

Robert J. Walls

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Research Interests

Security and privacy, digital forensics and online crime, large-scale measurement

Education

University of Massachusetts Amherst

Amherst, MA

Doctor of Philosophy, Computer Science

Sept. 2014

- Advisor: Brian Levine
- Thesis title: Inference-based Forensics for Extracting Information from Diverse Sources
- Admitted to Ph.D. Candidacy with Distinction
- Given Outstanding Synthesis Project Award

University of Texas at Arlington

Arlington, TX

Master of Science, Computer Science

Aug. 2009

- Advisor: Matthew Wright
- Thesis title: Liquid: A detection-resistant covert timing channel based on IPD shaping
- Given CSE Outstanding Master's Thesis Award

University of Texas at Arlington

Arlington, TX

Bachelor of Science, Computer Science

Aug. 2007

Research Experience

Pennsylvania State University

University Park, PA

Postdoctoral Scholar

May 2014–Present

Systems and Internet Infrastructure Security Laboratory

- Focused on large-scale security analysis of the Internet ecosystem.
- Advised graduate and undergraduate students resulting in multiple publications.

University of Massachusetts Amherst

Amherst, MA

Graduate Research Assistant

Sept. 2009–May 2014

UMass Center for Forensics

- Research in digital forensics with an emphasis on mobile devices and network-based investigations.

University of Texas at Arlington

Arlington, TX

Graduate Research Assistant

Jan. 2008–Aug. 2009

Information Security Laboratory

- Investigated covert timing channels in network flows.

Teaching Experience

Course Instructor.....	
Pennsylvania State University	University Park, PA
<i>Instructor, Computer and Network Security</i>	<i>Fall 2014</i>
University of Massachusetts Amherst	Amherst, MA
<i>Instructor, A Hands-on Introduction to UNIX</i>	<i>Fall 2012</i>
Guest Lecturer.....	
Introduction to Systems Programming	<i>Fall 2014, Fall 2015</i>
Introduction to Computer and Network Security	<i>Fall 2011</i>
Advanced Information Assurance	<i>Spring 2011</i>
Digital Forensics	<i>Fall 2010</i>
Legal Issues in Computing	<i>Fall 2010</i>

Honors and Awards

Runner-up for Best Paper Award, STIDS Conference.	<i>2014</i>
Runner-up for Best Paper Award, World Wide Web Conference (WWW).	<i>2013</i>
Outstanding Synthesis Project Award, University of Massachusetts Amherst.	<i>2012</i>
Yahoo! Key Scientific Challenges Program Award.	<i>2011</i>
Admitted to Ph.D. Candidacy with Distinction, University of Massachusetts Amherst.	<i>2011</i>
CSE Outstanding Master's Thesis award, University of Texas at Arlington.	<i>2009</i>
Honors College Scholarship, University of Texas at Arlington.	<i>2004–07</i>

Publications

- [P17] R. Walls, E. Kilmer, N. Lageman, P. McDaniel. *Measuring the Impact and Perception of Acceptable Advertisements*. Internet Measurement Conference (IMC), 2015. (Acceptance rate: 44/169; 26%).
- [P16] R. Walls, Y. Brun, M. Liberatore, B. Levine. *Discovering Specification Violations in Networked Software Systems*. IEEE International Symposium on Software Reliability Engineering, 2015. (Acceptance rate: 55/172; 32%).
- [P15] N. Papernot, P. McDaniel, R. Walls. *Enforcing Agile Access Control Policies in Relational Databases using Views*. International Conference for Military Communications (MILCOM), 2015.
- [P14] B. Celik, R. Walls, P. McDaniel, A. Swami. *Malware Traffic Detection using Tamper Resistant Features* International Conference for Military Communications (MILCOM), 2015.
- [P13] A. Oltramari, L. Cranor, R. Walls, P. McDaniel. *Computational Ontology of Network Operations*. International Conference for Military Communications (MILCOM), 2015.

