➢ A round-attack game framework to initiate attacks on smart inverters causing severe voltage violations.

➢ Used co-simulation model of OpenDSS to simulate these attack strategies and tuned XGBOOST and TPOT-AutoML for detection, achieving precision rate of 97%.
Detect cyber-attacks using smart inverter
- Revise the available three-phase inverter evaluation module
- Integrate into the three-phase testbed

Cyber Physical Security Hardware Testbed
- Lucas-Nuelle Module is the three-phase power bus testbed
- Add smart inverter, Raspberry Pi, Network cards

Modbus protocol:
- Supports TCP and Serial Communications
- SIEMENS PAC4200 meters are used for Clients.
- Raspberry Pi devices are used for Servers.
- Denial of service (DoS) attacks will be implemented

Overview of the CPS layout

Lucas Nuelle Modules for one feeder

Load (controlled)
Transmission Line
Power Meter
CB Module
3-Ph AC Source
Network Switch

Meter Reading Data

Control Center (Server)