

Patrick Drew McDaniel

Associate Professor

Computer Science and Engineering ◊ Pennsylvania State University

Office : IST Building 360A ◊ University Park, PA 16802 ◊ (814) 863-3599

Home: 1480 Chestnut Ridge ◊ State College, PA 16803 ◊ (814) 861-3538

email: mcdaniel@cse.psu.edu ◊ *Homepage*: <http://www.patrickmcdaniel.org/>

Education

University of Michigan

Ph.D., Computer Science and Engineering, October 2001

Dissertation: *Policy Management in Secure Group Communication*

Advisor: Dr. Atul Prakash

Ball State University

M.S., Computer Science, June 1991

Thesis: The Analysis of D_i , a Detailed Design Metric on Large Scale Software

Advisor: Wayne Zage

Ohio University

B.S., Computer Science, August 1989

Academic/Research Appointments

Associate Professor, Computer Science and Engineering, Pennsylvania State University, University Park, PA, July 2007 - *Present*

Computer and Network Security: 2007

Hartz Family Career Development Assistant Professor, Computer Science and Engineering, Pennsylvania State University, University Park, PA, Fall 2004 - June 2007

Introduction to Computer and Network Security: 2006, 2009

Computer and Network Security: 2004, 2005, 2008, 2009

Advanced Systems Security: 2005, 2006

Advanced Network Security: 2006

Senior Research Staff Member, AT&T Labs - Research, Florham Park, NJ, 2001-2004

Research staff member working in the secure systems group.

Adjunct Professor, Stern School of Business, New York University, New York, NY, 2003-*Present*

Computer and Network Security: 2003, 2004, 2005, 2006

Online Privacy: 2003, 2004

Research Assistant, University of Michigan, Ann Arbor, MI, September 2000-August 2001

Work as technical student lead DARPA sponsored "Specifying and Enforcing Security Policies in Multi-Party Communication Systems" project.

Research Intern, AT&T Labs - Research, Florham Park, NJ, Summer 1999

Investigated the design space and practical applications of certificate revocation technologies.

Research Assistant, NASA-Kennedy Space Center Fellowship, Ann Arbor, MI, 1997-2000

Working under Kennedy Space Center Fellowship Graduate Student Researchers program, created the "JavaLauncher" framework used to govern critical control systems during shuttle launches.

Research Assistant, University of Michigan, Ann Arbor, MI, 1996-1997

Worked on the NSA funded "Design and Implementation of Secure Mobile Agent Services" research project investigating Java security technologies.

Students Advised

Past PhD Students

- Patrick Traynor, co-advisor, Pennsylvania State University, Spring 2008, now *Assistant Professor, Georgia Institute of Technology*
- Fr. Boniface Hicks, Pennsylvania State University, Fall 2007, now *Assistant Professor, St. Vincent College*

Current PhD Students

- Kevin Butler, Pennsylvania State University, Spring 2010
- William Enck, Pennsylvania State University, Spring 2011
- Machigar Ongtang, Pennsylvania State University, Spring 2010
- Thomas Moyer, Pennsylvania State University, Spring 2011
- Steve McLaughlin, Pennsylvania State University, Spring 2013
- Devin Pohly, Pennsylvania State University, Spring 2014
- Eunjung Yoon, Pennsylvania State University, Spring 2014

Past Masters Students

- Thomas Moyer, M.S. Pennsylvania State University, Spring 2009
- Luke St. Clair, M.S. Pennsylvania State University, Summer 2008
- Lisa Johansen, M.S. Pennsylvania State University, Spring 2008
- Sunam Ryu, M.S. Pennsylvania State University, Spring 2007
- Dhananjay Bapat, M.S. Pennsylvania State University (Electrical Engineering), Fall 2006
- Jennifer Plasterr, M.Eng. Pennsylvania State University, Summer 2006
- Adam Kerr, M.Eng. Pennsylvania State University, Fall 2006
- William Enck, M.S. Pennsylvania State University, Spring 2006
- Wesam Lootah, M.S. Pennsylvania State University, Spring 2006
- Jon Hansford, M.Eng. Pennsylvania State University, Fall 2005
- John van Bremer, M.Eng. Pennsylvania State University, Spring 2005

Past Undergraduate Honors Students

- Tim Misiak, Schreyer Honors College, Pennsylvania State University, Spring 2007
- Kiyam Ahmadizadeh, Schreyer Honors College, Pennsylvania State University, Spring 2006

Collaborators

Last 48 months, alphabetical by last name: Kiyam Ahmadizadeh, William Aiello, Chaitrali Amrutkar, Farooq Anjum, Adam Aviv, David Balzarotti, Greg Banks, Dhananjay Bapat, Matt Blaze, Kevin Borders, Kevin Butler, Ramon Caceres, Pavol Cerny, Shiva Chaitanya, Michael Chien, Heesook Choi, Sandy Clark, Marco Cova, Eric Cronin, William Enck, Toni Farley, Viktoria Felmetsger, Abhrajit Ghosh, Albert Greenberg, Boniface Hicks, Michael Hicks, Harri Hursti, John Ioannidis, Trent Jaeger, Guruprasad Jakka, Lisa Johansen, Shyam K. Gupta, Charles Kalmanek, Richard Kemmerer, Dave King, Thomas La Porta, Michael Lin, Wesam Lootah, Joseph Lorenzo Hall, Patick McDaniel, Stephen McLaughlin, Tim Misiak, Fabian Monroe, Thomas Moyer, Bashar Nuseibeh, Machigar Ongtang, Birgit Pfitzmann, Matthew Pirretti, Jennifer Plasterr, Dmitry Podkuiko, Atul Prakash, Sophie Qiu, Laura Quilter, Padma Raghavan, Vikhyath Rao, Sanjay Rao, Karl Rauscher, J. Rexford, Thomas Richardson, William Robertson, Hosam Rowaihy, Michael Rowell, Avi Rubin, Sandra Rueda, Sunam Ryu, Reiner Sailer, Joshua Schiffman, Panagiotis Sebos, Shubho Sen, Gaurav Shah, Christopher Shal, Micah Sherr, Jaesheung Shin, Jun Shu, Radu Sion, Anand Sivasubramaniam, Adam Smith, Oliver Spatscheck, Sylke Spoerel, Yogesh Sreenivasan, Anusha Sriraman, Luke

St. Clair, Yu-Wei Sung, Andreas Terzis, Patrick Traynor, Fredrik Valeur, Jacobus Van der Merwe, Giovanni Vigna, Brent Waters, Scott Weaver, Marianne Winslett, Erez Zadok

Support for Research and Teaching (Gifts and Grants)

- **co-PI**, *Managing Security and Vulnerability Risks in the Smart Grid*, Institute for CyberScience and The Penn State Institutes of Energy and the Environment, \$31,000, (08/1/09-12/16/09).
- **PI**, *Smart Grid Cyber Security Research*, Lockheed Martin, \$250,000, (1/1/10-12/16/10).
- **PI**, *NSF HECURA: Collaborative Research: Secure Provenance in High-End Computing Systems*, NSF (CCF), \$307,073, (08/1/09-8/31/13).
- **PI**, *TC: Medium: Collaborative Research: Security Services in Open Telecommunications Networks*, NSF (CNS), \$594,941, (08/01/09-08/01/12).
- **PI**, *Characterizing and Mitigating Wireless Systems Vulnerabilities*, Defense University Research Instrumentation Program (DURIP), Army Research Office (ARO), \$150,000, (05/22/09-05/21/10).
- **PI**, *Integrity Management for ICT Development*, Bell Labs Network Reliability and Security Office, Alcatel-Lucent, \$100,000, (11/30/08-11/30/09).
- **PI**, *Utility Grid Automation and Risk Management*, Lockheed Martin, \$400,000, (11/30/08-12/16/09).
- **PI**, *EVEREST: Evaluation and Validation of Election-Related Equipment, Standards, and Testing*, The State of Ohio, \$332,066, (10/01/07-01/07/08).
- **Co-PI**, *Protecting Services for Emerging Wireless Telecommunications Infrastructure*, NSF (CNS), \$658,032, (09/01/07-08/31/11).
- **Co-PI**, *Security for Internet/IMS Convergence*, Cisco, \$100,000, (9/1/07-8/31/08).
- **Co-PI**, *System-Wide Information Flow Enforcement*, BAA 06-11-IFKA, "National Intelligence Community Enterprise Cyber Assurance Program", \$496,000, (2/1/07-8/1/08).
- **PI**, *CAREER: Realizing Practical High Assurance through Security-Typed Information Flow Systems*, NSF (CNS), \$400,000, (1/2/07-1/1/12).
- **Co-PI**, *CT-IS: Shamon: Systems Approaches for Constructing Distributed Trust*, NSF (CNS), \$400,000, (9/1/06-8/31/10).
- **Co-PI**, *Center of Excellence*, Ben Franklin Technology Partners, \$75,000, (01/01/07-07/01/07).
- **Co-PI**, *Exploiting Asymmetry in Performance and Security Requirements for I/O in High-end Computing*, NSF (CFF), \$699,690, (9/1/06-8/31/10).
- **PI**, *Automated Configuration with the PRESTO Network Management Platform*, AT&T, \$50,000, (6/1/06-5/31/07).
- **PI**, *Testbed for Network-Scale Countermeasure Evaluation*, Cisco, \$45,938, (9/1/05-8/31/06).
- **PI**, *Collaborative Research: CT-T: Flexible, Decentralized Information-flow Control for Dynamic Environments*, NSF (CFF), \$234,585, (8/1/05-7/31/08).
- **PI**, *Extending Developer Tools for Security-typed Languages*, Software Engineering Research Center, Sponsor: Motorola, \$23,200, (7/1/05-6/30/06).
- **PI**, *Student Travel Support for ACM SIGCOMM 2005 Conference*, NSF, \$19,620, (4/1/05-3/31/06).
- **Co-PI**, *NSF CyberTrust: Collaborative Research: Testing and Benchmarking Methodologies for Future Network Security Mechanisms (EMIST)*, NSF/DHS, \$363,000, (8/1/04-8/31/06).