- [P12] P. McDaniel, R. Walls. *Estimating Attack Intent and Mission Impact from Detection Signals*. Workshop on Cyber Attack Detection, Forensics and Attribution for Assessment of Mission Impact, 2015.
- [P11] S. Varma, R. Walls, B. Lynn, B. Levine. *Efficient Smart Phone Forensics Based on Relevance Feedback*. ACM Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM), 2014. (Acceptance rate: 11/29; 38%).
- [P10] A. Oltramari, L. Cranor, R. Walls, P. McDaniel. *Building an Ontology of Cyber Security*. Intl. Conference on Semantic Technologies for Intelligence, Defense, and Security (STIDS), 2014. *Runner-up for Best Paper*.
- [P9] P. McDaniel, T. Jaeger, T. La Porta, N. Papernot, R. Walls, A. Kott, L. Marvel, A. Swami, P. Mohapatra, S. Krishnamurthy, I. Neamtii. *Security and Science of Agility*. ACM Workshop on Moving Target Defense (MTD), 2014.
- [P8] R. Walls. *Inference-based Forensics for Extracting Information from Diverse Sources*. Ph.D. thesis, August 2014.
- [P7] R. Hurley, S. Prusty, H. Soroush, R. Walls, J. Albrecht, E. Cecchet, B. Levine, M. Liberatore, B. Lynn. *Measurement and Analysis of Child Pornography Trafficking on P2P Networks*. World Wide Web Conference (WWW), 2013. Student authors listed in alphabetical order. (Acceptance rate: 122/831; 15%). *Nominated for Best Paper award*.
- [P6] R. Walls, S. Clark, B. Levine. *Functional Privacy or Why Cookies are Better with Milk*. USENIX Workshop on Hot Topics in Security, 2012. (Acceptance rate: 11/39; 28%)
- [P5] R. Walls, E. Learned-Miller, B. Levine. *Forensic Triage for Mobile Phones with DEC0DE*. USENIX Security, 2011. (Acceptance rate: 35/204; 17%). *Given Outstanding Synthesis Project award*.
- [P4] R. Walls, B. Levine, M. Liberatore, C. Shields. *Effective Digital Forensics Research is Investigator-Centric*. USENIX Workshop on Hot Topics in Security, 2011. (Acceptance rate: 11/56; 20%)
- [P3] R. Walls, K. Kothari, M. Wright. *Liquid: A Detection-Resistant Covert Timing Channel Based on IPD Shaping*. Computer Networks Journal, 2011.
- [P2] J. Tuttle, R. Walls, E. Learned-Miller, B. Levine. *Reverse Engineering for Mobile Systems Forensics with Ares*. ACM CCS Workshop on Insider Threats, October 2010. (Acceptance rate: 7/12; 58%)
- [P1] R. Walls. *Liquid: A Detection-Resistant Covert Timing Channel Based on IPD Shaping*. Master's thesis, August 2009. *Given CSE Outstanding Master's Thesis award*.

Professional Service

Program Committee Member.....	
Workshop on Cyber Security Experimentation and Test	2015
Conference and Journal Reviewer.....	
External Reviewer for IEEE European Symposium on Security and Privacy	2015
External Reviewer for IEEE/ACM International Conference on Automated Software Engineering	2014
Reviewer for IEEE Transactions on Information Forensics & Security	2013
Reviewer for IEEE Internet Computing	2012
Reviewer for IEEE Transactions on Multimedia	2012
External Reviewer for Digital Forensics Research Conference	2012
External Reviewer for Network and Distributed System Security Symposium	2011
External Reviewer for IEEE Symposium on Security and Privacy	2011
External Reviewer for IEEE/ACM Transactions on Networking	2010
Volunteer.....	
Session Summarizer for USENIX ;login	2012
Session Summarizer for USENIX ;login	2011
Student Assistant, Mobicom TPC	2011
Senator, Graduate Student Senate	2010–11
Member, New Student Committee, UMass Amherst	2009–12
Peer Mentor, UT Arlington	2005–09
Judge, RoPro High School Robot Programming Contest	2009
Officer, Honors College Council, UT Arlington	2005–06

References

Patrick McDaniel	Brian Levine	Erik Learned-Miller
Professor of	Professor of	Associate Professor of
Computer Science	Computer Science	Computer Science
Pennsylvania State University	University of Massachusetts	University of Massachusetts
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mcdaniel@cse.psu.edu	brian@cs.umass.edu	elm@cs.umass.edu
Relationship: Postdoctoral	Relationship: Thesis	Relationship: Committee
Advisor	Advisor	Member