
PATRICK DREW MCDANIEL

William L. Weiss Professor of Information and Communications Technology
School of Electrical Engineering and Computer Science ◊ Pennsylvania State University
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ACADEMIC AND RESEARCH APPOINTMENTS

William L. Weiss Professor of Information and Communications Technology Computer Science and Engineering, Pennsylvania State University, University Park, PA	2017-present
Director, Institute for Networking and Security Research College of Engineering, Pennsylvania State University, University Park, Pennsylvania	2016-present
Distinguished Professor Computer Science and Engineering, Pennsylvania State University, University Park, PA	2016-2017
Professor Computer Science and Engineering, Pennsylvania State University, University Park, PA	2011-2015
Professor Computer Science and Engineering, Pennsylvania State University, University Park, PA	2011-2015
Associate Professor Computer Science and Engineering, Pennsylvania State University, University Park, PA	2007-2011
Hartz Family Career Development Assistant Professor Computer Science and Engineering, Pennsylvania State University, University Park, PA	2004-2007
Adjunct Professor Stern School of Business, New York University, New York, NY	2003-2009
Senior Research Staff Member AT&T Labs - Research, Florham Park, NJ	2001-2004
Research Assistant University of Michigan, Ann Arbor, MI	1996-2001
Research Intern AT&T Labs - Research, Florham Park, NJ	1999

EDUCATION

University of Michigan, Ann Arbor, MI <ul style="list-style-type: none">• Ph.D., Computer Science and Engineering• Dissertation: <i>Policy Management in Secure Group Communication</i>• Advisor: Dr. Atul Prakash	2001
Ball State University, Muncie, IN <ul style="list-style-type: none">• M.S., Computer Science• Thesis: The Analysis of D_i, a Detailed Design Metric on Large Scale Software	1991
Ohio University, Athens, OH <ul style="list-style-type: none">• B.S., Computer Science	1989

STUDENTS

Past Post-Docs

- *Vaibhav Rastogi*, graduated Northwestern University, joined
- *Robert Walls*, graduated University of Massachusetts, Amherst, joined

Past PhD Students

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- *Wenhui Hu*, Fall 2016
 - *Devin Pohly*, Spring 2016, now **Assistant Professor**, Wheaton College
 - *Damien Octeau*, Summer 2014, now **Software Engineer in Security**, Google
 - *Steve McLaughlin*, Spring 2014, now **Senior Software Engineer**, Samsung Research America
 - *Thomas Moyer*, Summer 2011, now **Technical Staff**, Massachusetts Institute of Technology-Lincoln Labs
 - *William Enck*, Spring 2011, now **Assistant Professor**, North Carolina State University
 - *Kevin Butler*, Summer 2010, now **Associate Professor**, University of Florida
 - *Machigar Ongtang*, Summer 2010, now **Assistant Professor**, Dhurakij Pundit University
 - *Patrick Traynor*, Spring 2008, now **Associate Professor**, University of Florida, co-advisor
 - *Fr. Boniface Hicks*, Fall 2007, now **Assistant Professor**, St. Vincent College

Current PhD Students : *Z. Berkay Celik*, Pennsylvania State University, Spring 2019 ◊ *Nicolas Papernot*, Pennsylvania State University, Spring 2019

Past Masters Students : *Nathan Lagerman*, Pennsylvania State University, Spring 2016 ◊ *Matthew Dering*, Pennsylvania State University, Spring 2014 ◊ *Phil Koshy*, M.S. Pennsylvania State University, Fall 2013 ◊ *Diana Koshy*, M.S. Pennsylvania State University, Fall 2013 ◊ *Steve McLaughlin*, M.S. Pennsylvania State University, Spring 2011 ◊ *Sergei Miadzezhanka*, M.S. Pennsylvania State University, Spring 2011 ◊ *Adam Delozier*, M.S. Pennsylvania State University, Spring 2011 ◊ *Juliet Uhlott*, M.Eng. Pennsylvania State University, Fall 2010 ◊ *Damien Octeau*, M.S. Pennsylvania State University, Spring 2010 ◊ *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 ◊ *Kiyan Ahmadizadeh*, Schreyer Honors College, Pennsylvania State University, Spring 2006

TEACHING

- **CMPS311 - Introduction to Systems Programming**
Fall 2013, Fall 2014, Fall 2015, Fall 2016
- **CMPS443 - Introduction to Computer and Network Security**
Spring 2006, Spring 2009
- **CSE543 - Computer and Network Security**
Fall 2004, Fall 2005, Fall 2008, Fall 2009, Fall 2011, Fall 2014
- **CSE544 - Advanced System Security**
Spring 2005, Spring 2007
- **CSE545 - Advanced Network Security**
Spring 2006, Spring 2008, Spring 2011
- **CSE597g - Principles, Analysis, and Applications of Computer Security**
Fall 2015
- **Security and Privacy of Machine Learning**
Fall 2016
- **Advanced Topics in the Security and Privacy of Machine Learning**
Spring 2017