Honors

- **Best Paper, 25th Annual Computer Security Applications Conference**, with advisees Machigar Ongtang, Stephen McLaughlin, and William Enck, December 2009
- **Faculty Marshal, College of Engineering**, selected by student marshals for contributions to undergraduate education, leads procession into graduation ceremony
- **PSES Outstanding Research Award**, highly selective award by the Penn State Engineering Society given to faculty in the College of Engineering who have made significant contributions to knowledge in their field
- **Google Security and Product Safety Acknowledgement**, in recognition of efforts in improving the security of Google Android cellular phone operating system.
- **Commendation for Exceptional Leadership and Achievement** , in recognition of efforts as PI of the EVEREST study, from Ohio Secretary of State Jennifer Brunner, August 2008
- **IEEE Technical Committee on Security and Privacy Outstanding Community Service Award**, in recognition for technical program management of 2007 and 2008 IEEE Security and Privacy symposia, August 2008
- **National Science Foundation CAREER Award**, Faculty early career development grant, August 2007
- **Penn State Computer Science and Engineering Outstanding Teaching Award**, Given to best teacher in the department as selected by students, March 2007
- **ACM Certificate of Meritorious Service**, Certificate acknowledging exemplary service as associate editor of ACM Transactions on Internet Technologies, April 2007
- **Best Student Paper, 22nd Annual Computer Security Applications Conference**, as advisor, with Boniface Hicks and Kiyan Ahmadizadeh, December 2006
- **Conference Keynote Addresses**, Second International Conference on Information Systems Security (ICISS 2006), Kolkata, India, December 2006, Eighth International Conference on Information and Communications Security (ICICS '06), Raleigh, North Carolina, December 2006
- **Best Paper, Innovations and Commercial Applications of Distributed Sensor Networks Symposium**, Awarded for best paper in conference, October 2005.
- **Hartz Family Career Development Professor**, Endowed Professorship, Pennsylvania State University, Fall 2004-2007
- **Bang for the Buck Award, DARPA Dynamic Coalitions Program**, Award for most feature-rich/useful software system, April 2002
- **National Aeronautics and Space Administration, Kennedy Space Center Fellowship**, Research Fellowship, September 1997 - August 2000
- **Electrical Engineering and Computer Science Summer Fellowship Award**, University of Michigan, June 1997
- **Dean's Citation for Perfect Academic Record**, Ball State University, June 1991

Professional Activities

Editorial Positions, Panels, and Boards

- **ACM Transactions on Internet Technology (TOIT)**
Editor in Chief–September 2007-present *Associate Editor*–April 2004-August 2007
- **IEEE Security and Privacy Magazine**
Area Editor, Secure Systems–January 2009-present
- **IEEE Transactions on Computers (TC)**
Associate Editor–August 2008-present
- **ACM Transactions on Information and System Security (TISSEC)**
Associate Editor–May 2007-present
- **IEEE Transactions on Software Engineering (TSE)**
Associate Editor–January 2007-present *Guest Editor, Special Issue on Topics in Security*–Fall 2006-present
- **Elsevier Journal of Computer Networks**
Guest Editor, Special Issue on Web Security–Fall 2003-Spring 2005
- **Encyclopedia of Cryptography and Security**
Editorial Board Member–Fall 2002-Spring 2005

Conference and Workshop Participation

- **IEEE Symposium on Security and Privacy**
Technical Program Co-Chair–2007, 2008
- **USENIX Security Symposium**
Program Chair–2005 *Invited Talks Chair*–2006, 2009 *Program Committee*–2001, 2003, 2004, 2007
- **ACM Conference on Computer and Communications Security (CCS)**
Program Committee–2006, 2008, 2009, 2010 *Industry and Government Track Chair*–2004, 2007
Program Committee-Industry and Government Track–2003, 2005, 2006
- **Network and Distributed System Security Symposium (NDSS)**
Program Committee–2009
- **European Symposium on Research in Computer Security (ESORICS)**
Program Committee–2004, 2005
- **Annual Computer Security Applications Conference (ACSAC)**
Program Committee–2004, 2005, 2006, 2007, 2010
- **IEEE GLOBECOM**
Program Committee–2010
- **ACM Annual International Conference on Mobile Computing and Networking (MobiCom)**
Program Committee–2010
- **USENIX Workshop on Large-Scale Exploits and Emergent Threats (LEET)**
Program Committee–2010

- **USENIX Workshop on Hot Topics in Security (HotSec)**
Program Committee–2007, 2008, 2009, 2010
- **ACM Symposium on Access Control Models and Technologies (SACMAT)**
Program Committee–2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
- **ACM Conference on ASIA Computer and Communications Security (ASIA CCS)**
Program Committee–2008
- **ACM Conference on Electronic Commerce (ACM EC)**
Program Committee–2005
- **International Conference on Applied Cryptography and Network Security (ACNS)**
Program Committee–2006
- **ACM Symposium on Applied Computing (SAC)**
Program Committee, Information Security Research and Applications –2010
- **USENIX Annual Technical Conference**
Program Committee–2002, 2003
- **World Wide Web Conference (WWW)**
Security and Privacy Track Vice-Chair–2005 *Security and Privacy Track Deputy Vice-Chair*–2004 *Program Committee*–2003, 2007, 2010
- **IEEE INFOCOM**
Program Committee–2007
- **Financial Cryptography**
General Chair–2006 *Program Committee*–2007, 2008
- **International Conference on Information Systems Security (ICISS)**
Steering Committee–2007 *Program Co-Chair*–2007 *Program Committee*–2005, 2006, 2009
- **International Conference on Parallel Processing**
Program Committee-Network Security–2003
- **ACM SIGCOMM Workshop on Networking, Systems, Applications on Mobile Handhelds (MobiHand)**
Member–2009
- **ACM Workshop on Cloud Computing Security**
Member–2009, 2010
- **International Workshop on Security in Software Engineering**
Founding General Co-Chair–2007
- **USENIX Workshop On Offensive Technology (WOOT 07)**
Program Committee–2007
- **ACM Storage Security and Survivability Workshop**
Program Committee–2006
- **ACM SIGCOMM Workshop on Internet Network Management**
Program Committee–2006, 2007
- **Annual IFIP WG 11.3 Working Conference on Data and Applications Security (DBSec)**
Program Committee–2006, 2007, 2008

- **International Conference on Emerging Trends in Information and Communication Security (ETRICS)**
Program Committee–2006
- **Workshop on Workshop on Telecommunications Infrastructure Protection and Security (TIPS)**
General Chair–2009
- **International Workshop on Systems and Network Security (SNS)**
Program Committee–2005, 2006
- **IEEE ICNP Workshop on Secure Network Protocols (NPSec)**
Program Committee–2005, 2006
- **The Five Nines Workshop on Designing and Managing High Availability Internet Services (INM 2007)**
Program Committee–2007

Other Professional Activities

- **Natural Sciences and Engineering Research Council of Canada, Internetworked Systems Security Network**
Scientific Advisory Board–2008-present
- **Technology for Cyber Physical System Security Forum, Cyber Security Research and Development, (Senators Joseph I. Lieberman and Susan Collins, Chairs)**
Speaker and Participant–September 2008
- **ACM Student Organization Advisor**
Penn State Computer Science and Engineering Department–2006-present
- **The Technology Collaborative**
Penn State Representative (Pennsylvania economic development consortium)–2007-2008
- **President’s National Security Telecommunications Advisory Panel**
Member, Next Generation Networks Task Force–2005-present
- **Abusable Technologies Awareness Center (ATAC)**
Panelist–October 2003-present
- **ATT IP Services Security Council**
Member–June 2003-August 2004
- **ATT Internet Intellectual Property Review Team**
Member–September 2001-May 2002
- **ACM SIGCOMM Student Travel Grant Committee**
Member–August 2005
- **National Science Foundation, Grant Review Panel**
Member–2003, 2004, 2006, 2007, 2009
- **Department of Energy SciDAC Review Panel**
Member–2001

Industrial Experience

Software Developer, Applied Innovation, Inc., Columbus, OH, 1994-1995

Served as lead developer of the *AppliedView* network management system, a hardware configuration and monitoring platform.

Project Manager, Primary Access Corporation, San Diego, CA, 1993-1994

Technical lead for server-based network management platform for rack-mounted network-mediation devices.

Software Developer, Primary Access Corporation, San Diego, CA, 1991-1993

Developed UNIX-based server application that coordinates the operation of remote network management terminals.

Software Developer, Integrated Technologies, Inc., Muncie, IN, 1989

Worked as a C programmer responsible for development and maintenance of installation code for statistical process control system.

Affiliations

Association for Computing Machinery (ACM)

The Institute of Electrical and Electronics Engineers (IEEE), *Senior Member*

USENIX Advanced Computing Systems Association

Books and Book Chapters

Kevin Butler, William Enck, Patrick Traynor, Jennifer Plasterr, and Patrick McDaniel. Privacy Preserving Web-Based Email. *Algorithms, Architectures and Information Systems Security, Statistical Science and Interdisciplinary Research*, World Scientific Computing, pages 349-371. November 2008. *Editor*: Bhargab Bhattacharya, Susmita Sur-Kolay, Subhas Nandy and Aditya Bagchi. (extends iciss06b)

Patrick Traynor, Patrick McDaniel, and Thomas La Porta, Security for Telecommunications Networks. Springer, Series: Advances in Information Security, July, 2008. ISBN: 978-0-387-72441-6.

Patrick McDaniel and Avi Rubin. Conference Proceedings. *2008 IEEE Symposium on Security and Privacy*, IEEE. May 2008.

Patrick McDaniel and Shyam K. Gupta. Conference Proceedings. *The Third International Conference Information Systems Security*, Springer. December 2007.

Birgit Pfitzmann and Patrick McDaniel. Conference Proceedings. *2007 IEEE Symposium on Security and Privacy*, IEEE. May 2007.

Patrick McDaniel. Authentication. *Handbook of Computer Networks*, John Wiley and Sons. May 2006. *Editor*: Hossein Bidgoli.

Patrick McDaniel. Conference Proceedings. *The 14th USENIX Security Symposium*, USENIX. August 2005.

Patrick McDaniel. Computer and Network Authentication. *Handbook of Information Security*, John Wiley and Sons. September 2004. *Editor*: Hossein Bidgoli.

Patrick McDaniel. IPsec. *Encyclopedia of Information Security*, Kluwer. 2003. *Editor*: Hossein Bidgoli.

