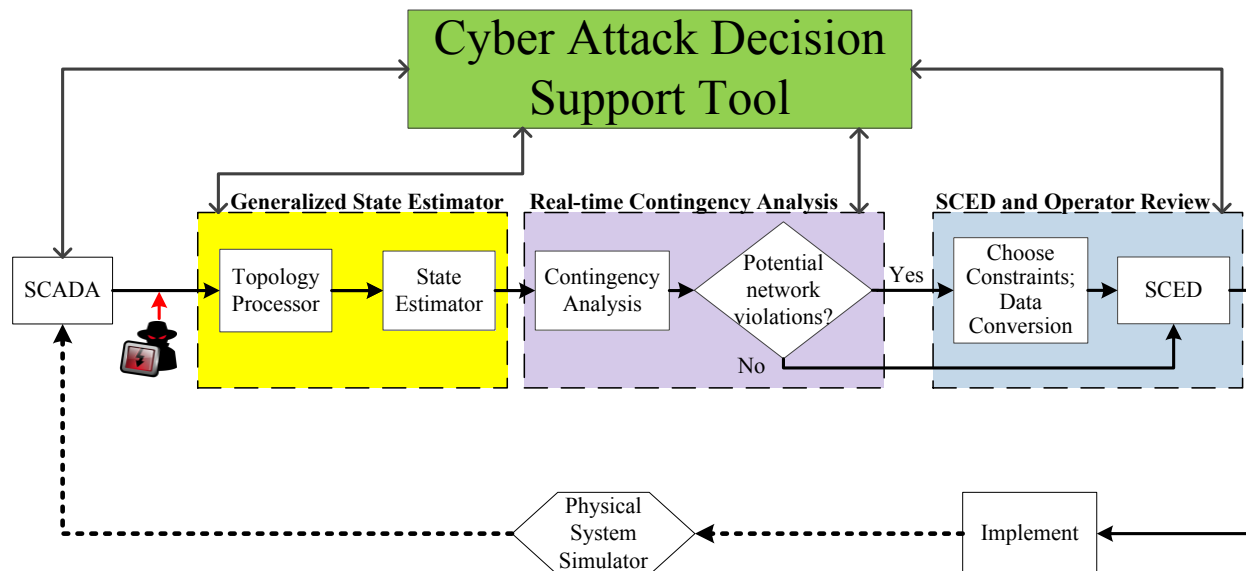


A Verifiable Framework for Cyber-Physical Attacks and Countermeasures in a Resilient Electric Power Grid

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Description

- ❖ Develop a realistic software simulation platform of the Energy Management System (EMS)
- ❖ Use the software platform to evaluate credible cyber-threats and countermeasures
- ❖ Find attack-resilient control algorithms to be modularly integrated into the EMS



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
- ❖ Key countermeasure is ***load anomaly detection***