CAREER: Foundations for Real-Time System Security

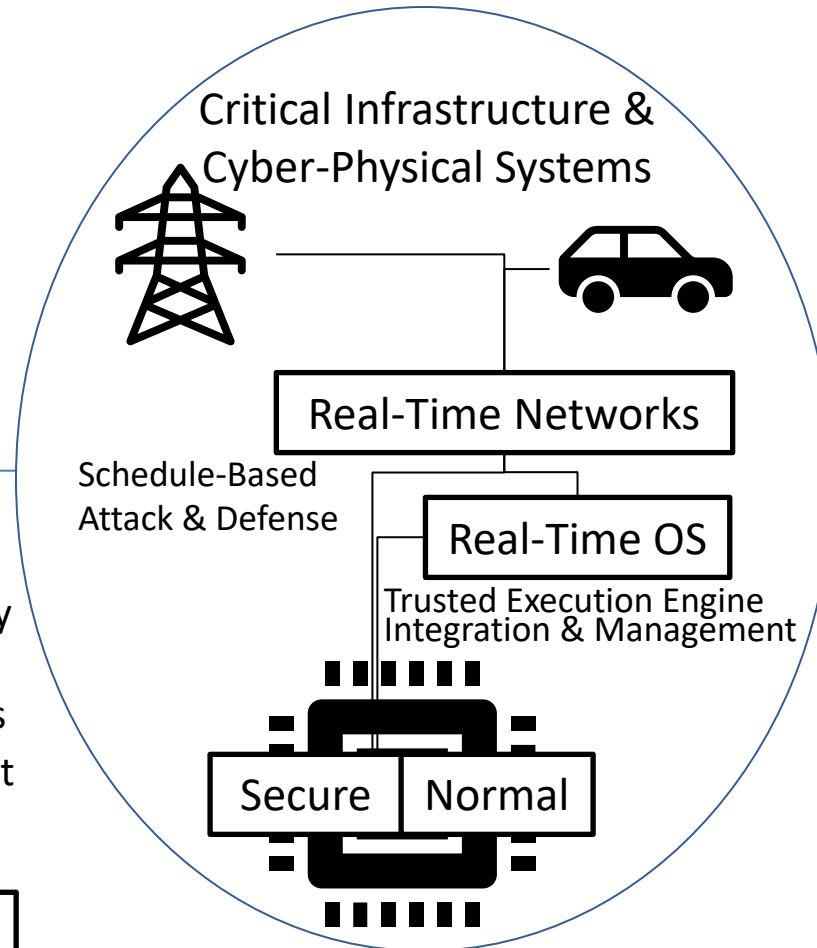UCCS University of Colorado Colorado Springs

Challenge:

Real-time systems require meeting stringent latency deadlines that general-purpose security systems typically ignore.

Solution:

- Schedule-Based Security
- Real-Time Trusted Execution Environments
- Securing Real-Time Fault Tolerance

Critical Infrastructure & Cyber-Physical Systems

Schedule-Based Attack & Defense

Real-Time Networks

Real-Time OS

Trusted Execution Engine Integration & Management

Secure | Normal

https://www.real-time-security.com

Scientific Impact:

- Stimulating the formation of a rigorous new subdiscipline focusing on the real-time aspects of security
- Solving challenging technical problems that have the potential to transition to industry

Broader Impact and Broader Participation:

- No safety without security: cyber-physical systems rely on secure real-time systems for safe critical infrastructure
- Open-source of software and hardware prototypes
- New text book on real-time systems
- Diversity-oriented recruitment
    – 2 PhD (1 Black, 1 veteran)