Patrick McDaniel. Policy. *Encyclopedia of Information Security*, Kluwer. 2003. *Editor*: Hossein Bidgoli.

Patrick McDaniel. Authentication. *The Internet Encyclopedia*, John Wiley and Sons. 2002.

Journal Publications

Patrick Traynor, Chaitrali Amrutkar, Vikhyath Rao, Trent Jaeger, Patrick McDaniel, and Thomas La Porta, From Mobile Phones to Responsible Devices. *Journal of Security and Communication Networks (SCN)*, 2010. *to appear*.

Patrick Traynor, Kevin Butler, William Enck, Kevin Borders, and Patrick McDaniel, malnets: Large-Scale Malicious Networks via Compromised Wireless Access Points. *Journal of Security and Communication Networks (SCN)*, 2010. *to appear*.

Matthew Pirretti, Patrick Traynor, Patrick McDaniel, and Brent Waters, Secure Attribute-Based Systems. *Journal of Computer Security (JCS)*, 2010. *to appear*.

Boniface Hicks, Sandra Rueda, Luke St. Clair, Trent Jaeger, and Patrick McDaniel, A Logical Specification and Analysis for SELinux MLS Policy. *ACM Transactions on Information and System Security (TISSEC)*, 2010. *To appear*. (extends hrs+07)

Kevin Butler, Toni Farley, Patrick McDaniel, and J. Rexford, A Survey of BGP Security Issues and Solutions. *Proceedings of the IEEE*, 2010(1):100-122, January, 2010.

Kevin Butler, Sunam Ryu, Patrick Traynor, and Patrick McDaniel, Leveraging Identity-based Cryptography for Node ID Assignment in Structured P2P Systems. *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 20(12):1803-1815, December, 2009. (extends rbtm07)

Patrick McDaniel and Stephen McLaughlin, Security and Privacy Challenges in the Smart Grid. *IEEE Security & Privacy Magazine*, (3):75-77, May/June, 2009.

William Enck, Machigar Ongtang, and Patrick McDaniel, Understanding Android Security. *IEEE Security & Privacy Magazine*, 7(1):50–57, January/February, 2009.

William Enck, Thomas Moyer, Patrick McDaniel, Shubho Sen, Panagiotis Sebos, Sylke Spoerel, Albert Greenberg, Yu-Wei Sung, Sanjay Rao, and William Aiello, Configuration Management at Massive Scale: System Design and Experience. *IEEE Journal on Selected Areas in Communications (JSAC)*, 27(3):323–335, 2009. (extends ems+07)

Heesook Choi, William Enck, Jaesheung Shin, Patrick McDaniel, and Thomas La Porta, ASR: Anonymous and Secure Reporting of Traffic Forwarding Activity in Mobile Ad Hoc Networks. *Wireless Networks (WINET)*, ACM/Kluwer, 15(4):525–539, MAY, 2009. (extends ces+05)

Patrick Traynor, William Enck, Patrick McDaniel, and Thomas La Porta, Exploiting Open Functionality in SMS-Capable Cellular Networks. *Journal of Computer Security*, 16(6):713–742, February, 2009. (extends etml05)

Patrick Traynor, Michael Chien, Scott Weaver, Boniface Hicks, and Patrick McDaniel, Non-Invasive Methods for Host Certification. *ACM Transactions on Information and System Security (TISSEC)*, 11(3), 2008. (extends tcw+06)

Patrick McDaniel and Bashar Nuseibeh, *Guest Editorial: Special Issue on Software Engineering for Secure Systems*. *IEEE Transactions on Software Engineering*, 34(1):3–4, 2008.

Wesam Lootah, William Enck, and Patrick McDaniel, TARP: Ticket-based Address Resolution Protocol. *Computer Networks*, Elsevier, 51(15):4322–4337, October, 2007. (extends lem05)

Patrick McDaniel and Avi Rubin, *Guest Editorial: Special Issue on Web Security*. *Computer Networks*, Elsevier, 22(2), 2005.

Patrick McDaniel and Atul Prakash, Enforcing Provisioning and Authorization Policy in the Antigone System. *Journal of Computer Security*, 14(9):483–511, November, 2006.

Patrick McDaniel and Atul Prakash, Methods and Limitations of Security Policy Reconciliation. *ACM Transactions on Information and System Security (TISSEC)*, Association for Computing Machinery, 9(3):259–291, August, 2006. (extends mp02)

Patrick McDaniel, William Aiello, Kevin Butler, and John Ioannidis, Origin Authentication in Interdomain Routing. *Journal of Communication Networks*, Elsevier, 50(16):2953–2980, November, 2006. (extends aim03)

Matthew Pirretti, Sencun Zhu, Vijaykrishnan Narayanan, Patrick McDaniel, Mahmut Kandemir, and Richard Brooks, The Sleep Deprivation Attack in Sensor Networks: Analysis and Methods of Defense. *International Journal of Distributed Sensor Networks*, 2(3):267–287, June, 2005. (extends pzn+05)

Simon Byers, Lorrie Cranor, Eric Cronin, Dave Kormann, and Patrick McDaniel, Analysis of Security Vulnerabilities in the Movie Production and Distribution Process. *Telecommunications Policy*, 28(8):619–644, August, 2004. (extends bcc+03)

Conference Publications

Machigar Ongtang, Stephen McLaughlin, William Enck, and Patrick McDaniel. Semantically Rich Application-Centric Security in Android. *Proceedings of the 25th Annual Computer Security Applications Conference (ACSAC)*, pages 340–349, December 2009. Honolulu, Hawaii. (**best paper**). (acceptance rate=19.0%)

Thomas Moyer, Kevin Butler, Joshua Schiffman, Patrick McDaniel, and Trent Jaeger. Scalable Asynchronous Web Content Attestation. *Proceedings of the 25th Annual Computer Security Applications Conference (ACSAC)*, pages 95–104, December 2009. Honolulu, Hawaii. (acceptance rate=19.0%)

Joshua Schiffman, Thomas Moyer, Christopher Shal, Trent Jaeger, and Patrick McDaniel. Justifying Integrity Using a Virtual Machine Verifier. *Proceedings of the 25th Annual Computer Security Applications Conference (ACSAC)*, pages 83-92, December 2009. Honolulu, Hawaii. (acceptance rate=19.0%)

William Enck, Machigar Ongtang, and Patrick McDaniel. On Lightweight Mobile Phone App Certification. *Proceedings of the 16th ACM Conference on Computer and Communications Security (CCS)*, pages 235-245, November 2009. (acceptance rate=18.4%)

Patrick Traynor, Michael Lin, Machigar Ongtang, Vikhyath Rao, Trent Jaeger, Thomas La Porta, and Patrick McDaniel. On Cellular Botnets: Measuring the Impact of Malicious Devices on a Cellular Network Core. *Proceedings of the 16th ACM Conference on Computer and Communications Security (CCS)*, pages 223-234, November 2009. (acceptance rate=18.4%)

William Enck, Patrick McDaniel, and Trent Jaeger. PinUP: Pinning User Files to Known Applications. *Proceedings of the 24th Annual Computer Security Applications Conference (ACSAC)*, December 2008. (acceptance rate=24.3%)

William Enck, Kevin Butler, Thomas Richardson, Patrick McDaniel, and Adam Smith. Defending Against Attacks on Main Memory Persistence. *Proceedings of the 24th Annual Computer Security Applications Conference (ACSAC)*, December 2008. (acceptance rate=24.3%)

Kevin Butler, Stephen McLaughlin, and Patrick McDaniel. Rootkit-Resistant Disks. *Proceedings of the 15th ACM Conference on Computer and Communications Security (CCS)*, November 2008. Alexandria, VA. (acceptance rate=18.1%)

Patrick Traynor, Kevin Butler, William Enck, and Patrick McDaniel. Realizing Massive-Scale Conditional Access Systems Through Attribute-Based Cryptosystems. *ISOC Network & Distributed System Security Symposium (NDSS)*, February 2008. San Diego, CA. (acceptance rate=17.7%)

Luke St. Clair, Joshua Schiffman, Trent Jaeger, and Patrick McDaniel. Establishing and Sustaining System Integrity via Root of Trust Installation. *23rd Annual Computer Security Applications Conference (ACSAC)*, pages 19-29, December 2007. Miami, FL. (acceptance rate=21.9%)

Boniface Hicks, Tim Misiak, and Patrick McDaniel. Channels: Runtime System Infrastructure for Security-typed Languages. *23rd Annual Computer Security Applications Conference (ACSAC)*, pages 443-452, December 2007. Miami, FL. (acceptance rate=21.9%)

Dhananjay Bapat, Kevin Butler, and Patrick McDaniel. Towards Automated Privilege Separation. *Proceedings of 2nd International Conference on Information Systems Security (short paper)*, December 2007. Delhi, India. (acceptance rate=31.5%)

Lisa Johansen, Kevin Butler, Michael Rowell, and Patrick McDaniel. Email Communities of Interest. *Fourth Conference on Email and Anti-Spam (CEAS 2007)*, August 2007. Mountain View, California. (acceptance rate=18.9%)

Patrick Traynor, Patrick McDaniel, and Thomas La Porta. On Attack Causality in Internet-Connected Cellular Networks. *Proceedings of the 16th USENIX Security Symposium*, August 2007. Boston, MA. (acceptance rate=12.28%)

Boniface Hicks, Sandra Rueda, Trent Jaeger, and Patrick McDaniel. From Trusted to Secure: Building and Executing Applications that Enforce System Security. *Proceedings of the USENIX Annual Technical Conference*, June 2007. Santa Clara, CA. (acceptance rate=23.8%)

William Enck, Patrick McDaniel, Shubho Sen, Panagiotis Sebos, Sylke Spoerel, Albert Greenberg, Sanjay Rao, and William Aiello. Configuration Management at Massive Scale: System Design and Experience. *Proceedings of the USENIX Annual Technical Conference*, June 2007. Santa Clara, CA. (acceptance rate=23.8%)

Boniface Hicks, Sandra Rueda, Luke St. Clair, Trent Jaeger, and Patrick McDaniel. A Logical Specification and Analysis for SELinux MLS. *12th ACM Symposium on Access Control Models and Technologies (SACMAT)*, ACM, June 2007. Sophia Antipolis, France. (acceptance rate=23.75%)

Anusha Sriraman, Kevin Butler, Patrick McDaniel, and Padma Raghavan. Analysis of IPv4 Address Space Delegation Structure. *12th IEEE Symposium on Computers and Communications (ISCC)*, July 2007. Aveiro, Portugal. (acceptance rate=40%)

Heesook Choi, Thomas La Porta, and Patrick McDaniel. Privacy Preserving Communication in MANETs. *Proceedings of Fourth Annual IEEE Communications Society Conference on Sensor, Mesh, and Ad Hoc Communications and Networks*, June 2007. San Diego, CA. (acceptance rate=20%)

Sophie Qiu, Patrick McDaniel, and Fabian Monrose. Toward Valley-Free Inter-domain Routing. *Proceedings of 2007 IEEE International Conference on Communications (ICC 2007)*, June 2007. Glasgow, Scotland.

