


GPS Interference Detection



Enhancing survivability of energy delivery systems

Energy delivery systems (EDS) are geographically dispersed sets of both physical equipment and interacting digital computers. These digital computers are increasingly integrated with protection, monitoring, and control equipment jointly communicating with each other through cyber networks. This expands situational awareness and operator control capabilities, but the increased proliferation of network-connected devices also introduces new security risks. Secure operation of EDS requires technology that increases resilience against cyber intrusions. This project develops a class of computational methods that enable groups of digital devices to work together to accomplish tasks in a fault-tolerant and intrusion-tolerant manner. It creates resilience by using the multitude of devices to support and verify the behavior of each other. In this way, it converts the very source of vulnerability—the large number of network-connected devices—from a weakness into a strength. The team is also developing the Skynet tool, which enables users to write a wide variety of software while leveraging collaborative autonomy.

KEY TAKEAWAYS

- Provides important security enhancements to widely dispersed cyber systems
 - Reduces risk by enabling failover operations and threat remediation
 - Allows users to write programs that leverage collaborative autonomy with the Skynet tool
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OUTCOME

This project develops the Skynet collaborative autonomy software, which can be used in EDS to provide resilience and security against hardware failures and cyber intrusions by enabling groups of devices to support and verify each other's behavior.

PARTICIPANTS

ROLE



Research, development, and testing

CONTACT INFORMATION

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DOE Share: \$800,000
Cost Share: \$0

CYBERSECURITY FOR ENERGY DELIVERY SYSTEMS (CEDS)

CEDS projects are funded through DOE CESER, which aims to enhance the reliability and resilience of the nation's energy infrastructure by reducing the risk of energy disruptions due to cyberattacks.

Website: <https://www.energy.gov/ceser>

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