- **CSE598 - Cell Phone Operating Systems**
Spring 2009
- **CSE598i - Web 2.0 Security**
Spring 2010
- **CSE598d - Topics in Applied Systems Security**
Fall 2010
- **CSE598e - Critical Infrastructure Security**
Fall 2011

INDUSTRIAL EXPERIENCE

Software Developer Applied Innovation, Inc., Columbus, OH	1994-1995
Project Manager Primary Access Corporation, San Diego, CA	1993-1994
Software Developer Primary Access Corporation, San Diego, CA	1991-1993
Software Developer Integrated Technologies, Inc., Muncie, IN	1989

AFFILIATIONS

Association for Computing Machinery (ACM), *Fellow*
The Institute of Electrical and Electronics Engineers (IEEE), *Fellow*
USENIX Advanced Computing Systems Association (USENIX)
American Association for the Advancement of Science (AAAS)

HONORS, AWARDS, AND KEYNOTE ADDRESSES

Best Student Paper, 2017 ACM Symposium on SDN Research (SOSR), with Stefan Achleitner, Thomas La Porta and Trent Jaeger, April 2017

IEEE Technical Committee on Security and Privacy Outstanding Community Service Award, in recognition for leadership of the Technical Committee on Security and Privacy, May 2016

ACM Fellow, for contributions to computer and mobile systems security, December 2015

Science of Security Index of Significant Research in Cyber Security, acknowledging paper 'Toward a Science of Secure Environments', Science of Security Virtual Organization (SOS-VO), August 2015

IEEE Fellow, for contributions to the security of mobile communications, November 2014

Best Artifact Award, 20th International Symposium on the Foundations of Software Engineering (FSE), with advisee Damien Ocateau and collaborator Somesh Jha, November 2012

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, May 2009

Penn State Engineering Society 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, March 2009

Google Security and Product Safety Acknowledgement, in recognition of efforts in improving the security of Google Android cellular phone operating system, 2008

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 the 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 Kiyon Ahmadizadeh, December 2006

Best Paper, Innovations and Commercial Applications of Distributed Sensor Networks Symposia, 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

Keynote Addresses

1. Attacks, Defenses, and Impacts of Machine Learning in Adversarial Settings. 2017 Conference on Security and Privacy in Communication Networks (SecureComm), Niagara Falls, Canada, October, 2017.
2. Tracing the Arc of Smartphone Application Security. 2017 ACM on International Workshop on Security And Privacy Analytics. Scottsdale, AZ, March, 2017.
3. Tracing the Arc of Smartphone Application Security. 12th International Conference on Information Systems Security, Jaipur, India, December, 2016.
4. The 25th International Conference on Computer Communication and Networks (ICCCN 2016), August, 2016, Waikoloa, Hawaii.
5. Learning from Ourselves: Where are we and where can we go in mobile systems security?. Mobile Security Technologies (MOST) 2016 Workshop, IEEE Computer Society Security and Privacy Workshops, San Jose, CA, May, 2016.
6. Eight Years of Mobile Smartphone Security. Center for Secure and Dependable Systems (CSDS) Cybersecurity Symposium, Coeur d'Alene, April, 2016.
7. The Importance of Measurement and Decision Making to a Science of Security, 2015 IEEE Conference on Communications and Network Security (CNS), September 2015, Florence, Italy.
8. The Importance of Measurement and Decision Making to a Science of Security. 3rd International Symposium on Resilient Cyber Systems, Philadelphia, PA, August, 2015.
9. The Importance of Measurement and Decision Making to a Science of Security, 2015 Symposium And Bootcamp on the Science of Security (Hotsos), April 2015, University of Illinois at Urbana-Champaign
10. Security and Science of Agility, ACM Workshop on Moving Target Defense (MTD 2014), November 2014, Scottsdale, AZ

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11. A Secondary Internet Revolution: How the Smart Device has Changed the Information Security Landscape, IEEE New Technology Industry Seminar (NTIS '13), Everett WA, August, 2013
 12. Permission-based Application Governance; A Step Forward or Backward?, 26th Annual WG 11.3 Conference on Data and Applications Security and Privacy (DBSec'12), Paris, France, July 2012.
 13. Scalable Integrity-Guaranteed AJAX, The 14th Asia-Pacific Web Conference (APWeb), Kunming, China, April 2012.
 14. Security Challenges and Solutions in Mobile Smartphone Applications, IEEE Computer Security Foundations (CSF 2011), Abbaye des Vaux de Cernay, France, June 2012.
 15. Password Exhaustion: Predicting the End of Password Usefulness. 2nd International Conference on Information Systems Security, Kolkata India, December, 2006.
 16. Physical and Digital Convergence: Where the Internet is the Enemy. Eighth International Conference on Information and Communications Security (ICICS '06), Raleigh, NC, December, 2006.

