

ARTIFICIAL INTELLIGENCE FOR RESILIENT CONTROL SYSTEMS

THURSDAY: SESSION 2, TRACK 1

SESSION CHAIRS

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SESSION ABSTRACT

Modern distributed systems, including SCADA systems and the Internet of Things (IoT), promise increased granularity in the ability to monitor and control large scale systems. The costs of this access include increased sensor/network traffic, unexpected interactions, and an increase in the attack surface. In general, this overall increase in complexity will require novel approaches to monitor, diagnose, and control these systems in the face of the above issues. These approaches will need to efficiently leverage large volumes of data (real and/or synthetic) and AI techniques to cope with these emerging challenges.

TOPICS

- **Machine Learning:** Neural networks (e.g., deep-learning), kernel methods, or other ML techniques that perform state diagnosis, control/reconfiguration, intrusion detection, etc.
- **Network Science and Graph Theory:** Graph analytics, graph signal processing, and related techniques that process networked signals for analysis and control
- **Game Theory:** Data and model-based approaches to distributed multi-user/multi-component interactions that seek to control, detect, and mitigate system under adversarial environments.
- **Visualizations and Human Machine Interaction:** Novel concepts for analysts and operators to cope with the volume of data presented by networked systems tied to one of the above topical areas
- **Others:** Concepts that do not fit above, but otherwise leverage AI approaches