

ISRCS 2011

Hosted in Boise, Idaho
August 9-11, 2011

4th International Symposium on Resilient Control Systems

The major purpose of this symposium is to extend and endorse particular concepts that will generate novel research and codify resilience in next generation control system designs.



University of Idaho



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Special/Invited Session Announcement and Call for Papers

Session S/I-03:

Quantitative Methods for Resilient Control Systems

Session Abstract:

The integration of the cyber-computing with the physical control systems in many critical infrastructures brings a multitude of security and resilience issues at the cyber and physical interface. This session gives a tutorial on the emerging quantitative methods used to study these issues, which are fundamental and essential for the analysis and design of resilient systems. This session surveys the proposed metrics and heuristic methods for assessing the resilience and security metrics of control systems in the literature as well as in practice. Security is a pivotal aspect of resilience. We introduce concepts from game theory and their applications in network security and privacy. The game-theoretic modeling provides insights to the optimal defense mechanisms, attacker incentives and performance limits. The recent development from the game-theoretical perspective offers emerging opportunities for the system-wide assessment of large-scale systems. The session concludes with recent results and future work.

Topics:

- (1) Survey of resilience metrics proposed in literature and used in practice: the challenges and the gap.
- (2) Introduction of game-theoretical methods in network security and privacy.
- (3) Recent efforts towards a unifying metric for resilience: new results and emerging applications.

Chairs:

- Chair: Quanyan Zhu, University of Illinois at Urbana-Champaign, Email: zhu31@illinois.edu
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