Distinguished Lectures

1. The Challenges of Machine Learning in Adversarial Settings. Department of Software and Information Systems, University of North Carolina at Charlotte, Charlotte, NC, February, 2018.
2. Tracing the Arc of Smartphone Application Security. Celebrating 50 Years of Computer Science @ NC State, North Carolina State University, Raleigh, NC, October, 2017.
3. Tracing the Arc of Smartphone Application Security. Computer Science Department and the Electrical and Computer Engineering Department Seminar Series, Colorado State University, Fort Collins, CO, October, 2017.
4. Tracing the Arc of Smartphone Application Security. Rochester Institute of Technology, College of Computing and Information Sciences, Rochester, NY, September, 2017.
5. Tracing the Arc of Smartphone Application Security, University of Texas-Dallas Department of Computer Science, Dallas, TX, May 2017.
6. Tracing the Arc of Smartphone Application Security. Rochester Institute of Technology, College of Computing and Information Sciences, Rochester, NY, May 2017.
7. Tracing the Arc of Smartphone Application Security. University of California-Irvine, Computer Science Department, Irvine CA, March, 2017.
8. Tracing the Arc of Smartphone Application Security. The Ohio State University, Department of Computer Science and Engineering, Columbus, OH, March, 2017.
9. Tracing the Arc of Smartphone Application Security. Virginia Technical University, Department of Computer Science, Blacksburg, VA, March, 2017.
10. Six Years of Mobile Smartphone Security, CISPAs Distinguished Lecture Series, Max Planck Institute/Saarland University, Saarbrücken Germany, July, 2015.
11. Six Years of Mobile Smartphone Security. Technische Universität Darmstadt, Darmstadt Germany, July, 2015.
12. Security Challenges and Solutions in Mobile Smartphone Applications. Computer and Information Science Department, University of Oregon, Eugene, OR, April, 2011.
13. Security Challenges and Solutions in Mobile Smartphone Applications. Department of Software Information Systems College of Computing and Informatics, UNC Charlotte, Charlotte, NC, December, 2010.

PATENTS

U.S. Patent 8,732,293, System and method for tracking individuals on a data network using communities of interest, Patrick McDaniel, Subhabrata Sen, Oliver Spatschek, Jacobus E. Van de Merwe, May 20, 2014.

U.S. Patent 8,453,227, Reverse firewall with self-provisioning, William A. Aiello, Charles Robert Kalmanek, Jr., William J. Leighton, III, Patrick McDaniel, Subhabrata Sen, Oliver Spatschek, Jacobus E. Van der Merwe, May 28, 2013.

U.S. Patent 7,975,044, Automated disambiguation of fixed-serverport-based applications from ephemeral applications, Oliver Spatschek, Subhabrata Sen, Jacobus E. Van der Merwe, Patrick McDaniel, May 28, 2013.

U.S. Patent 7,873,350, End-to-end secure wireless communication for requesting a more secure channel, Patrick Drew McDaniel, Martin Joel Strauss, January 18, 2011.

RESEARCH SUPPORT

PI, *2017 SaTC PI Meeting*, NSF (CNS), \$99,999 (PSU award \$50,230), 8/15/2016-3/31/2017, Collaborators: Antonakakis (GaTech), Mason (UIUC).

PI, *TWC: Medium: Collaborative: Scaling and Prioritizing Market-Sized Application Analysis*, NSF (CNS), \$1,147,213 (PSU award \$547,213), 7/01/2016-6/30/2020, Collaborators: Jha (Wisconsin).

PI, *Student Travel Support for Symposium on Security and Privacy 2014*, Army Research Office, \$10,000, 5/1/14-5/1/15.

PI, *Models for Enabling Continuous Reconfigurability of Secure Missions (MACRO) Cyber-Security Collaborative Research Alliance (CRA)*, Army Research Laboratory, \$24.1 million (\$48.2 million with renewal), 9/20/2013-9/19/2023 (renewable at 5 years), Collaborators: PSU, Carnegie Mellon, Indiana, UC Davis, UC Riverside, ARL, CERDEC.

