



Overview

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GEORGETOWN UNIVERSITY

What is the S²ERC?

- **S²ERC: Security and Software Engineering Research Center**
- **A National Science Foundation sponsored industry-funded research center**



S²ERC Members

Security and Software Engineering Excellence

- **Georgetown University**
- **Virginia Tech**
- **Ball State University**
- **Oulu University**



S²ERC Focus

Security and Software Engineering Excellence

- **Georgetown** - higher layers of network and application security
- **Virginia Tech** - engineering and lower layers, and
- **Ball State** - software and systems engineering
- **Oulu's**- IoT



Georgetown S²ERC Focus

Major areas of focus:

- Cyber threat intelligence information exchange
- Multi-party computation for security applications
- Stability and security of the telephone network
- Stability and security of the Internet
- Medical device security



Georgetown S²ERC Focus

- *The mission is to conduct a program of applied and basic research on software security, system security and software technology problems of interest to its members.*
- *The S²ERC is about connecting people and bringing the world closer together **through new technologies, policy, law, and economics around communication technology.** The goal of this research is to enable security and software technology gains within member organizations and to protect the security and stability of our public networks.”*



S²ERC at Georgetown Project Philosophy

Recognized cross discipline expertise

- Intersection of technology, law, policy, and business
- Established cross discipline research
 - CyberISE program
 - PSTN*transition* program



How it Works

- **Funded by Affiliates - private sector organizations**
 - Most contribute a minimum of US\$40,000/year
 - Small entities contribute a minimum of US\$5,000/year
- **Agreement**
 - Full project
 - Non-negotiable
- **Affiliates usually join to fund a specific project**
- **Affiliates advise Director of S2ERC how to spend funds**



The S²ERC Showcase

- **Proposals**
- **Progress and final reports**
 - **Introduction to University research for many affiliates**
 - **Affiliates assess proposals and reports**
 - **Affiliates often**
 - **Develop and expand on existing and proposed projects**
 - **Seek to join exiting and proposed projects**
 - **Can lead to traditional full-overhead projects (with commensurate licensing potential)**



Examples of Current S²ERC Projects at Georgetown

- **CyberISE** – Business to business sharing of cyber-threat intelligence in the U.S. and internationally
- **Virtual Browser** – Evaluation of cloud-based browser technologies
- **Honeymail** – Measurement of interception in backbone networks
- **Vendor Truth Serum** – Eradicating the DeWitt clause
- **Profiling Analysis Methods** – NLP and reverse IR to map an analysts queries against the Cyber Kill Chain™



S²ERC at Georgetown

New Projects

- **International Legal Analysis for the IoT era** – Impact of the regulatory environment and what needs to change
- **International Legal Analysis of AI and Deep Learning for Big Data** – The regulatory environment and the impact on business
- **Secrecy Preserving Signatures** – Homomorphic encryption to share actionable threat intelligence without sharing the intelligence itself



S²ERC at Georgetown

More Information:

S²ERC website: <https://s2erc.georgetown.edu/>

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