Chair & Committee

Chair
Steven Bellovin, Computer Science

Committee
Matthew Waxman, Law School (co-chair)
Roxana Geambasu, Computer Science
Tal Malkin, Computer Science
Soumitra Sengupta, Biomedical Informatics
Simha Sethumadhavan, Computer Science

Center Summary

The Cybersecurity Center is dedicated to developing the capacity for keeping data secure and private throughout its lifetime, a core focus of Columbia's Institute for Data Sciences and Engineering. The Center will bring together and build upon the research of the departments of Computer Science and Electrical Engineering, and the work of the Columbia Business School, among others. By way of example, in the past year, Columbia startups such as CellRox have been launched based on technology related to digital security. The Center will be housed on the Morningside campus.

Affiliated Departments

- 80% Computer Science
- 10% Biomedical Informatics
- 10% Law

Affiliated Labs

Software Systems Lab
Computer Architecture and Security Technology Lab
Cryptography Lab
MAJOR EQUIPMENT/RESOURCES

- Simcity Cloud: 48 x (8-core processors, 24 GB RAM) + 30 TB, Fibre Channel
- Simlab Cluster: 8 x (8-core processors, 24 GB RAM, 1 TB RAID)
- CLIClab Cluster: 36 x (8-core processors, 24 GB RAM, 1 TB RAID)
- Synopsys toolchain, architecture simulators etc.

CURRENT OR PREVIOUS PROJECTS

Projects
CleanOS: New Mobile OS Abstractions for Managing Sensitive Data
CleanOS is a new mobile operating system designed to manage sensitive data rigorously and maintain a clean environment at any point in time.

SPARCHS: Symbiotic, Polymorphic, Autonomic, Resilient, Clean-slate, Host Security
This project will provide energy-efficient primitives that will make security cheap and effective on a wide variety of computing platforms, such as ubiquitous mobile phones or high-value installations in military and financial sectors.

Searching for Access Anomalies in Clinical Audit Logs
Discovering patterns in audit logs that capture user access to sensitive data which help identify whether specific access are anomalous, and hence subject to further audit, or not.

Publications
Steven Bellovin:
Matthew Waxman:
Self-Defensive Force Against Cyber Attacks: Legal, Strategic and Political Dimensions (2013)
Roxana Geambasu:
vTube: Efficient Streaming of Virtual Appliances Over Last-Mile Networks (2013)
Soumitra Sethumadhavan:
Tal Malkin:
BiTR: Built-in Tamper Resilience (2011)

CURRENT COLLABORATORS
AT&T Labs Research, New York-Presbyterian Hospital, DARPA, NSF, Alfred P. Sloan Foundation