

Micah Sherr

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Education

Ph.D. in Computer and Information Science, University of Pennsylvania *September 2003 - August 2009*

Thesis: *Coordinate-Based Routing for High Performance Anonymity*

Advisors: Matthew Blaze and Boon Thau Loo

Committee Members: Roch Guerin, Jonathan Smith, David Wagner, and Steve Zdancewic

M.S.E. in Computer and Information Science, University of Pennsylvania *September 2003 - May 2005*

B.S.E. in Computer Science and Engineering, University of Pennsylvania *September 1996 - May 2000*

Professional Experience

Postdoctoral Researcher, University of Pennsylvania *August 2009 – Present*

Research in anonymity systems, traffic resistant networks, extensible overlay routing, mobile phone security, and network provenance.

Mentor first and second year PhD students.

Supervise undergraduate senior project assignments.

PhD Candidate, University of Pennsylvania *September 2003 – August 2009*

Research in anonymous relay selection strategies, virtual coordinate embedding systems, wiretapping, and eavesdropping countermeasures.

Co-instructor for Operating Systems Lab Course (4 semesters). Prepared weekly recitations, designed semester assignments.

E-Voting Source Code Reviewer, University of Pennsylvania *September 2007 – December 2007*

Participant in Ohio Secretary of State's EVEREST review of Ohio's electronic voting systems.

Analyzed source code of ES&S electronic voting systems.

E-Voting Source Code Reviewer, University of California (Berkeley) *June 2007 – July 2007*

Participant in California Secretary of State's Top-to-Bottom review of California's electronic voting systems.

Analyzed source code of Sequoia electronic voting systems.

Intel Research Intern, Intel Corporation *June 2006 – March 2007*

Investigated efficacy of Distributed Detection and Inference (DDI), a collaborative worm detection system.

Developed worm propagation models and containment strategies.

Implemented ns-2 modules to analyze the performance against various worm models.

Programmer / Analyst, Columbia University

August 2001 – June 2003

Designed and implemented applications for student information systems.

Independent Security Consultant

July 2001

Secured production environment for a major financial institution's online banking website.

Conducted penetration testing on online banking system.

Consultant, Technology Innovation Center, Scient

July 2000 – June 2001

Oversaw installation and configuration of application middleware.

Conducted research for Scient's Any-to-Any initiative, a program for designing commercial "write once, run everywhere" programming packages.

Authored series of internal papers on creating testbed environments for wireless handheld devices.

Intern, Netegrity

May 1999 – August 1999

Designed and engineered Managed Self Registration software for single sign-on applications.

Developed specialized template programming language and interpreter.

Publications

Refereed Publications

(**bold** typeface denotes talks presented or planned to present)

1. Wenchao Zhou, Micah Sherr, Tao Tao, Xiaozhou Li, Boon Thau Loo, and Yun Mao. *Efficient Querying and Maintenance of Network Provenance at Internet-Scale*. To appear in ACM SIGMOD International Conference on Management of Data (SIGMOD), June 2010.
2. William Marczak, Shan Shan Huang, Martin Bravenboer, Micah Sherr, Boon Thau Loo, and Molham Aref. *SecureBlox: Customizable Secure Distributed Data Processing*. To appear in ACM SIGMOD International Conference on Management of Data (SIGMOD), June 2010.
3. **Micah Sherr**, Andrew Mao, William R. Marczak, Wenchao Zhou, Boon Thau Loo, and Matt Blaze. *A³: An Extensible Platform for Application-Aware Anonymity*. To appear in 17th Annual Network and Distributed System Security Symposium (NDSS), February 2010.
4. **Micah Sherr** and Matt Blaze. *Application Containers without Virtual Machines*. In 2nd ACM Workshop on Virtual Machine Security (VMSec), November 2009. (Position Paper)
5. **Micah Sherr**, Gaurav Shah, Eric Cronin, Sandy Clark, and Matt Blaze. *Can They Hear Me Now? A Security Analysis of Law Enforcement Wiretaps*. In 16th ACM Conference on Computer and Communications Security (CCS), November 2009.
6. **Micah Sherr**, Matt Blaze, and Boon Thau Loo. *Scalable Link-Based Relay Selection for Anonymous Routing*. In 9th Privacy Enhancing Technologies Symposium (PETS), August 2009.
7. **Micah Sherr**, Matt Blaze, and Boon Thau Loo. *Veracity: Practical Secure Network Coordinates via Vote-based Agreements*. In USENIX Annual Technical Conference (USENIX ATC), June 2009.