Sunam Ryu, Kevin Butler, Patrick Traynor, and Patrick McDaniel. Leveraging Identity-based Cryptography for Node ID Assignment in Structured P2P Systems. *Proceedings of the 3rd IEEE International Symposium on Security in Networks and Distributed Systems (SSNDS-07)*, June 2007. Niagra Falls, Canada. (acceptance rate=40%)

Hosam Rowaihy, William Enck, Patrick McDaniel, and Thomas La Porta. Limiting Sybil Attacks in Structured Peer-to-Peer Networks. *Proceedings of IEEE INFOCOM 2007 MiniSymposium*, May 2007. Anchorage, AK. (acceptance rate=25%)

Boniface Hicks, Kiyan Ahmadizadeh, and Patrick McDaniel. Understanding Practical Application Development in Security-Typed Languages. *22st Annual Computer Security Applications Conference (ACSAC)*, pages 153–164, December 2006. Miami, Fl. (**best student paper**). (acceptance rate=30.3%)

Luke St. Clair, Lisa Johansen, William Enck, Matthew Pirretti, Patrick Traynor, Patrick McDaniel, and Trent Jaeger. Password Exhaustion: Predicting the End of Password Usefulness. *Proceedings of 2nd International Conference on Information Systems Security (ICISS)*, pages 37–55, December 2006. Kolkata, India.

Kevin Butler, William Enck, Jennifer Plasterr, Patrick Traynor, and Patrick McDaniel. Privacy-Preserving Web-Based Email. *Proceedings of 2nd International Conference on Information Systems Security (ICISS)*, pages 116–131, December 2006. Kolkata, India. (acceptance rate=30.4%)

Matthew Pirretti, Patrick Traynor, Patrick McDaniel, and Brent Waters. Secure Attribute-Based Systems. *Proceedings of the 13th ACM Conference on Computer and Communications Security (CCS)*, pages 99–112, November 2006. Alexandria, VA. (acceptance rate=14.7%)

Kevin Butler, William Aiello, and Patrick McDaniel. Optimizing BGP Security by Exploiting Path Stability. *Proceedings of the 13th ACM Conference on Computer and Communications Security (CCS)*, pages 298–310, November 2006. Alexandria, VA. (acceptance rate=14.7%)

Patrick Traynor, William Enck, Patrick McDaniel, and Thomas La Porta. Mitigating Attacks on Open Functionality in SMS-Capable Cellular Networks. *Proceedings of the Twelfth Annual International Conference on Mobile Computing and Networking (MobiCom)*, pages 182–193, September 2006. Los Angeles, CA. (acceptance rate=11.7%)

Patrick Traynor, Michael Chien, Scott Weaver, Boniface Hicks, and Patrick McDaniel. Non-Invasive Methods for Host Certification. *Proceedings of the Second IEEE Communications Society/CreateNet International Conference on Security and Privacy in Communication Networks (SecureComm)*, August 2006. Baltimore, MD. (acceptance rate=25.4%)

Sophie Qiu, Patrick McDaniel, Fabian Monrose, and Avi Rubin. Characterizing Address Use Structure and Stability of Origin Advertisement in Interdomain Routing. *11th IEEE Symposium on Computers and*

Communications, pages 489-496, June 2006. Pula-Cagliari, Sardinia, Italy. (acceptance rate=49.4%)

Patrick McDaniel, Shubho Sen, Oliver Spatscheck, Jacobus Van der Merwe, William Aiello, and Charles Kalmanek. Enterprise Security: A Community of Interest Based Approach. *Proceedings of Network and Distributed Systems Security 2006 (NDSS)*, February 2006. San Diego, CA. (acceptance rate=13.6%)

Kevin Butler and Patrick McDaniel. Understanding Mutable Internet Pathogens, or How I Learned to Stop Worrying and Love Parasitic Behavior. *Proceedings of 1st International Conference on Information Systems Security (ICISS)*, Springer-Verlag Lecture Notes in Computer Science, volume 3803, pages 36-48, December 2005. Kolkata, India. *Invited Paper*.

Wesam Lootah, William Enck, and Patrick McDaniel. TARP: Ticket-Based Address Resolution Protocol. *21st Annual Computer Security Applications Conference (ACSAC)*, pages 95-103, December 2005. Tuscon, AZ. (acceptance rate=19.2%)

William Enck, Patrick Traynor, Patrick McDaniel, and Thomas La Porta. Exploiting Open Functionality in SMS-Capable Cellular Networks. *Proceedings of the 12th ACM Conference on Computer and Communications Security (CCS)*, pages 393-404, November 2005. Alexandria, VA. (acceptance rate=15.0%)

Matthew Pirretti, Sencun Zhu, Vijaykrishnan Narayanan, Patrick McDaniel, Mahmut Kandemir, and Richard Brooks. The Sleep Deprivation Attack in Sensor Networks: Analysis and Methods of Defense. *Proceedings of the Innovations and Commercial Applications of Distributed Sensor Networks Symposia*, October 2005. Bethesda, Maryland. (**best paper**). (acceptance rate=27.2%)

Louis Kruger, Somesh Jha, and Patrick McDaniel. Privacy Preserving Clustering. *10th European Symposium on Research in Computer Security (ESORICS '05)*, September 2005. Milan, Italy. (acceptance rate=16.4%)

Heesook Choi, William Enck, Jaesheung Shin, Patrick McDaniel, and Thomas La Porta. Secure Reporting of Traffic Forwarding Activity in Mobile Ad Hoc Networks. *MobiQuitous 2005*, July 2005. San Diego, CA. (acceptance rate=35%)

Simon Byers, Lorrie Cranor, Eric Cronin, Dave Kormann, and Patrick McDaniel. Exposing Digital Content Piracy: Approaches, Issues and Experiences. *Thirty-Eighth Conference on Signals, Systems, and Computers*, pages 45-50, Nov 2004. Monterey, CA. *Invited paper*.

William Aiello, John Ioannidis, and Patrick McDaniel. Origin Authentication in Interdomain Routing. *Proceedings of 10th ACM Conference on Computer and Communications Security (CCS)*, ACM, pages 165-178, October 2003. Washington, DC. (acceptance rate=13.8%)

Eric Cronin, Sugih Jamin, Tal Malkin, and Patrick McDaniel. On the Performance, Feasibility, and Use of Forward Secure Signatures. *Proceedings of 10th ACM Conference on Computer and Communications Security (CCS)*, ACM, pages 131-144, October 2003. Washington, DC. (acceptance rate=13.8%)

Patrick McDaniel. On Context in Authorization Policy. *8th ACM Symposium on Access Control Models and Technologies (SACMAT)*, ACM, pages 80-89, June 2003. Como, Italy. (acceptance rate=37.0%)

Geoff Goodell, William Aiello, Tim Griffin, John Ioannidis, Patrick McDaniel, and Avi Rubin. Working Around BGP: An Incremental Approach to Improving Security and Accuracy of Interdomain Routing. *Proceedings of Network and Distributed Systems Security 2003 (NDSS)*, Internet Society, pages 75-85, February 2003. San Diego, CA. (acceptance rate=20.5%)

Patrick McDaniel and Atul Prakash. Methods and Limitations of Security Policy Reconciliation. *2002 IEEE Symposium on Security and Privacy*, IEEE Computer Society Press, pages 73-87, May 2002. Oakland, CA. (acceptance rate=17.8%)

Patrick McDaniel, Atul Prakash, Jim Irrer, Sharad Mittal, and Thai-Chuin Thuang. Flexibly Constructing

Secure Groups in Antigone 2.0. *Proceedings of DARPA Information Survivability Conference and Exposition II*, IEEE Computer Society Press, pages 55-67, June 2001. Los Angeles, CA.

Hugh Harney, Andrea Colegrove, and Patrick McDaniel. Principles of Policy in Secure Groups. *Proceedings of Network and Distributed Systems Security 2001 (NDSS)*, Internet Society, pages 125-135, February 2001. San Diego, CA. (acceptance rate=24.2%)

Patrick McDaniel and Sugih Jamin. Windowed Certificate Revocation. *Proceedings of IEEE INFOCOM 2000*, IEEE, pages 1406-1414, March 2000. Tel Aviv, Israel. (acceptance rate=26%)

Patrick McDaniel and Avi Rubin. A Response to ‘Can We Eliminate Certificate Revocation Lists?’. *Proceedings of Financial Cryptography 2000*, International Financial Cryptography Association (IFCA), February 2000. Anguilla, British West Indies. (acceptance rate=26.1%)

Andrwe Adamson, C.J. Antonelli, Kevin Coffman, Patrick McDaniel, and Jim Rees. Secure Distributed Virtual Conferencing. *Proceedings of Communications and Multimedia Security (CMS '99)*, pages 176-190, September 1999. Katholieke Universiteit, Leuven, Belgium. (acceptance rate=70%)

Patrick McDaniel, Atul Prakash, and Peter Honeyman. Antigone: A Flexible Framework for Secure Group Communication. *Proceedings of the 8th USENIX Security Symposium*, pages 99-114, August 1999. Washington, DC. (acceptance rate=26.8%)

Workshop Publications

Patrick McDaniel, Kevin Butler, Stephen McLaughlin, Radu Sion, Erez Zadok, and Marianne Winslett. Towards a Secure and Efficient System for End-to-End Provenance. *In the The 2nd USENIX Workshop on the Theory and Practice of Provenance*, February 2010. San Jose, CA.