PI, *Google Faculty Research Award, Plotting a Map of Android Inter-App Communication*, Google, \$50,000, 3/1/2012-2/28/2013, Collaborators: PSU (McDaniel), TU Darmstadt (Bodden), University of Luxembourg (Traon), .

PI, *Battelle BGP Security Study (Phase 2)*, Battelle, \$102,815, 10/1/2012-9/30/2013, Collaborators: PSU (McDaniel), Oregon (Butler).

PI, *TWC: Medium: Collaborative: Extending Smart-Phone Application Analysis*, NSF (CNS), \$1,386,518 (plus 16k REU supplement) (PSU award \$534,748), 8/1/2012-7/31/2016, Collaborators: PSU (McDaniel), Wisconsin (Jha).

PI, *Battelle BGP Security Study (Phase 1)*, Battelle, \$94,400, 2/15/2012-9/30/2012, Collaborators: PSU (McDaniel).

co-PI, *TC: Medium: Collaborative Research: Building Trustworthy Applications for Mobile Devices*, NSF (CNS), \$1,386,518 (PSU award \$350,000), 8/1/2011-7/31/2014, Collaborators: PSU (McDaniel), Wisconsin (Banerjee, Jha, Swift).

PI, *Closing the Loop on Security Testing and Security Requirements*, Security and Software Engineering Research Center, \$31,000, 8/1/2011-7/31/2012.

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, Collaborators: PSU (Blumsack, McDaniel).

PROFESSIONAL ACTIVITIES

Editorial Positions, Panels, and Boards

IEEE Technical Committee on Security and Privacy

- *Chair*–January 2014–January 2016
- *Vice Chair*–January 2012–December 2014

ACM Transactions on Internet Technology (TOIT)

- *Editor in Chief*–September 2007–December 2012
- *Associate Editor*–April 2004–August 2007

IEEE Security and Privacy Magazine

- *Area Editor, Secure Systems*–January 2009–2015

IEEE Transactions on Computers (TC)

- *Associate Editor*–August 2008–2014

ACM Transactions on Information and System Security (TISSEC)

- *Associate Editor*–May 2007–May 2012

IEEE Transactions on Software Engineering (TSE)

- *Associate Editor*–January 2007–April 2012
- *Guest Editor, Special Issue on Topics in Security*–Fall 2006–April 2012

IEEE Transactions on Parallel and Distributed Systems (TPDS)

- *Guest Editor, Special Issue on Trust, Security and Privacy in Parallel and Distributed Systems*–Fall 2012

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

Journal of Defense Modeling and Simulation

- *Guest Editor, Special Issue on Cyber Risk and Vulnerability Estimation*–Winter 2018–

Conference and Workshop Participation

IEEE Symposium on Security and Privacy

- *Technical Program Co-Chair*–2007, 2008
- *Program Committee*–2011, 2012, 2013

IEEE European Symposium on Security and Privacy

- *Steering Committee*–2015–
- *Program Committee*–2016, 2017

USENIX Security Symposium

- *Program Chair*–2005
- *Invited Talks Chair*–2006, 2009
- *Program Committee*–2001, 2003, 2004, 2007, 2014, 2018

ACM Conference on Computer and Communications Security (CCS)

- *Program Committee*–2006, 2008, 2009, 2010, 2012, 2018
- *Industry and Government Track Chair*–2004, 2007
- *Program Committee-Industry and Government Track*–2003, 2005, 2006

ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec)

- *Program Committee*–2017

Network and Distributed System Security Symposium (NDSS)

- *Program Committee*–2009, 2012, 2013, 2017

Annual Computer Security Applications Conference (ACSAC)

- *Program Committee*–2004, 2005, 2006, 2007, 2010, 2011

Financial Cryptography

- *General Chair*–2006
- *Program Committee*–2007, 2008, 2012

Computer Security Foundations Symposium (CSF)

- *Program Committee*–2011

European Symposium on Research in Computer Security (ESORICS)

- *Program Committee*–2004, 2005

International Symposium on Engineering Secure Software and Systems (ICISSP)

- *Program Committee*–2015

IEEE Conference on Communications and Network Security (CNS)

- *Program Committee*–2015, 2017

ACM Annual International Conference on Mobile Computing and Networking (MobiCom)

- *Program Committee*–2010, 2011, 2012

ACM Annual International Conference on Mobile Systems, Applications, and Services (MobiSys)

- *Program Committee*–2012

ACM Symposium on Access Control Models and Technologies (SACMAT)

- *Program Committee*–2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2011

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 Annual Digital Forensics Conference

- *Program Committee*–2012

ACM Workshop on Moving Target Defense (MTD)

