MICAH SHERR

RESEARCH INTERESTS

Network security, protocol design and analysis, network intrusion detection and prevention, data confidentiality, and privacy.

EDUCATION

University of Pennsylvania Ph.D. in Computer and Information Science, Pursuing. GPA: 3.9/4.0
Advisor: Matt Blaze

University of Pennsylvania M.S.E. in Computer and Information Science. May 2005. GPA: 3.8/4.0

University of Pennsylvania B.S.E. in Computer Science and Engineering, *cum laude*. May 2000. GPA: 3.6/4.0

RESEARCH EXPERIENCE

Goalie Project

The Goalie Project investigates the feasibility of active networking and intrusion prevention systems. Machine learning-based detectors monitor the network and inform actuators of attacks. Actuators respond to attacks by instantiating firewall rules. Since the network is active, the need for human involvement is reduced.

Trustworthy Eavesdropping and Countermeasures (TNEC) Project

The TNEC Project investigates the reliability of interception systems. TNEC explores techniques for both evading interception as well as injecting spurious records into the eavesdropper's transcripts.

Confusion Project

The Confusion Project proposes a unilateral information theoretic technique for achieving message confidentiality. The sender or a third-party injects noise to mask plaintext messages. The receiver need not be aware that confusion is being utilized. The Confusion Project formalizes the properties of confusion and enumerates environments in which confusion is especially well-suited (e.g., in legacy applications and low-powered computing devices).

Selective Verification Project

The Selective Verification Project mitigates the effects of denial of service (DoS) attacks by exploiting the asymmetry between clients who use only a portion of their bandwidth and attackers who consume their bandwidth to carry out attacks. Research in selective verification explores the efficacy of the approach and attempts to formalize which protocols are most amenable to the technique.

PROFESSIONAL EXPERIENCE

Columbia University, Programmer / Analyst, August 2001 – June 2003
> Designed and implemented web based applications for Student Information Systems department. Conducted research and proof-of-concept designs. Built, maintained, and administered software-based clustering (OpenMOSIX clustering) of Linux servers.

Predictive Systems, Independent Security Consultant, July 2001
> Acted as independent consultant for Predictive Systems, a Virginia-based security consulting firm. Secured production environment for a major financial institution's online banking website. Investigated and delimited various potential security vulnerabilities in the proposed system's infrastructure and implementation.

Scient, Inc., Consultant, Technology Innovation Center, July 2000 – June 2001
> Scient is an eBusiness consultancy specializing in design and engineering of web-based businesses. Functioned as a Systems Administrator for Chase Manhattan Bank. Oversaw installation and configuration of Oracle, WebLogic, Netscape iPlanet, SiteMinder, and NCipher software on Sun servers. Created server monitoring tools for MIS reporting. Engaged in research for Scient's Any-to-Any initiative, a program for designing commercial "write once, run everywhere" programming packages. Authored series of internal papers that focused on creating programming and testbed environments for wireless applications compatible with the Palm VII device.

Netegrity, Inc., Intern, May 1999 – August 1999
> Netegrity, Inc. is a security company whose flagship product, SiteMinder, is used by major financial and corporate institutions to manage authentication and authorization across disparate systems within a company's intranet. Designed and engineered Managed Self Registration (MSR) software. Developed specialized and proprietary programming language and interpreter. The MSR language allowed developers to create custom applications for assigning and retracting access privileges, as well as registering new identities with the SiteMinder user repository.

TEACHING EXPERIENCE

Co-instructor, Operating Systems Laboratory (CSE381). Fall 2005
> Prepared and presented weekly lectures. Developed and evaluated class projects.

Mentor, Undergraduate Senior Project (CSE400/401). Fall 2005 – Spring 2006
> Mentored undergraduate student conducting independent study on confusion.

Teaching Assistant, Software Systems (CIS505). Spring 2005
> Prepared assignments, evaluated semester projects, and guest lectured on security and cryptography.

Teaching Assistant, Operating Systems (CSE380). Fall 2004
> Evaluated projects and assignments.

PUBLICATIONS

Refereed Publications

- Madhukar Anand, Eric Cronin, Micah Sherr, Matt Blaze, and Zachary Ives. Sensor network security: more interesting than you think. In First Workshop on Hot Topics in Security (HotSec06), Apr 2006.

- Eric Cronin, Micah Sherr, and Matt Blaze. On the reliability of current generation network eavesdropping tools. In Second Annual IFIP WG 11.9 International Conference on Digital Forensics, Jan 2006.

- Micah Sherr, Eric Cronin, Sandy Clark, and Matt Blaze. Signaling vulnerabilities in wiretapping systems. IEEE Security & Privacy, 3(6):13-25, Nov 2005.

- Eric Cronin, Micah Sherr, and Matt Blaze. Listen too closely and you may be confused. In Thirteenth International Workshop on Security Protocols, Apr 2005.

- Micah Sherr, Michael Greenwald, Carl A. Gunter, Sanjeev Khanna, and Santosh S. Venkatesh. Mitigating DoS attacks through selective bin verification. In First Workshop on Secure Network Protocols (NPSec), Nov 2005.

- Mark Weiner, Micah Sherr, and Abigail Cohen. Metadata tables to enable dynamic data modeling and web interface design. International Journal of Medical Informatics, 65(1):51-58, Apr 2002.

Non-refereed Publications

- Eric Cronin, Micah Sherr, and Matt Blaze. The eavesdropper's dilemma. University of Pennsylvania Technical Report, number MS-CIS-05-24. Aug 2005.

HONORS

Dean's List, University of Pennsylvania

Eta Kappa Nu (Electrical and Computer Engineering Honor Society), chapter president (2000) and member

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AFFILIATIONS

Institute of Electrical and Electronics Engineers (IEEE)

Usenix Advanced Computing Systems Association