Thomas La Porta, Patick McDaniel, Karl Rauscher, and Jun Shu. The Impact of Supply Chain on Information and Communications Technology Security. *In the 1st Workshop on Workshop on Telecommunications Infrastructure Protection and Security*, December 2009. Honolulu, Hawaii.

Stephen McLaughlin, Dmitry Podkuiko, and Patrick McDaniel. Energy Theft in the Advanced Metering Infrastructure. *In the 4th International Workshop on Critical Information Infrastructure Security*, September 2009. Bonn, Germany.

Matt Blaze and Patrick McDaniel. Below the Salt: The Dangers of Unfulfilled Physical Media Assumptions. *In Proceedings of Seventeenth International Workshop on Security Protocols*, April 2009. Cambridge, England.

Kevin Butler, William Enck, Harri Hursti, Stephen McLaughlin, Patrick Traynor, and Patrick McDaniel. Systemic Issues in the Hart InterCivic and Premier Voting Systems: Reflections Following Project EVEREST. *In Proceedings of the 3rd USENIX/ACCURATE Electronic Voting Technology Workshop (EVT '08)*, July 2008.

Kevin Butler, Stephen McLaughlin, and Patrick McDaniel. Non-Volatile Memory and Disks: Avenues for Policy Architectures. *Proceedings of the 1st ACM Computer Security Architectures Workshop*, November 2007. Alexandria, VA. (acceptance rate=30%)

William Enck, Sandra Rueda, Yogesh Sreenivasan, Joshua Schiffman, Luke St. Clair, Trent Jaeger, and Patrick McDaniel. Protecting Users from ‘‘Themselves’’. *Proceedings of the 1st ACM Computer Security Architectures Workshop*, November 2007. Alexandria, VA. (acceptance rate=30%)

Boniface Hicks, Dave King, and Patrick McDaniel. Jifclipse: Development Tools for Security-Typed Applications. *Proceedings of the 2nd ACM SIGPLAN Workshop on Programming Languages and Analysis for Security (PLAS '07)*, ACM Press, June 2007. San Diego, CA. (acceptance rate=39%)

Boniface Hicks, Sandra Rueda, Trent Jaeger, and Patrick McDaniel. Integration of SELinux and Security-

typed Languages. *Proceedings of the 2007 Security-Enhanced Linux Workshop*, March 2007. Baltimore, MD. (acceptance rate=75%)

Sophie Qiu, Fabian Monrose, Andreas Terzis, and Patrick McDaniel. Efficient Techniques for Detecting False Origin Advertisements in Inter-domain Routing. *Proceedings of The Second Workshop on Secure Network Protocols (NPSec)*, November 2006. Santa Barbara. (acceptance rate=40%)

Shiva Chaitanya, Kevin Butler, Patrick McDaniel, and Anand Sivasubramaniam. Design, Implementation and Evaluation of Security in iSCSI-based Network Storage Systems. *Proceedings of 2nd International Workshop on Storage Security and Survivability (StorageSS 2006)*, October 2006. Alexandria, Virginia. (acceptance rate=68.7%)

Trent Jaeger, Patrick McDaniel, Luke St. Clair, Ramon Caceres, and Reiner Sailer. Shame on Trust in Distributed Systems. *Proceedings of the First Workshop on Hot Topics in Security (HotSec '06)*, July 2006. Vancouver, B.C., Canada. (acceptance rate=19.6%)

Kevin Butler, Patrick McDaniel, and Sophie Qiu. BGPRV: A Library for Fast and Efficient Routing Data Manipulation. *Proceedings of DETER Community Workshop*, June 2006. Arlington, VA.

Kevin Butler and Patrick McDaniel. Testing Large Scale BGP Security in Replayable Network Environments. *Proceedings of DETER Community Workshop*, June 2006. Arlington, VA.

Boniface Hicks, Dave King, Patrick McDaniel, and Michael Hicks. Trusted Declassification: High-level Policy for a Security-Typed Language. *Proceedings of ACM SIGPLAN Workshop on Programming Languages and Analysis for Security*, pages 65-74, June 2006. Ottawa, Canada. (acceptance rate=58.8%)

Ali Al-Lawati, Dongwon Lee, and Patrick McDaniel. Blocking in Private Information Matching. *Proceedings of Second International ACM SIGMOD Workshop on Information Quality in Information Systems*, July 2005. Baltimore, MD. (acceptance rate=42.3%)

William Aiello, Charles Kalmanek, Patrick McDaniel, Shubho Sen, Oliver Spatscheck, and Jacobus Van der Merwe. Analysis of Communities Of Interest in Data Networks. *Passive and Active Measurement Workshop 2005*, March 2005. Boston, MA. (acceptance rate=28.5%)

Simon Byers, Lorrie Cranor, David Kormann, and Patrick McDaniel. Searching for Privacy: Design and Implementation of a P3P-Enabled Search Engine. *Proceedings of 2004 Workshop on Privacy Enhancing Technologies (PETS)*, May 2004. Toronto, Canada. (acceptance rate=28.7%)

Hao Wang, Somesh Jha, Patrick McDaniel, and Miron Livny. Security Policy Reconciliation in Distributed Computing Environments. *Proceedings of 5th International Workshop on Policies for Distributed Systems and Networks (Policy 2004)*, IEEE Computer Society Press, pages 137-146, June 2004. Yorktown Heights, NY. (acceptance rate=20.6%)

Simon Byers, Lorrie Cranor, Eric Cronin, Dave Kormann, and Patrick McDaniel. Analysis of Security Vulnerabilities in the Movie Production and Distribution Process. *Proceedings of 2003 ACM Workshop on Digital Rights Management*, ACM, October 2003. Washington, DC, also appeared in Telecommunications Policy Research Conference – September 2003. (acceptance rate=40.0%)

Other Publications

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. Public Report, Ohio Secretary of State 2007.

Patrick McDaniel, Policy Evolution: Autonomic Environmental Security. Software Engineering Research

Center Showcase, USA, December 2004.

Hugh Harney, Uri Meth, Andrea Colegrove, Angela Schuett, Patrick McDaniel, Gavin Kenny, and Haitham Cruickshank, and Sunil Iyengar, GSAKMP (*Draft*). Internet Research Task Force, August 2003.

Patrick McDaniel and Atul Prakash. A Flexible Architecture for Security Policy Enforcement. *Proceedings of DARPA Information Survivability Conference and Exposition III, Research Summaries*, pages 234-239, April 2003.

Jim Irrer, Atul Prakash, and Patrick McDaniel. Antigone: Policy-Based Secure Group Communications Systems and AMirD: Antigone-Based Secure File Mirroring System. *Proceedings of DARPA Information Survivability Conference and Exposition III, Demo Summaries*, pages 44-46, April 2003.

Patrick McDaniel and Sugih Jamin, Windowed Key Revocation in Public Key Infrastructures. *NASA Tech Briefs*, pages 55, August, 2002.

Patrick McDaniel and Atul Prakash, Antigone Secure Group Communication System. *NASA Tech Briefs*, 2001.

Patrick McDaniel, *Policy Management in Secure Group Communication*. PhD Thesis, *University of Michigan, Ann Arbor, MI*, August 2001.

Patrick McDaniel, Hugh Harney, Andrea Colegrove, Atul Prakash, and P. Dinsmore, Multicast Security Policy Requirements and Building Blocks (*Draft*). Internet Research Task Force, Secure Multicast Research Group (SMuG), November 2000.

Tom Hardjono, Hugh Harney, Patrick McDaniel, Andrea Colegrove, and Peter Dinsmore, Group Security Policy Token (*Draft*). Internet Research Task Force, Secure Multicast Research Group (SMuG), November 2001.

Patrick McDaniel, Hugh Harney, Peter Dinsmore, and Atul Prakash, Multicast Security Policy (*Draft*). Internet Research Task Force, Secure Multicast Research Group (SMuG), June 2000.

Patrick McDaniel, 8th USENIX Security Symposium Conference Summaries, Potpourri Session. *USENIX Login Magazine*, pages 9-12, November, 1999.

Patrick McDaniel, *The Analysis of D_i , a Detailed Design Metric on Large Scale Software*. Masters Thesis, *Ball State University, Muncie, IN*, June 1991.

Technical Reports

Joshua Schiffman, Thomas Moyer, Christopher Shal, Trent Jaeger, and Patrick McDaniel, Justifying Integrity Using a Virtual Machine Verifier. Technical Report NAS-TR-0119-2009, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, August 2009.

Machigar Ongtang, Stephen McLaughlin, William Enck, and Patrick McDaniel, Semantically Rich Application-Centric Security in Android. Technical Report NAS-TR-0116-2009, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, June 2009.

William Enck, Machigar Ongtang, and Patrick McDaniel, On Lightweight Mobile Phone App Certification. Technical Report NAS-TR-0113-2009, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, April 2009.

Patrick Traynor, Michael Lin, Machigar Ongtang, Vikhyath Rao, Thomas La Porta, and Patrick McDaniel, On Cellular Botnets: Measuring the Impact of Malicious Devices on the Network Core. Technical Report NAS-TR-0110-2009, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, March 2009.

Boniface Hicks, Sandra Rueda, Yogesh Sreenivasan, Guruprasad Jakka, Dave King, Trent Jaeger, and Patrick McDaniel, An Architecture for Enforcing End-to-End Security Over Web Applications. Technical Report NAS-TR-0104-2009, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, January 2009.

Joshua Schiffman, Thomas Moyer, Christopher Shal, Trent Jaeger, and Patrick McDaniel, No Node Is an Island: Shamon Integrity Monitoring Approach. Technical Report NAS-TR-0103-2009, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, February 2009.

Kevin Butler, Stephen McLaughlin, Thomas Moyer, Patrick McDaniel, and Trent Jaeger, SwitchBlade: Policy-Driven Disk Segmentation. Technical Report NAS-TR-0098-2008, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, November 2008.

Thomas Moyer, Kevin Butler, Joshua Schiffman, Patrick McDaniel, and Trent Jaeger, Scalable Asynchronous Web Content Attestation. Technical Report NAS-TR-0095-2008, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, September 2008.

Boniface Hicks, Sandra Rueda, Luke St. Clair, Trent Jaeger, and Patrick McDaniel, A Logical Specification and Analysis for SELinux MLS Policy. Technical Report NAS-TR-0091-2008, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, July 2008.

