International Research Network for the Science of Security (IRN-SoS)

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Overview

- Community to support "Science of Security"
- Provide resources for researchers
  - Standardized research methods
  - Peer review of planned research
- Collaborative environment
- Periodic in-person meetings
- Collaborative notes from today's session
  - http://bit.ly/IRN-SoS_Kickoff

Community Support

- Help researchers discover scientific underpinnings of their research
- Rigorously develop fundamental SoS foundations, laws and models
- Evolve the culture of the security research community so that it expects higher standards of scientific rigor

Resources

- Templates for rigorously defining research
- Guidelines for developing research plans
- Guidelines for authoring/reviewing papers
- *Reading list of seminal resources*
- *Expert-led sessions on research methodology*

Collaboration

- Get early feedback from peers
- Sharpen research skills and abilities
- Develop teams to work on larger, more complex, multi-disciplinary problems

Periodic Meetings

- General knowledge-sharing
  - Hypothesis testing
  - Experimental design
  - Metrics
- Smaller working sessions
  - Application of knowledge, i.e. critiquing papers
  - Producing guidelines, i.e. for paper content
- Opportunities to develop further collaborations
- Various conferences
  - USENIX, ACM Conference on Computer and Communications Security (CCS), IEEE Symposium on Security and Privacy (S&P), and NDSS

Research Project Template

- Helps researchers define their projects scientifically
- Used in the development of our Lablet proposal
- Facilitated interaction between researchers and research methods team

Research Project Template: Content

- Hard Problem – Primary/secondary security hard problem
- Goal - Conceptual description of what the project aims to accomplish
- Research Questions - Answering which would lead to achieving the research goal
- Background - Brief literature review and discussion of the maturity of current work

Research Project Template: Content

- Hypotheses - Bases for investigation of the research questions based upon existing evidence
- Research Plan - Process to be followed to test the hypotheses to answer the research questions
- Metrics - What we need to measure and analyze to support or refute the hypotheses
- Success Criteria - Research outcomes that indicate we have achieved the research goal

Panel

Panel Questions (1)

How challenging is it to develop testable research questions when studying secure cyber systems?

Are there particular aspects of your topic of study that make scientific inquiry more or less difficult?

How have you dealt with those challenges

Panel Questions (2)

How are the methods used in the lablet different than other work you have done, or other work in your field?

Panel Questions (3)

How do you think the SoS approach will impact your field?

What are the implications of SoS for your career, the research field, or the public (i.e. national security or personal privacy)?

Panel Questions (4)

How did using the method guidelines and templates change the way you approached your research?

Panel Questions (5)

Has being involved in SoS research affected how you collaborate or who you collaborate with? If so, what impact has this had on your work?

Panel Questions (6)

What impact did the methodological review and collaborative project development process have on you and your project?

Resources

Lindsey McGowen

Community Resources

- SoSL website: http://research.csc.ncsu.edu/security/lablet
  - Events, current projects, links to other security projects, collaborators
- SoS-VO: http://cps-vo.org/group/sos
  - Access to current and recent research, SoS news, events, networking, tools for collaborating and sharing, resource library, educational tools
- Under Development: Data sharing tools