8. Adam Aviv, Pavol Černý, Sandy Clark, Eric Cronin, Gaurav Shah, **Micah Sherr**, and Matt Blaze. *Security Evaluation of the ES&S Voting Machines and Election Management System*. In Third USENIX/ACCURATE Electronic Voting Technology Workshop (EVT), August 2008.
9. **Micah Sherr**, Boon Thau Loo, and Matt Blaze. *Veracity: A Fully Decentralized Service for Securing Network Coordinate Systems*. In 7th International Workshop on Peer-to-Peer Systems (IPTPS), February 2008.
10. Eric Cronin, Micah Sherr, and Matt Blaze. *On the (un)Reliability of Eavesdropping*. International Journal of Security and Networks (IJSN). 3(2):103-113, 2008.
11. **Micah Sherr**, Boon Thau Loo, and Matt Blaze. *Towards Application-Aware Anonymous Routing*. In Second Workshop on Hot Topics in Security (HotSec), August 2007.
12. **Micah Sherr**, Eric Cronin, and Matt Blaze. *Measurable Security through Isotropic Channels*. In Fifteenth Annual Security Protocols Workshop (SPW), April 2007.
13. Madhukar Anand, Eric Cronin, Micah Sherr, Matt Blaze, Zachary Ives, and Insup Lee. *Security Challenges in Next Generation Cyber Physical Systems*. In National Workshop on Beyond SCADA: Networked Embedded Control for Cyber Physical Systems, November 2006. (Position Paper)
14. Madhukar Anand, Eric Cronin, Micah Sherr, Matt Blaze, Zachary Ives, and Insup Lee. *Sensor Network Security: More Interesting than you Think*. In First Workshop on Hot Topics in Security (HotSec), April 2006.
15. 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, January 2006.
16. Micah Sherr, Eric Cronin, Sandy Clark, and Matt Blaze. *Signaling Vulnerabilities in Wiretapping Systems*. IEEE Security & Privacy Magazine, 3(6):13-25, November 2005.
17. **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), November 2005.
18. Eric Cronin, Micah Sherr, and Matt Blaze. *Listen Too Closely and You May be Confused*. In Thirteenth International Workshop on Security Protocols (SPW), April 2005.
19. 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, April 2002.

Under Review

1. Micah Sherr. "Eavesdropping". *Encyclopedia of Cryptography and Security (2nd Edition)*. Henk C.A. van Tilborg and Sushil Jajodia (Eds.), Springer.

Non-refereed Publications

1. Micah Sherr. *Coordinate-Based Routing for High Performance Anonymity*. PhD Thesis, University of Pennsylvania. July 2009.
2. Wenchao Zhou, William R. Marczak, Tao Tao, Zhuoyao Zhang, Micah Sherr, Boon Thau Loo, and Insup Lee. *Towards Secure Cloud Data Management*. University of Pennsylvania Technical Report, number MS-CIS-10-10. June 2010.

3. Patrick McDaniel, Kevin Butler, William Enck, Harri Hursti, Stephen McLaughlin, Patrick Traynor, Matt Blaze, Adam Aviv, Pavol Cerny, Sandy Clark, Eric Cronin, Gaurav Shah, Micah Sherr, Giovanni Vigna, Richard Kemmerer, David Balzarotti, Greg Banks, Marco Cova, Viktoria Felmetzger, William Robertson, Fredrik Valeur, Joseph Lorenzo Hall, and Laura Quilter. *EVEREST: Evaluation and Validation of Election-Related Equipment, Standards and Testing*. Part of the Ohio Secretary of State EVEREST Review of electronic voting machines. December 2007.
4. Matt Blaze, Arel Cordero, Sophie Engle, Chris Karlof, Naveen Sastry, Micah Sherr, Till Stegers, and Ka-Ping Yee. *Source Code Review of the Sequoia Voting System*. Part of the California Secretary of State Top-to-Bottom Review of electronic voting machines. July 2007.
5. Micah Sherr. *Approaches to Anonymity on the Internet: Measurements and Limitations*. WPE-II Written Report. Department of Computer and Information Science, University of Pennsylvania. March 2007.
6. Madhukar Anand, Eric Cronin, Micah Sherr, Matt Blaze, and Sampath Kannan. *Security Protocols with Isotropic Channels*. University of Pennsylvania Technical Report, number TR-CIS-06-18, Nov 2006.
7. Eric Cronin, Micah Sherr, and Matt Blaze. *The Eavesdropper's Dilemma*. University of Pennsylvania Technical Report, number MS-CIS-05-24. Aug 2005.