Kevin Butler, Stephen McLaughlin, and Patrick McDaniel, Rootkit-Resistant Disks. Technical Report NAS-TR-0089-2008, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, April 2008.

Patrick Traynor, Joshua Schiffman, Thomas La Porta, Patrick McDaniel, Abhrajit Ghosh, and Farooq Anjum, Constructing Secure Localization Systems with Adjustable Granularity. Technical Report NAS-TR-0084-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, December 2007.

Stephen McLaughlin, Kevin Butler, William Enck, and Patrick McDaniel, Genbd - A Generic Block Device. Technical Report NAS-TR-0082-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, November 2007.

Kevin Butler, Stephen McLaughlin, and Patrick McDaniel, Non-Volatile Memory and Disks: Avenues for Policy Architectures. Technical Report NAS-TR-0074-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, June 2007.

William Enck, Sandra Rueda, Joshua Schiffman, Yogesh Sreenivasan, Luke St. Clair, Trent Jaeger, and Patrick McDaniel, Protecting Users From “Themselves”. Technical Report NAS-TR-0073-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, June 2007.

Dhananjay Bapat, Kevin Butler, and Patrick McDaniel, Towards Automated Privilege Separation. Technical Report NAS-TR-0071-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, May 2007.

Patrick Traynor, Kevin Butler, William Enck, and Patrick McDaniel, Realizing Massive-Scale Conditional Access Systems Through Attribute-Based Cryptosystems. Technical Report NAS-TR-0070-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State Uni-

versity, University Park, PA, USA, May 2007.

Luke St. Clair, Joshua Schiffman, Trent Jaeger, and Patrick McDaniel, Establishing and Sustaining System Integrity via Root of Trust Installation. Technical Report NAS-TR-0067-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, April 2007.

Boniface Hicks, Dave King, and Patrick McDaniel, Jifclipse: Development Tools for Security-Typed Language. Technical Report NAS-TR-0065-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, April 2007.

William Enck, Patrick McDaniel, and Trent Jaeger, Protecting User Files by Reducing Application Access. Technical Report NAS-TR-0063-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, February 2007.

Boniface Hicks, Sandra Rueda, Trent Jaeger, and Patrick McDaniel, A Logical Specification and Analysis for SELinux MLS Policy. Technical Report NAS-TR-0058-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, January 2007.

Boniface Hicks, Sandra Rueda, Trent Jaeger, and Patrick McDaniel, From Trusted to Secure: Building and Executing Applications that Enforce System Security. Technical Report NAS-TR-0061-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, January 2007.

Lisa Johansen, Kevin Butler, William Enck, Patrick Traynor, and Patrick McDaniel, Grains of SANs: Building Storage Area Networks from Memory Spots. Technical Report NAS-TR-0060-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, January 2007.

Patrick Traynor, Vikhyath Rao, Trent Jaeger, Patrick McDaniel, and Thomas La Porta, From Mobile Phones to Responsible Devices. Technical Report NAS-TR-0059-2007, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, January 2007.

Anusha Sriraman, Kevin Butler, Patrick McDaniel, and Padma Raghavan, Analysis of the IPv4 Address Space Delegation Structure. Technical Report NAS-TR-0057-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, December 2006.

Luke St. Clair, Joshua Schiffman, Trent Jaeger, and Patrick McDaniel, Sum of the Parts: Composing Trust from Validation Primitives. Technical Report NAS-TR-0056-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, November 2006.

Sophie Qiu, Patrick McDaniel, and Fabian Monrose, Toward Valley-Free Inter-domain Routing. Technical Report NAS-TR-0054-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, October 2006.

Boniface Hicks, Sandra Rueda, Trent Jaeger, and Patrick McDaniel, Integrating SELinux with Security-typed Languages. Technical Report NAS-TR-0052-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, October 2006.

Patrick Traynor, William Enck, Patrick McDaniel, and Thomas La Porta, Mitigating Attacks on Open Functionality in SMS-Capable Networks. Technical Report NAS-TR-0051-2006, Network and Security Research

Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, October 2006.

Patrick Traynor, Kevin Butler, William Enck, Kevin Borders, and Patrick McDaniel, *malnets: Large-Scale Malicious Networks via Compromised Wireless Access Points*. Technical Report NAS-TR-0048-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, September 2006.

Boniface Hicks, Sandra Rueda, Trent Jaeger, and Patrick McDaniel, Breaking Down the Walls of Mutual Distrust: Security-typed Email Using Labeled IPsec. Technical Report NAS-TR-0049-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, September 2006.

Sunam Ryu, Kevin Butler, Patrick Traynor, and Patrick McDaniel, Leveraging Identity-based Cryptography for Node ID Assignment in Structured P2P Systems. Technical Report NAS-TR-0043-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, August 2006.

Wesam Lootah, William Enck, and Patrick McDaniel, TARP: Ticket-based Address Resolution Protocol (*extended version*). Technical Report NAS-TR-0046-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, August 2006. (extends lem05)

Patrick McDaniel, Understanding Equivalence in High-Level and Information Flow Policy. Technical Report NAS-TR-0042-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, July 2006.

Trent Jaeger, Patrick McDaniel, Luke St. Clair, Ramon Caceres, and Reiner Sailer, Shame on Trust in Distributed Systems. Technical Report RC239664 (W0605-129), IBM Research Division, Yorktown Heights, NY, May 2006.

Lisa Johansen, Kevin Butler, Michael Rowell, and Patrick McDaniel, Email Communities of Interest. Technical Report NAS-TR-0040-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, May 2006.

Boniface Hicks, Kiyan Ahmadizadeh, and Patrick McDaniel, From Languages to Systems: Understanding Practical Application Development in Security-typed Languages. Technical Report NAS-TR-0035-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, April 2006.

Boniface Hicks, Dave King, Patrick McDaniel, and Michael Hicks, Trusted Declassification: High-level policy for a security-typed language. Technical Report NAS-TR-0033-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, March 2006.

Matthew Pirretti, Patrick Traynor, Patrick McDaniel, and Brent Waters, Secure Attribute-Based Systems. Technical Report NAS-TR-0028-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, February 2006.

William Enck, Kevin Butler, Thomas Richardson, and Patrick McDaniel, Securing Non-Volatile Main Memory. Technical Report NAS-TR-0029-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, February 2006.

Luke St. Clair, Lisa Johansen, William Enck, Matthew Pirretti, Patrick Traynor, Patrick McDaniel, and Trent Jaeger, Password Exhaustion: Predicting the End of Password Usefulness. Technical Report NAS-TR-0030-2006, Network and Security Research Center, Department of Computer Science and Engineering,

Pennsylvania State University, University Park, PA, USA, February 2006.

Heesook Choi, Patrick McDaniel, and Thomas La Porta, Privacy Preserving Communication in MANETs. Technical Report NAS-TR-0031-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, December 2005.

Matthew Pirretti, Vijaykrishnan Narayanan, Patrick McDaniel, and Bharat Madan, SLAT: Secure Localization with Attack Tolerance. Technical Report NAS-TR-0024-2005, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, August 2005.

Patrick Traynor, Michael Chien, Scott Weaver, Boniface Hicks, and Patrick McDaniel, Non-Invasive Methods for Host Certification. Technical Report NAS-TR-0025-2005, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, September 2005.

Sophie Qiu, Patrick McDaniel, Fabian Monrose, and Avi Rubin, Characterizing Address Use Structure and Stability of Origin Advertisement in Interdomain Routing. Technical Report NAS-TR-0018-2005, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, July 2005.

Hosam Rowaihy, William Enck, Patrick McDaniel, and Thomas La Porta, Limiting Sybil Attacks in Structured Peer-to-Peer Networks. Technical Report NAS-TR-0017-2005, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, July 2005.

Boniface Hicks, Patrick McDaniel, and Ali Hurson, Information Flow Control in Database Security: A Case Study for Secure Programming with Jif. Technical Report NAS-TR-0011-2005, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, April 2005.

Wesam Lootah, William Enck, and Patrick McDaniel, TARP: Ticket-Based Address Resolution Protocol. Technical Report NAS-TR-0010-2005, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, June 2005.

Patrick Traynor, Kevin Butler, William Enck, Jennifer Plasterr, Scott Weaver, John van Bramer, and Patrick McDaniel, Privacy-Preserving Web-Based Email. Technical Report NAS-TR-0009-2005, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, June 2005.

William Enck, Patrick Traynor, Patrick McDaniel, and Thomas La Porta, Exploiting Open Functionality in SMS-Capable Cellular Networks. Technical Report NAS-TR-0007-2005, Network and Security Center, Department of Computer Science, Pennsylvania State University, May 2005.

Boniface Hicks, Dave King, and Patrick McDaniel, Declassification with Cryptographic Functions in a Security-Typed Language. Technical Report NAS-TR-0004-2005, Network and Security Center, Department of Computer Science, Pennsylvania State University, January 2005. (*updated May 2005*).

William Aiello, Kevin Butler, and Patrick McDaniel, Path Authentication in Interdomain Routing. Technical Report TR NAS-TR-0002-2004, Network and Security Center, Department of Computer Science and Engineering, Penn State University, November 2004.

Dan Pei, William Aiello, Anna Gilbert, and Patrick McDaniel, Origin Disturbances in BGP. Technical Report TD-62TJF8, AT&T Labs - Research, Florham Park, NJ, July 2004.

Kevin Butler, Toni Farley, Patrick McDaniel, and J. Rexford, A Survey of BGP Security Issues and Solutions. Technical Report TD-5UGJ33, AT&T Labs - Research, Florham Park, NJ, February 2004. (*revised*)

June 2004).

Patrick McDaniel and Atul Prakash, Securing Distributed Applications Using a Policy-based Approach. Technical Report TD-5UDKVD, AT&T Labs - Research, Florham Park, NJ, December 2003.

William Aiello, Johyn Ioannidis, and Patrick McDaniel, Origin Authentication in Interdomain Routing. Technical Report TD-5QHG2G, AT&T Labs - Research, Florham Park, NJ, August 2003.

Eric Cronin, Sugih Jamin, Tal Malkin, and Patrick McDaniel, On the Performance, Feasibility, and Use of Forward Secure Signatures. Technical Report TD-5QHGBK, AT&T Labs - Research, Florham Park, NJ, August 2003.