- *Program Committee*–2015, 2016

IEEE ICNP Workshop on Secure Network Protocols (NPSec)

- *Program Committee*–2005, 2006

Conference on Decision and Game Theory for Security (GameSec)

- *Program Committee*–2012, 2018

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, 2011

International Conference on Emerging Trends in Information and Communication Security (ET-RICS)

- *Program Committee*–2006

International Conference On Distributed Computing Systems (ICDCS)

- *Program Committee*–2011

IEEE INFOCOM

- *Program Committee*–2007

IEEE GLOBECOM

- *Program Committee*–2010

MILCOM

-
- *Program Committee*–2015, 2016, 2017

The Five Nines Workshop on Designing and Managing High Availability Internet Services (INM 2007)

- *Program Committee*–2007

International Conference on Information Systems Security (ICISS)

- *Steering Committee*–2007
- *Program Co-Chair*–2007
- *Program Committee*–2005, 2006, 2009, 2011

International Conference on Parallel Processing

- *Program Committee-Network Security*–2003

USENIX Workshop on Large-Scale Exploits and Emergent Threats (LEET)

- *Program Committee*–2010

ACM Workshop on Networking, Systems, Applications on Mobile Handhelds (MobiHand)

- *Program Committee*–2009

ACM Workshop on Cloud Computing Security

- *Program Committee*–2009, 2010

ACM Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM)

- *Program Committee*–2011, 2012, 2013

International Workshop on Security in Software Engineering

- *Founding General Co-Chair*–2007

USENIX Workshop On Offensive Technology (WOOT)

- *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

Workshop on Workshop on Telecommunications Infrastructure Protection and Security (TIPS)

- *General Chair*–2009

USENIX Workshop on Hot Topics in Security (HotSec)

- *Program Chair*–2011
- *Program Committee*–2007, 2008, 2009, 2010, 2012

ACM Workshop TPC on Security and Privacy in Smartphones and Mobile Devices

- *Program Committee*–2011

International Workshop on Security (IWSEC)

- *Program Committee*–2006

International Workshop on Systems and Network Security (SNS)

- *Program Committee*–2005, 2006

Other Professional Activities

IEEE Computer Society's Technical Committee on Security and Privacy

- *Chair*–2014-2016
- *Vice Chair*–2012-2014

Member, Technical Guideline Development Committee, U.S. Election Assistance Commission

- *Member*–2010-2011

Natural Sciences and Engineering Research Council of Canada, Internetworked Systems Security Network

- *Scientific Advisory Board*–2008-2013

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*–2006-2012

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*–2005-2006

Abusable Technologies Awareness Center (ATAC)

- *Panelist*–October 2003-2010

AT&T IP Services Security Council

- *Member*–June 2003-August 2004

AT&T 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, 2010, 2011, 2012, 2014, 2015, 2016, 2017

Department of Energy SciDAC Review Panel

- *Member*–2001

COLLABORATORS (Last 48 Months)

Papernot, Nicolas, Abbas Acar, Yasemin Acar, Stefan Achleitner, S. Achleitner, Gail-Joon Ahn, Hidayet Aksu, Manos Antonakakis, Azeem Aqil, Steven Arzt, Ahmed Atya, Michael Backes, Alexandre Bartel, Novella Bartolini, Z. Berkay Celik, Tegawende Bissyande, Eric Bodden, Dan Boneh, Thomas Bowen, Sven Bugiel, ven Bugiel, K. Butler, Hasan Cam, Zhenfu Cao, Berkay Celik, R. Chada, Ritu Chadha, J. Choi, Byung-Gon Chun, Landon Cox, Lorrie Cranor, Eric D. Kilmer, Patrick D. McDaniel, David Dagon, Drew Davidson, Lorenzo De Carli, Matthew Dering, Erik Derr, Patrick Drew McDaniel, Scott E. Brown, Daniel E. Krych, William Enck, Sascha Fahl, Lorrie Faith Cranor, Ahmed Fathy Atya, Reuben Feinman, Matt Fredrikson, Christian Fritz, Peter Gilbert, William Glodek, Ian Goodfellow, Kathrin Grosse, Seungyeop Han, Richard Harang, Yunfeng Hong, Nan Hu, Yongjian Hu, Wenhui Hu, Rauf Izmailov, Charles J. Huber, Devin J. Pohly, Robert J. Walls, Trent Jaeger, Somesh Jha, Jaeyeon Jung, Eric Kilmer, Jacques Klein, Phillip Koshy, Diana Koshy, Alexander Kott, S.V. Krishnamurthy, Srikanth Krishnamurthy, P. Krishnaswamy, Padma Krishnaswamy, Alexey Kurakin, Thomas La Porta, T.F. La Porta, Nathaniel Lageman, Chun-Ming Lai, Stephen Lange-Maney, Yves Le Traon, Chaz Lever, Karl Levitt, Li Li, Xu Li, Yun Li, Keqiu Li, Yu-Cheng Lin, Peng Liu, David Lopez-Paz, Daniel Luchaup, Lisa M. Marvel, Praveen Manoharan, Lisa Marvel, P. McDaniel, Stephen McLaughlin, Anmol N. Sheth, Yacin Nadji, Iulian Neamtiu, Damien Ocateau, Alessandro Oltramari, Landon P. Cox, Nicolas Papernot, Yu Paul, Devin Pohly, Radha Poovendran, Alexander Poylisher, Zhiyun Qian, Kevin R. B. Butler, Siegfried Rasthofer, Vaibhav Rastogi, and Ritu Chadha, Brian Rivera, Jeff Rowe, A. Selcuk Uluagac, Constantin Serban, Charles Sestito, Ryan Sheatsley, Anmol Sheth, Arunesh Sinha, Matthew Smith, Shridatt Sugrim, S. Sugrim, Ananthram Swami, Ananthram Swami Prasant Mohapatra, Vasant Tendulkar, Dave Tian, Jing Tian, Florian Tramer, Srikanth V. Krishnamurthy, Robert Walls, Xiaoyun Wang, Guojun Wang, Sebastian Weisgerber, Michael Wellman, Xi Wu, Felix Wu, Yang Xiang, Saman Zonouz