Talks

(excludes presentations at conferences and workshops, indicated above with bold typeface)

1. *Vulnerabilities in Law Enforcement Wiretap Systems*, Pennsylvania State University, December 2009.
2. *Security Vulnerabilities in US Voting Machine Systems: A Summary of Two Large-scale Academic Studies of Electronic Voting Systems*, George Mason University, December 2009.
3. *Vulnerabilities and Architectural Weaknesses in US Law Enforcement Wiretap Systems*, Georgia Institute of Technology. November 2009.
4. *Testimony to the West Virginia Judicial Subcommittee on the Findings of the EVEREST Report*, West Virginia Joint Judicial Subcommittee. August 2009.
5. *Application-Aware Anonymous Routing for the Masses*, AT&T Research. November 2008.
6. *Law Enforcement Wiretaps: Background and Vulnerabilities*, Sixth Hackers on Planet Earth (HOPE). July 2006.
7. *Signaling Vulnerabilities in Wiretapping Systems*, Department of Computer Science Research Seminar, University of Pennsylvania. December 2005.

Grants

1. NSF CNS-0905434: TC: *Security Services in Open Telecommunications Networks*. Patrick McDaniel (PI), Matt Blaze (PI), Henning Schulzrinne (PI), and Micah Sherr (Senior Personnel). \$360,000.
2. NSF CNS-0831376: CT-S: *Application-Aware Anonymity (A³) for the Masses*. Boon Thau Loo (PI), Matt Blaze (Co-PI), and Micah Sherr (Senior Personnel). \$400,000.

Teaching Experience

Co-instructor, Operating Systems Laboratory (CIS381). *Fall 2005, Fall 2006, Fall 2007, and Fall 2008*

Prepared and presented weekly lectures.

Developed and evaluated class projects.

Supervised teaching assistants.

Mentor, Undergraduate Senior Project (CIS400/401). *Fall 2009 – Spring 2010*

Supervised undergraduate student research project on securing virtual coordinate embedding systems.

Mentor, Undergraduate Senior Project (CIS400/401). *Fall 2008 – Spring 2009*

Mentored and evaluated undergraduate students conducting research on high performance path selection in anonymity networks.

Both students are now pursuing their doctorates in computer science (at Harvard University and the University of California, Berkeley).

Mentor, Undergraduate Senior Project (CIS400/401). *Fall 2005 – Spring 2006*

Mentored undergraduate student conducting senior project on traffic analysis countermeasures.

Teaching Assistant, Software Systems (CIS505). *Spring 2005*

Prepared assignments.

Evaluated semester projects.

Guest lectured on security and cryptography.

Teaching Assistant, Operating Systems (CIS380). *Fall 2004*

Evaluated projects and assignments.

Conducted review sessions.

Member, University of Pennsylvania CIS Dept. Alumni Advisory Board. *Spring 2007 – Present*

Science Instructor, General Education Development (GED) Test. *Spring 2001, Spring 2002*

Volunteer GED (high school equivalency exam) science teacher for the Jobs and Education Empowerment Project (J.E.E.P) at Columbia University.

Professional Activities

Program Committee, 19th USENIX Security Symposium (Security 2010)

Program Committee, 2nd Workshop on Virtual Machine Security (VMSec 2009)

Program Committee, 18th USENIX Security Symposium (Security 2009)

Program Committee, 17th USENIX Security Symposium (Security 2008)

Reviewer, Communications of the ACM

Reviewer, IEEE Transactions on Dependable and Secure Computing (TDSC)

Reviewer, ACM Transactions on Internet Technology (TOIT)

Reviewer, IEEE Journal of Security & Privacy

External reviewer, 5th Conference on Emerging Networking Experiments and Technologies (CoNEXT 2009)

External reviewer, 16th Conference on Computer and Communications Security (CCS 2009)

External reviewer, 39th International Conference on Dependable Systems and Networks (DSN 2009)

External reviewer, 28th Conference on Computer Communications (Infocom 2009)

External reviewer, 3rd International Conference on Very Large Databases (VLDB 2007)

External reviewer, 26th International Conference on Distributed Computing Systems (ICDCS 2006)

External reviewer, 47th Symposium on Foundations of Computer Science (FOCS 2006)

External reviewer, 3rd Applied Cryptography and Network Security (ACNS 2005)

Member, USENIX Advanced Computing Systems Association

Member, Association for Computing Machinery (ACM)

Member and former Chapter President, Eta Kappa Nu (Electrical and Computer Engineering Honor Society), University of Pennsylvania chapter

References

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