

CAREER: Synthesis and Control of Cyber-Resilient CPS

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Challenge:

- CPS targeted by malicious attacks
- Goal of cyber-resilience: ensure safety and performance even after system is compromised

Solution:

- Safe, real-time control under attacks using CBFs
- Game-theoretic models and algorithms for planning and synthesis
- Composition for large-scale, distributed synthesis

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Scientific Impact:

- New algorithms for scalable and verifiable resilient control
- Models of the impacts of attacks

Broader Impact:

- Enhance safety of unmanned vehicles, industrial control systems, smart buildings,...
- Implement project outcomes through capstone projects
- HS and community outreach