Simon Byers, Lorrie Cranor, Eric Cronin, Dave Kormann, and Patrick McDaniel, Analysis of Security Vulnerabilities in the Movie Production and Distribution Process. Technical Report TD-5N6SJ4, AT&T Labs - Research, Florham Park, NJ, August 2003.

Patrick McDaniel, On Context in Authorization Policy. Technical Report TD-5JCJCK, AT&T Labs - Research, Florham Park, NJ, January 2003.

Patrick McDaniel and Atul Prakash, An Architecture for Security Policy Enforcement. Technical Report TD-5C6JFV, AT&T Labs - Research, Florham Park, NJ, July 2002.

Patrick McDaniel and Atul Prakash, Methods and Limitations of Security Policy Reconciliation. Technical Report TD57-PAW, AT&T Labs - Research, Florham Park, NJ, February 2002.

Patrick McDaniel and Atul Prakash, Ismene: Provisioning and Policy Reconciliation in Secure Group Communication. Technical Report CSE-TR-438-00, Electrical Engineering and Computer Science, University of Michigan, December 2000.

Patrick McDaniel and Atul Prakash, Lightweight Failure Detection in Secure Group Communication. Technical Report CSE-TR-428-00, Electrical Engineering and Computer Science, University of Michigan, June 2000.

Patrick McDaniel and Atul Prakash, Antigone: Implementing Policy in Secure Group Communication. Technical Report CSE-TR-426-00, Electrical Engineering and Computer Science, University of Michigan, May 2000.

Patrick McDaniel and Sugih Jamin, Windowed Certificate Revocation. Technical Report CSE-TR-413-99, Electrical Engineering and Computer Science, University of Michigan, November 1999.

Patrick McDaniel, Atul Prakash, and Peter Honeyman, Antigone: A Flexible Framework for Secure Group Communication. Technical Report 99-2, Center for Information Technology Integration, September 1999.

Patrick McDaniel and Avi Rubin, A Response to "Can We Eliminate Certificate Revocation Lists?". Technical Report 99.8.1, AT&T Labs - Research, Florham Park, NJ, August 1999.

Andrew Adamson, C.J. Antonelli, Kevin Coffman, Patrick McDaniel, and Jim Rees, Secure Distributed Virtual Conferencing: Multicast or Bust. Technical Report 99-1, Center for Information Technology Integration, January 1999.

Patrick McDaniel and Sugih Jamin, Windowed Key Revocation in Public Key Infrastructures. Technical Report CSE-TR-376-98, Electrical Engineering and Computer Science, University of Michigan 1998.

Patrick McDaniel and Sugih Jamin, A Scalable Key Distribution Hierarchy. Technical Report CSE-TR-366-98, Electrical Engineering and Computer Science, University of Michigan 1998.

Patrick McDaniel, Peter Honeyman, and Atul Prakash, Lightweight Secure Group Communication. Technical Report 98-2, Center for Information Technology Integration, University of Michigan, April 1998.

Wayne Zage, Delores Zage, Patrick McDaniel, and Irshad Khan, Evaluating Design Metrics on Large-Scale

Software. Technical Report SERC-TR-106-P, Software Engineering Resource Center, Purdue University, September 1991.

Invited Talks

The Impact of Supply Chain on Information and Communications Technology Security. *The 1st Workshop on Telecommunications Infrastructure Protection and Security*, Honolulu, HI, December, 2009.

Energy Theft in the Advanced Metering Infrastructure. *Networking and Security Research Center, Computer Science and Engineering, Pennsylvania State University*, State College, PA, October, 2009.

Secure Provenance in High-End Computing Systems. *NSF HECURA FSIO PI Meeting*, Arlington, VA, August, 2009.

Missing Glue: Architectural Support for Security Annotations. *National Science Foundation Security Driven Architecture Workshop*, Arlington, VA, July, 2009.

Scalable Integrity-Justified Content Provenance. *NSERC ISSNet Workshop*, Ottawa, Canada, June, 2009.

Utility Grid Automation and Risk Management. *Clean Technology Conference and Expo*, Houston, Texas, May, 2009.

Scalable Integrity-Justified Content Provenance. *Center for Applied Cybersecurity Research, Indiana University*, Bloomington, IN, April, 2009.

Scalable Integrity-Justified Content Provenance. *Department of Electrical Engineering and Computer Science, University of Michigan*, Ann Arbor, MI, April, 2009.

What is Security. *Dickenson Law School, Penn State University*, State College, PA, April, 2009.

Scalable Integrity-Justified Content Provenance. *Department of Computer Science and Engineering, Notre Dame University*, South Bend, IN, April, 2009.

Electronic Voting: The Good, the Bad, and the Reality. *Software Engineering Research Center Showcase*, Muncie, IN, November, 2008.

Ohio Voting Systems Integrity: The EVEREST Report. *Networking and Security Research Center, Computer Science and Engineering, Pennsylvania State University*, State College, PA, October, 2008.

Data Provenance: Challenges and Technology. *Cyber Physical System Security Forum, Cyber Security Research and Development Review*, Washington DC, October, 2008.

System-Wide Information Flow Enforcement. *NICIAR PI Meeting*, Washington DC, September, 2008.

Presto: Configuration Management at Massive Scale. *NSF Workshop on Assurable and Usable Security Configuration*, George Mason University, Fairfax, VA, August, 2008.

Asymmetry in Performance and Security Requirements for I/O in High-end Computing. *NSF HECURA FSIO PI Meeting*, Arlington, VA, August, 2008.

Authentication and Web Security. *Security and Privacy in IT-EMTM 604 Guest Lecture, University of Pennsylvania*, Philadelphia, PA, May, 2008.

SPAM and SPAM Mitigation. *Computer Science Department, St. Vincent's University*, Latrobe, PA, April, 2008.

Phones, The Press, Research and Grad School .. or how to make trouble and have fun doing it. *Computer Science Department, St. Vincent's University*, Latrobe, PA, April, 2008.

Applications and Services in Telecommunications Networks. *NSF Wireless Security Workshop, Georgia Institute of Technology*, Atlanta, GA, March, 2008.

Vulnerabilities and Opportunities in SMS-Capable Cellular Networks. *Computer Science Department, Carleton University*, Ottawa, Canada, March, 2008.

Ohio Voting Systems Integrity: The EVEREST Report. *Case-Western Reserve University*, Cleveland, OH, February, 2008.

Ohio Voting Systems Integrity: The EVEREST Report. *Ohio State University*, Columbus, OH, February, 2008.

Ohio Voting Systems Integrity: The EVEREST Report. *Ohio University*, Athens, OH, February, 2008.

Ohio Voting Systems Integrity: The EVEREST Report. *Miami University, Ohio*, Oxford, OH, February, 2008.

Ohio Voting Systems Integrity: The EVEREST Report. *Bowling Green State University*, Bowling Green, OH, February, 2008.

Vulnerabilities and Opportunities in SMS-Capable Cellular Networks. *Computer Science Department, Indiana University of Pennsylvania*, Indiana, PA, September, 2007.

Asymmetry in Performance and Security Requirements for I/O in High-End Computing. *HECIWG FSIO 2007 Workshop*, NSF, Arlington, VA, August, 2007.

Toward Valley-Free Interdomain Routing. *IEEE International Conference on Communications (ICC) 2007*, Glasgow, Scotland, June, 2007.

Extending Developer Tools for Security-Typed Languages. *Software Engineering Research Center Fall Showcase*, West Lafayette, IN, June, 2007.

Open Functionality in SMS/Cellular Networks. *Computer and Information Science, University of Oregon*, Eugene, OR, May, 2007.

Open Functionality in SMS/Cellular Networks. *Computer Security Symposium, St. Cloud State University*, St. Cloud, MN, May, 2007.

Authentication and Web Security. *Security and Privacy in IT-EMTM 604 Guest Lecture, University of Pennsylvania*, Philadelphia, PA, April, 2007.

Grains of SANs: Building Storage Area Networks from Memory Spots. *CISCO Remote Faculty Seminar*, University Park, PA, April, 2007.

Grains of SANs: Building Storage Area Networks from Memory Spots. *Association for Computing Machinery, Penn State Student Chapter*, University Park, PA, February, 2007.

Grains of SANs: Building Storage Area Networks from Memory Spots. *2007 IEEE Security and Privacy Crystal Ball Workshop*, Hawthorne, NY, January, 2007.

Keynote Address—Password Exhaustion: Predicting the End of Password Usefulness. *2nd International Conference on Information Systems Security*, Kolkata, India, December, 2006.

Privacy Preserving Web-based Email. *2nd International Conference on Information Systems Security*, Kolkata, India, December, 2006.

Keynote Address—Physical and Digital Convergence: Where the Internet is the Enemy. *Eighth International Conference on Information and Communications Security (ICICS '06)*, Raleigh, NC, December, 2006.

Extending Developer Tools for Security-Typed Languages. *Software Engineering Research Center Fall Showcase*, Muncie, IN, November, 2006.

Open Functionality in SMS/Cellular Networks. *Johns Hopkins University, Computer Science Department*, Baltimore, MD, September, 2006.

