

SAI Signature Research Projects

- ◆ “Evaluation of Systems Assurance Maturity in Public and Private Organizations” Jongwoo Han (Maxwell) and Joon Park (Information Studies)
- ◆ “Establishing the Foundations for Research and Education Regarding Security in Complex Systems” Pat Longstaff (Newhouse) and Howard Blair (Engineering and Computer Science)
- ◆ “Community Readiness Networks: Socio-Technical Elements of Inter-Organizational Coordination” Jeff Stanton (Information Studies), Joan Deppa (Newhouse), and Dana Hall (Engineering and Computer Science)
- ◆ “Assurance of Public Venues” Steve Chapin (Engineering and Computer Science) and Stu Thorson (Maxwell)

Evaluation of Systems Assurance Maturity in Public and Private Organizations

◆ Lead Faculty: Jongwoo Han (Maxwell) and Joon Park (Information Studies)

◆ Narrative: The 1993 Government Performance and Results Act (GPRA) mandates that government agencies be audited for accountability. GPRA has prompted development of various metric and assessment frameworks by which such accountability audits can be performed and compared. Perhaps the most comprehensive assessment model to date is one developed by the National Institute of Standards and Technology (NIST).

◆ Research Objective: This research seeks to prototypically and collaboratively apply the NIST model to assess the assurance performance of a Syracuse University administrative office and/or of a local government agency. We seek to evolve a practical tool by which organizations can self-measure their performance and consistently be audited by an independent team, be comparatively scored, and be guided to areas for improvement.

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Establishing the Foundations for Research and Education Regarding Security in Complex Systems

- ◆ **Lead Faculty:** Patricia H. Longstaff (Newhouse) and Howard Blair (Engineering and Computer Science)
- ◆ **Narrative:** This research will examine security in complex organizations (e.g., military, networked industries) from a systems perspective. Using ideas that cross disciplines such as “tightly/loosely coupled” systems, unpredictable complex systems, and “practical drift” the research will identify strategic and tactical options for new or revamped security procedures in complex organizations, particularly when two such organizations must interact for security purposes.
- ◆ **Research Objectives:** Recommendations for
 - Strategic security plans that can be implemented within complex organizations
 - Tactical considerations for the interface of two or more complex organizations (firms, industries, government agencies)
 - Training program for these strategic and tactical efforts

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Community Readiness Networks: Socio-Technical Elements of Inter-Organizational Coordination

- ◆ Lead Faculty: Jeffrey Stanton ((Information Studies), Joan Deppa (Newhouse) and Dana Hall (Engineering and Computer Science)
- ◆ Narrative: A community readiness network consists of multiple, loosely linked organizations such as utilities, hospitals, and private telecommunications providers. Such an organization has neither an overarching executive nor a hierarchical command and control structure. During extreme events, previously established relationships come to the fore. Effective coordination and communication become major challenges.
- ◆ Research Objectives: This research consists of four interconnected initiatives
 - A U.S.-wide overview study of CRN performance
 - Development of socio-technical criterion suitable for evaluation of CRN performance under normal and stressed conditions
 - Using the Central New York CRN led by public television station WCNY, assess and track trust and cooperation during regular activities and simulated extreme events
 - Develop and test a prototype CRN evaluation program

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Assurance of Public Venues

- ◆ Lead Faculty: Steve Chapin (Engineering and Computer Science) and Stuart Thorson (Maxwell)
- ◆ Narrative: Public venues such as airports and shopping malls are complex systems comprised of constituent systems in which people, technology, and physical facilities interact. Identification of overall system vulnerabilities, definition and implementation of mitigation solutions, and non-intrusive monitoring of ongoing operations are some of the challenges faced by the system assurance community seeking approaches to more effectively and efficiently protect high profile public gathering locations.
- ◆ Research Objectives: This research seeks to apply the emerging science of complex systems to the challenges of assuring public venues. Lessons will be derived from recent extreme events and integrated into a holistic complex system perspective. The researchers will seek to interact with the local regional airport as an example of an as-built, existing venue and the yet-to-be-built Destiny shopping and entertainment complex. The purpose of those interactions will be to ground the research in real world practicality and benefit.

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