



CPS: Breakthrough: Collaborative Research: Track and Fallback: Intrusion Detection to Counteract

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Carjack Hacks with Fail-Operational Feedback

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Challenge:

Define fail-operational mode transitions that keep safety first while providing usable security for human-in-the-loop CPS.

Solution:

Novel hybrid intrusion detection system (IDS) that accounts for CPS constraints: real-time, fault-tolerant, human safety first, low cognitive load

Scientific Impact:

Other CPS domains benefit by defining cyber-physical features and fail-operational mode transitions.

Broader Impact:

- Safer civil infrastructure
- Historically Black University Lead
- Collaboration with Oak Ridge National Lab
- Mentoring in open-source software development