Open Functionality in SMS/Cellular Networks. *George Mason University, Computer Science Department, Fairfax, VA, September, 2006.*

Exploiting Open Functionality in SMS-Capable Cellular Networks. *Motorola Security Symposium, Itasca, IL, September, 2006.*

Iseb: Testing Large Scale BGP Security in Replayable Network Environments. *NSF/DETER Community Workshop, Arlington, VA, June, 2006.*

BGPRV: A Library for Fast and Efficient Routing Data Manipulation. *NSF/DETER Community Workshop, Arlington, VA, June, 2006.*

JifClipse: Extending Developer Tools for Security-Typed Languages. *Software Engineering Research Center Spring Showcase, Schaumburg, IL, June, 2006.*

Trends in Security: Critical Engineering in the Large. *Schlumberger InnovateIT! 2006, Cambridge, MA, May, 2006.*

Information Flow Revisited: Software Engineering to Provable Security. *Network Center of Excellence, Motorola Labs, Schaumburg, IL, May, 2006.*

Authentication and Web Security. *Security and Privacy in IT-EMTM 604 Guest Lecture, University of Pennsylvania, Philadelphia, PA, April, 2006.*

Exploiting Open Functionality in SMS-Capable Cellular Networks. *InfraGard Pittsburgh Chapter General Meeting, Pittsburgh, PA, March, 2006.*

Exploiting Open Functionality in SMS-Capable Cellular Networks. *Distinguished Lecture, Computer Science Department, University of Virginia, Charlottesville, VA, January, 2006.*

Software Engineering Tools for Security-Typed Languages: Using Eclipse to Make Secure Programming Practical. *Software Engineering Research Center Showcase, Muncie, IN, November, 2005.*

Exploiting Open Functionality in SMS-Capable Cellular Networks. *AT&T IP Services Security Council, Middletown, NJ, October, 2005.*

Exploiting Open Functionality in SMS-Capable Cellular Networks. *Computer Science Department, Carnegie Mellon University, Pittsburgh, PA, October, 2005.*

Exploiting Open Functionality in SMS-Capable Cellular Networks. *Computer Science Department, Yale University, New Haven, CT, October, 2005.*

Exploiting Open Functionality in SMS-Capable Cellular Networks. *Computer Science Department, SUNY-Stony Brook, Stony Brook, NY, October, 2005.*

Exploiting Open Functionality in SMS-Capable Cellular Networks. *Networking and Security Research Center, Computer Science and Engineering, Pennsylvania State University, State College, PA, October, 2005.*

Iseb: Trace Driven Modeling of Internet-Scale BGP Attacks and Countermeasures. *2nd Annual DETER/EMIST Workshop, Newport Beach, CA, September, 2005.*

Critical Infrastructure Security through Provably Secure Network Mediation. *2nd Japan/US Workshop on Critical Information Infrastructure Protection (CIIP), Tokyo, Japan, June, 2005.*

Extending Developer Tools for Security-typed Languages. *Software Engineering Research Center Showcase, West Lafayette, IN, June, 2005.*

Origin Authentication in Interdomain Routing. *2005 IEEE Communications Quality & Reliability (CQR) International Workshop, St. Petersburg, FL, April, 2005.*

Analysis of Security Vulnerabilities in the Movie Production and Distribution Process. *Messiah College, Senior Seminar Series*, Grantham, PA, April, 2005.

Origin Authentication in Interdomain Routing. *Intel Research*, Folsom CA, April, 2005.

Key Distribution Strategies For Low-Power Wireless Networks. *Network Center of Excellence, Motorola Labs*, Schaumburg, IL, April, 2005.

Policy Evolution: Autonomic Environmental Security. *Software Engineering Research Center Showcase*, Muncie, IN, December, 2004.

Information Assurance for Enterprise Networks. *BAE Systems, Networking Seminar*, Reston, VA, November, 2004.

Origin Authentication in Interdomain Routing. *Computer Science Department, Purdue University*, West Lafayette, IN, October, 2004.

Origin Authentication in Interdomain Routing. *Electrical Engineering and Computer Science Department, University of Michigan*, Ann Arbor, MI, October, 2004.

Origin Authentication in Interdomain Routing. *Computer Science Department, University of Wisconsin*, Madison, MD, September, 2004.

Analysis of Security Vulnerabilities in the Movie Production and Distribution Process. *Computer Science and Engineering Student Organization*, University Park, PA, September, 2004.

Useless Metaphors? Why Specifying Policy is So Hard. *Workshop on Usable Privacy and Security Software, Center for Discrete Mathematics and Theoretical Computer Science (DIMACS)*, New Brunswick, New Jersey, July, 2004.

Analysis of Security Vulnerabilities in the Movie Production and Distribution Process. *Information Systems Research Seminar, Stern School of Business, New York University*, New York, NY, April, 2004.

Analysis of Security Vulnerabilities in the Movie Production and Distribution Process. *Ball State University*, Muncie, IN, April, 2004. Distinguished Speaker.

Origin Authentication in Interdomain Routing. *Computer Science Department, University of Illinois*, Champaign, IL, March, 2004.

Origin Authentication in Interdomain Routing. *Computer Science and Engineering Department, University of Minnesota*, Minneapolis, MN, March, 2004.

Origin Authentication in Interdomain Routing. *Computer Science Department, Johns Hopkins University*, Baltimore, MD, March, 2004.

Origin Authentication in Interdomain Routing. *Department of Computer Science, University of Massachusetts - Amherst*, Amherst, MA, March, 2004.

Origin Authentication in Interdomain Routing. *Computer Science and Engineering Department, Penn State University*, University Park, PA, March, 2004.

Origin Authentication in Interdomain Routing. *School of Electrical Engineering and Computer Science, Oregon State University*, Corvallis, OR, February, 2004.

Origin Authentication in Interdomain Routing. *Computer Science Department, Northwestern University*, Evanston, IL, February, 2004.

Origin Authentication in Interdomain Routing. *Computer Science Department, SUNY-Stony Brook*, Stony Brook, NY, February, 2004.

Attack Profiling and Simulation in Interdomain Routing. *P2INGS Quarterly Meeting*, Tempe, AZ, February, 2004.

Analysis of Security Vulnerabilities in the Movie Production and Distribution Process. *AT&T Finance Lunch*, Morristown, NJ, January, 2004.

Origin Authentication in Interdomain Routing. *AT&T IP Security Conference*, Middletown, NJ, November, 2003.

Origin Authentication in Interdomain Routing. *10th ACM Conference on Computer and Communications Security (CCS)*, Washington, DC, October, 2003.

Origin Authentication in Interdomain Routing. *Computer Science Department, Stevens Institute of Technology*, Hoboken, NJ, October, 2003.

Origin Authentication in Interdomain Routing. *Computer Science Department, Arizona State University*, Mesa, AZ, September, 2003.

Analysis of Security Vulnerabilities in the Movie Production and Distribution Process. *31st Technology Policy Research Conference (TPRC)*, Arlington, VA, September, 2003.

On Context in Authorization Policy. *8th ACM Symposium on Access Control Models and Technologies*, Como, Italy, June, 2003.

The Antigone Project. *DARPA Principal Investigator Meeting*, San Antonio, TX, January, 2003.

Methods and Limitations of Security Policy Reconciliation. *2002 IEEE Symposium on Security and Privacy*, Oakland, CA, May, 2002.

Policy Management in Distributed Systems. *Cigital*, Washington, DC, April, 2002.

Antigone: Policy Management in Secure Group Communication. *School of Computer Science, Carnegie Mellon University*, Pittsburgh, PA, April, 2001.

Antigone: Policy Management in Secure Group Communication. *Computer Science Department, University of Wisconsin*, Madison, MD, April, 2001.

Antigone: Policy Management in Secure Group Communication. *Computer Science Department, University of Maryland*, College Park, MD, April, 2001.

Antigone: Policy Management in Secure Group Communication. *Computer Science Department, University of North Carolina, Chapel Hill*, Chapel Hill, NC, April, 2001.

Antigone: Policy Management in Secure Group Communication. *Computer Science Department, Johns Hopkins University*, Baltimore, MD, March, 2001.

Antigone: Policy Management in Secure Group Communication. *AT&T Shannon Laboratory*, Florham Park, NJ, February, 2001.

Antigone: Policy Management in Secure Group Communication. *Telcordia Applied Research Laboratory*, Morristown, NJ, February, 2001.

Policy Problem Area 3 - Overview and Requirements. *Internet Engineering Task Force MSEC BOF*, San Diego, CA, December, 2000.

Multicast Security Policy Requirements and Building Blocks. *Quarterly Secure Multicast Research Group Meeting (SMuG)*, San Diego, CA, December, 2000.

Antigone: Implementing Policy in Secure Multiparty Communication. *Systems Design and Implementation (SDI) / Laboratory for Computer Systems (LCS) seminar series, School of Computer Science, Carnegie Mellon University*, Pittsburgh, PA, November, 2000.

Secure Group Communication in Antigone 2.0. *11th Annual IPoCSE Research Symposium*, Ann Arbor, MI, October, 2000.

Antigone Secure Group Communication. *Bi-Annual DARPA Visit, Software System Research Laboratory*, Ann Arbor, MI, September, 2000.

Problem Area 3: Policy. *Quarterly Secure Multicast Research Group Meeting (SMuG)*, Pittsburgh, PA, July, 2000.

Windowed Certificate Revocation. *IEEE INFOCOM 2000*, Tel Aviv, Israel, March, 2000.

A Response to ‘Can We Eliminate Certificate Revocation Lists?’. *Financial Cryptography 2000*, Anguilla, British West Indies, February, 2000.

Multicast Security Policy Definition. *Quarterly Secure Multicast Research Group Meeting (SMuG)*, Washington, DC, November, 1999.

Antigone: A Flexible Framework for Secure Group Communication. *Quarterly Secure Multicast Research Group Meeting (SMuG)*, NAI Labs, Baltimore, MD, September, 1999.

Antigone: A Flexible Framework for Secure Group Communication. *10th Annual IPoCSE Research Symposium*, Ann Arbor, MI, September, 1999.

Antigone: A Flexible Framework for Secure Group Communication. *8th USENIX Security Symposium*, Washington, DC, August, 1999.

Antigone: A Flexible Framework for Secure Group Communication. *IBM Watson Security Seminar*, Westchester County, NY, July, 1999.

Windowed Revocation in Public Key Infrastructures. *Department of Electrical Engineering and Computer Science, University of Michigan*, Ann Arbor, MI, September, 1998.

Scalable Key Distribution Hierarchy. *9th Annual IPoCSE Research Symposium*, Ann Arbor, MI, March, 1998.

JavaLauncher Applet Platform. *NASA, Kennedy Space Center Security Seminar*, Kennedy Space Center, FL, January, 1998.

Secure High Performance Group Communication, Directed Study Defense. *Department of Electrical Engineering and Computer Science, University of Michigan*, Ann Arbor, MI, September, 1997.

Tutorials

Understanding Android’s Security Framework. *ACM Conference on Computer and Communications Security (CCS)*, New York, NY, October, 2008. Joint tutorial with William Enck.

Web Security. *The Thirteenth International World Wide Web Conference (WWW2004)*, New York, NY, May, 2004.

Network and Information Security. *Regional Laboratory for Network Engineering Research and Training Institute, National Science Foundation, Jackson State University*, Jackson, MS, March, 2003.