



Transforming the Resilience of Critical Infrastructure Systems and Communities

Resilience Week Objective: A Symposium dedicated to advancing the interdisciplinary dialog on policy and technologies that accelerate critical infrastructure and community resilience to unexpected and malicious threats.

SESSION 04: RESILIENT CONTROLS IN THE FIELD

Session Chairs:

- Kevin Schultz (Johns Hopkins University Applied Physics Laboratory)
- Kris Vellez (Oak Ridge National Laboratory)
- Quanyan Zhu (New York University)

Session Abstract

Many contributions to the field of resilient controls, including both design of automation tools for increased system resilience and increasing resilience of automation systems themselves, have remained at the theoretical or proof-of-concept level. This session aims to highlight recent advances in the use of resilient controls in real-world applications. Special attention is given to challenges highlighted through practical benchmarks and field tests.

Topics

We are soliciting submissions for applications of the following topics in the field of resilient control:

- **Increased System Resilience through Monitoring, Diagnostics, Prognostics, and Control:** Advanced process monitoring and control systems allow the use of automated actions and interventions to mitigate the impact of future, ongoing, and past adverse events, thus increasing the resilience of the controlled systems. We seek contributions that identify and quantify the relative contribution of monitoring, diagnostic, prognostic, and control tools to system resilience in practical cases.
- **Practical Implementation of Resilient Control Systems:** As automated systems are vulnerable to random and adverse events, special attention has been given to the foundational aspects of resilient control systems, i.e., control systems that are robust to adverse events yet also exhibit quick recovery from degraded performance. However, reports on practical implementation and field tests are missing. For this reason, we invite contributions that highlight practical hindrances to and solutions for resilient control systems in real-world applications.

Submission Information

Authors interested in this special session can submit their paper at <https://resilience.inl.gov/resilience-week/submission-information/>

www.resilienceweek.com

