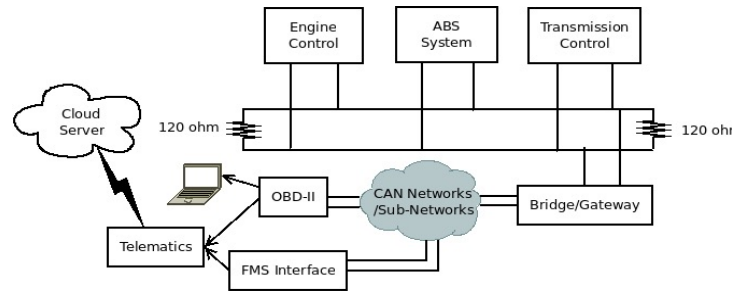


Detecting and Reconstructing Network Anomalies and Intrusions in Heavy Duty Vehicles



Challenge:

- SAE J1939 protocol for internal communication
- Attack detection and mitigation in real-time under resource constraints

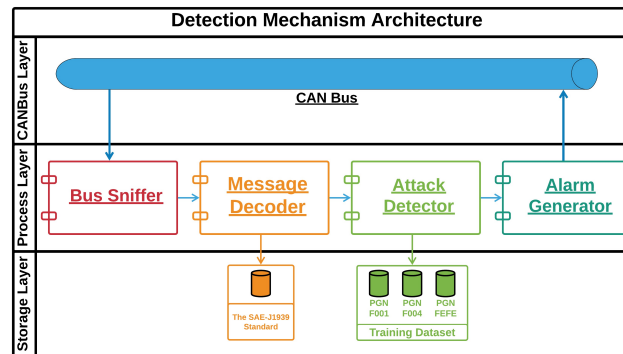


Scientific Impact:

- Investigating how to use data from multiple sources collectively for anomaly detection and compromised value reconstruction
- Investigating how redundancies in CPS can be used for resiliency

Solution:

- Using ML to fingerprint ECU behavior for anomaly detection
- Using predictive analytics to reconstruct values of compromised ECUs



Broader Impact and Broader Participation:

- Heavy vehicles constitute nation's critical infrastructure
- Educating students in multiple disciplines
- Engaging NMFTA and OEMs
- Cyber truck Challenge Competition

Award No. NSF CNS 1715458

Indrakshi Ray Computer Science Colorado State University

iray@colostate.edu

<https://rayscyberlab.org/home/projects/heavy-vehicle-security/>