CASES (Expert Witness)

Good Technology Corporation et al., v. AirWatch, LLC, Expert for defense, United States District Court for the Northern District of California, Case no. 5-12-cv-05827.

Inter Partes Review, Expert for Duo Security Inc., United States Patent and Trademark Office, Case no. IPR2017-01041.

Inter Partes Review, Expert for Duo Security Inc., United States Patent and Trademark Office, Case no. IPR2017-01064.

Frederick Whalen, et al., v. SEI/AARON'S, INC., Expert for defense, United States District Court for the Northern District of Georgia, Case no. 1:2014-cv-01209.

Certain Portable Electronic Communications Devices, Including Mobile Phones and Components Thereof, Expert for plaintiff, International Trade Commission.

Secure Access, LLC v. Bank of America Corp., et al., Expert for defense, United States District Court for the Eastern District of Texas, Tyler Division, Case no. 6-10-cv-00670.

Intellectual Ventures I LLC, v. Check Point et al., Expert for plaintiff, United States District Court for the District of Delaware, Case no. 1-10-cv-01067.

NetMonitor LLC, v. Compuware et al., Expert for plaintiff, United States District Court for the District of Delaware, Case no. 1-10-cv-01061.

Amdocs Ltd. v. Openet Telecom Ltd., Expert for defense, United States District Court for the Eastern District of Virginia, Alexandria Division, Case no. 1-10-cv-00910.

PSI Systems Inc. v. Stamps.com, Expert for defense, United States District Court for the Central District of California, Case no. 2-08-cv-05233.

Stamps.com v. Endicia, Expert for plaintiff, United States District Court for the Central District of California, Case no. 2-06-cv-07499.

Kara Technologies v. Stamps.com, Expert for defense, United States District Court for the Central District of California, Case no. 2-05-cv-01890.

Coinstar Inc. v. Coinxchange, Expert for defense, United States District Court for the Eastern District of Virginia, Richmond Division, Case no. 3-06-cv-00299.

VCode Holdings Inc. v. Stamps.com, Expert for defense, United States District Court for the Central District of California.

Inter Partes Review, Expert for Google Inc., United States Patent and Trademark Office, Case no. (Patent No. 8,489,868).

Inter Partes Review, Expert for Cisco Systems, Inc., , Case no. (Patent No. 7,536,598).

Vir2us v. Cisco Systems, INC and Sourcefire, LLC, Expert for defense, United States District Court for the Eastern District of Virginia, Case no. 51:16cv1095.

Zito Vault, LLC V. International Business Machines Corporation, and Softlayer Technologies, Inc., Expert for defense, , Case no. 3:16-CV-962-M.

PUBLICATIONS

Books

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.

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 McDaniel. Authentication. *Handbook of Computer Networks, Volume II, Chapter 171*, John Wiley and Sons. May 2007. *Editor*: Hossein Bidgoli.

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.

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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.

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Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, July 2005.

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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.

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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, David 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-62TJFF8, 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*).

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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.

PUBLIC SPEAKING

Invited Talks

Distinguished Lecture: The Challenges of Machine Learning in Adversarial Settings. *Department of Software and Information Systems, University of North Carolina at Charlotte, Charlotte, NC, February, 2018.*

Tracing the Arc of Smartphone Application Security. *School of Electrical and Computer Engineering, Georgia Tech University, Atlanta, GA, December, 2017.*

Tracing the Arc of Smartphone Application Security. *Department of Electrical Engineering and Computer Science, Ohio University, Athens, OH, October, 2017.*

Keynote: Attacks, Defenses, and Impacts of Machine Learning in Adversarial Settings. *2017 Conference on Security and Privacy in Communication Networks (SecureComm), Niagara Falls, Canada, October, 2017.*

Distinguished Lecture: Attacks, Defenses, and Impacts of Machine Learning in Adversarial Settings. *Celebrating 50 Years of Computer Science @ NC State, North Carolina State University, Raleigh, NC, October, 2017.*

Distinguished Lecture: Tracing the Arc of Smartphone Application Security. *Computer Science Department and the Electrical and Computer Engineering Department Seminar Series, Colorado State University, Fort Collins, CO, October, 2017.*

Distinguished Lecture: Tracing the Arc of Smartphone Application Security. *Rochester Institute of Technology, College of Computing and Information Sciences, Rochester, NY, September, 2017.*

Distinguished Lecture: Tracing the Arc of Smartphone Application Security. *University of Texas-Dallas, Department of Computer Science, Dallas, TX, May, 2017.*

Keynote: Tracing the Arc of Smartphone Application Security. *2017 ACM on International Workshop on Security And Privacy Analytics, Scottsdale, AZ, March, 2017.*

Distinguished Lecture: Tracing the Arc of Smartphone Application Security. *The Ohio State University, Department of Computer Science and Engineering, Columbus, OH, March, 2017.*

Distinguished Lecture: Tracing the Arc of Smartphone Application Security. *University of California-Irvine, Computer Science Department, Irvine, CA, March, 2017.*

Distinguished Lecture: Tracing the Arc of Smartphone Application Security. *Virginia Technical University, Department of Computer Science, Blacksburg, VA, March, 2017.*

Keynote: Tracing the Arc of Smartphone Application Security. *12th International Conference on Information Systems Security, Jaipur, India, December, 2016.*

Tracing the Arc of Smartphone Application Security. *University of Michigan, Ann Arbor, Ann Arbor, MI, November, 2016.*

Machine Intelligence in Adversarial Settings, Developing a Normative Framework for Cyberwarfare. *United States Naval Academy, Annapolis, MD, September, 2016.*

Eight Years of Mobile Smartphone Security. *University of Pittsburgh, Pittsburgh, PA, September, 2016.*

Eight Years of Mobile Smartphone Security. *New Jersey Institute of Technology, Newark, NJ, September, 2016.*

Setting a Cyber-Security Baseline for Physical Systems: Terminology, Technologies, and Goals. *Pacific Northwest Clean Water Association, webinar, August, 2016.*

Keynote: The Limitations of Machine Learning in Adversarial Settings. *25th International Conference on Computer Communication and Networks (ICCCN 2016), Waikoloa, HI, August, 2016.*

Keynote: Learning from Ourselves: Where are we and where can we go in mobile systems security?. *Mobile Security Technologies (MOST) 2016 Workshop, IEEE Computer Society Security and Privacy Workshops, San Jose, CA, May, 2016.*

Keynote: Eight Years of Mobile Smartphone Security. *Center for Secure and Dependable Systems (CSDS) Cybersecurity Symposium, Coeur d'Alene, April, 2016.*

Eight Years of Mobile Smartphone Security. *University of Idaho, Moscow, ID, April, 2016.*

Army Installation 2035: Cyber Challenges and Opportunities. *US Department of Defense, Arlington, VA, April, 2016.*

The Limitations of Machine Learning in Adversarial Settings. *Florida Institute on National Security Assured Autonomy Workshop*, Fort Myers, FL, February, 2016.

SABOT: Specification-based Payload Generation for Programmable Logic Controllers. *Messaging, Malware and Mobile Anti-Abuse Working Group (M3AAWG)*, San Francisco, CA, February, 2016.

Seven Years of Mobile Smartphone Security. *Computer & Information Sciences Department, Temple University*, Philadelphia, PA, January, 2016.

Seven Years of Mobile Smartphone Security. *Massachusetts Institute of Technology–Lincoln Labs*, Lexington, MA, January, 2016.

Six Years of Mobile Smartphone Security. *Information Trust Institute, University of Illinois at Urbana-Champaign*, Urbana-Champaign, IL, September, 2016.

Keynote: The Importance of Measurement and Decision Making to a Science of Security. *2015 IEEE Conference on Communications and Network Security*, Florence, Italy, September, 2015.

Keynote: The Importance of Measurement and Decision Making to a Science of Security. *3rd International Symposium on Resilient Cyber Systems*, Philadelphia, PA, August, 2015.

Distinguished Lecture Six Years of Mobile Smartphone Security. *CISPA Distinguished Lecture Series, Max Planck Institute/Saarland University*, Saarbrücken Germany, July, 2015.

Distinguished Lecture: Six Years of Mobile Smartphone Security. *Technische Universität Darmstadt*, Darmstadt Germany, July, 2015.

Estimating Attack Intent and Mission Impact From Detection Signals. *Workshop on Cyber Attack Detection, Forensics and Attribution for Assessment of Mission Impact, NATO Science and Technology Organization, Information Systems Technology Panel*, Istanbul, Turkey, June, 2015.

Keynote: The Importance of Measurement and Decision Making to a Science of Security. *2015 Symposium And Bootcamp on the Science of Security (Hotsos)*, University of Illinois at Urbana-Champaign, April, 2015.

Keynote: Security and Science of Agility. *First ACM Workshop on Moving Target Defense (MTD 2014)*, Scottsdale, AZ, November, 2014.

Evaluating Mobile Smartphone Security: The First Five Years. *Computer Science Colloquium Series, Harvard School of Engineering and Applied Sciences, Harvard University*, Boston, MA, October, 2013.

Keynote: A Secondary Internet Revolution: How the Smart Device has Changed the Information Security Landscape. *IEEE New Technology Industry Seminar (NTIS '13)*, Everett, WA, August, 2013.

Geotargeting: Mobile Device Privacy and Security. *National Academy of Sciences*, Washington DC, February, 2013.

Authentication and Web Security. *Security and Privacy in IT-EMTM 604 Guest Lecture, University of Pennsylvania*, Philadelphia, PA, February, 2013.

The Realities of Voting: A Retrospective of Ten Years of Information Security and Electronic Voting Systems. *2012 Information Assurance Day, Computer Science Department, Indiana University of Pennsylvania*, Indiana, PA, November, 2012.

Keynote: Permission-based Application Governance; A Step Forward or Backward?. *26th Annual WG 11.3 Conference on Data and Applications Security and Privacy (DBSec'12)*, Paris, France, July, 2012.

Evaluating Mobile Smartphone Security: The First Four Years. *Carnegie Mellon University*, Pittsburgh, PA, April, 2012.

Keynote: Scalable Integrity-Guaranteed AJAX. *The 14th Asia-Pacific Web Conference (APWeb)*, Kunming, China, April, 2012.

Evaluating Mobile Smartphone Application Security. *Singapore Management University*, Singapore, September, 2011.

Evaluating Mobile Smartphone Application Security. *Computer Security Foundations Symposium*, Florham Park, NJ, July, 2011.

Opening Address: Security Challenges and Solutions in Mobile Smartphone Applications. *Computer Security Foundations Symposium*, Domaine de l'Abbaye des Vaux de Cernay, France, June, 2011.

Distinguished Speaker: Security Challenges and Solutions in Mobile Smartphone Applications. *Computer and Information Science Department, University of Oregon*, Eugene, OR, April, 2011.

Identifying (and Addressing) Security and Privacy Issues in Smart Electric Meters. *Center for Non-Linear Studies*, Los Alamos, NM, February, 2011.

Distinguished Lecture: Security Challenges and Solutions in Mobile Smartphone Applications. *Department of Software Information Systems College of Computing and Informatics, UNC Charlotte*, Charlotte, NC, December, 2010.

Security Challenges and Solutions in Mobile Smartphone Applications. *Computer Science Department, Indiana University of Pennsylvania*, Indiana, PA, December, 2010.

Security Challenges and Solutions in Mobile Smartphone Applications. *Computer Science Department, Georgetown University*, Washington D.C., November, 2010.

Security Challenges and Solutions in Mobile Smartphone Applications. *Networking and Security Research Center, Computer Science and Engineering, Pennsylvania State University*, University Park, PA, October, 2010.

Security Challenges and Solutions in Mobile Smartphone Applications. *Security Day Seminar, Penn State University*, University Park, PA, October, 2010.

The Changing Vulnerability Landscape. *Association for Computing Machinery, Penn State Student Chapter*, University Park, PA, September, 2010.

The Changing Vulnerability Landscape. *ExxonMobil*, Falls Church, VA, March, 2010.

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 ISSNNet 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. *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.*

lseb: 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

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