

Sandy Clark

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1 PUBLICATIONS:

- Sandy Clark, Michael Collis, Matt Blaze, and Jonathan Smith. *Moving Targets: Security and Rapid Release in Firefox*. Proceedings of the 2014 ACM SIGSAC Conference on Computer and Communications Security, Scottsdale, AZ, USA, November 3-7, 2014
- Steven M. Bellovin, Matt Blaze, Sandy Clark, and Susan Landau. *Lawful hacking: Using existing vulnerabilities for wiretapping on the internet*. Northwestern Journal of Technology and Intellectual Property, 12(1), 2014
- Steven M. Bellovin, Matt Blaze, Sandy Clark, and Susan Landau. *Going bright: Wiretapping without weakening communications infrastructure*. IEEE Security & Privacy, 11(1):62-72, January-February 2013.
- Sandy Clark, *et al.* *Collaborative Red Teaming for Anonymity System Evaluation*. 5th Workshop on Cyber Security Experimentation and Test, Bellevue, Wa August 2012
- Sandy Clark, Matt Blaze, Jonathan Smith. *The Casino and the OODA Loop: Why our protocols always eventually fail*. 20th Annual Security Protocols Workshop, Cambridge, UK March 2012
- Sandy Clark, *et al.* *Why (Special Agent) Johnny (Still) Can't Encrypt: A Security Analysis of the APCO Project 25 Two-Way Radio System*. 20th Usenix Security Symposium, August 2011 Winner of *Outstanding Paper* award
- Sandy Clark, *et al.* *One-Way Cryptography*. 19th Annual Security Protocols Workshop, Cambridge, UK March 2011
- Sandy Clark, Stefan Frei, Matt Blaze and Jonathan Smith. *Familiarity Breeds Contempt: The Honeymoon Effect and the Role of Legacy Code in Zero Day Vulnerabilities*. ACM Computer Security Applications Conference, Orlando Fl December 2010.
- Sandy Clark, Matt Blaze. *Blood in the Water: Are There Honeymoon Effects outside of Software?* 18th Annual Security Protocols Workshop, Cambridge, UK, March 2010
- Micah Sherr, Gaurav Shah, Eric Cronin, Sandy Clark, and Matt Blaze. *Can They Hear me Now? A Security Analysis of Law Enforcement Wiretaps*. 16th ACM Conference on Computer and Communications Security (CCS '09), November 2009.
- Sandy Clark, Matt Blaze and Jonathan Smith. *Does Software Quality Matter?* Fourth USENIX SECURITY Workshop on Security Metrics, MetriCon 4.0
- Matt Blaze, Sandy Clark, Patrick McDaniel. *Below the Salt - The Dangers of Unfulfilled Physical Media Assumptions*. 17th Annual Security Protocols Workshop, Cambridge UK, April 2009
- Adam Aviv, Pavol Cerný, Sandy Clark, Eric Cronin, Gaurav Shah, Micah Sherr, and Matt Blaze. *Security Evaluation of the ES&S Voting Machines and Election Management System*. Third USENIX/ACCURATE Electronic Voting Technology Workshop (EVT '08), August 2008.

- Matt Blaze, Sandy Clark. *E-Voting and The Honeymoon Effect*. 16th Annual Security Protocols Workshop, Cambridge, UK, May 2008
- Micah Sherr, Eric Cronin, Sandy Clark, and Matt Blaze. *Signaling Vulnerabilities in Wiretapping Systems*. IEEE Security & Privacy Magazine, 3(6):13-25, November 2005.
- Patrick McDaniel *et al.* *EVEREST: Evaluation and Validation of Election-Related Equipment, Standards and Testing*, December 2007.
- J.D. McGough, Sandy Clark *The Development of an Interim Generalized Gate Logic Software Simulator*. NASA contract NAS1-15946, March 1985

2 PROFESSIONAL EXPERIENCE:

- *University of Pennsylvania Distributed Systems Laboratory* *Philadelphia, PA*
Senior Research Staff, Ph.D candidate *March, 2011-Present*
 - Develop and manage development of architecture, implementation and testing and measurement of software for experimental decentralized and distributed communications system research.
 - Participate in experiments, research, and scientific paper writing with principal investigators and graduate researchers.
 - Manage and advise masters and undergraduate level student research projects.
 - Supervise and integrate software from undergraduate and graduate project students and other developers.
 - Manage research infrastructure, including both local Unix/Linux based computer network and cloud- and PlanetLab- based resources.
 - Conduct talks and demonstrations for research sponsors and others as required.
- *Cyber-Security Consultant for Global Business Associates* *Gig Harbor, WA*
Chief Security Analyst, Director Cyber-Security Team *September, 2012-January 2013*
 - Security Audit of Boeing Aviation Huntsville Modeling and Simulation tools and capabilities
 - Provided analysis and recommendation of assessments of risk analysis use cases and requirements, including applicable visualization techniques and tools of the data presented.
 - Conducted a primary activity vulnerability analysis (PAVA) and a basic process flow analysis (potential surface attack landscape) to determine the best visualization tools.
- *Princeton University Atmospheric and Oceanic Sciences* *Princeton, NJ*
Systems Programmer/Systems Manager *1997-2011*
 - Develop user specific computer programs and applications in a variety of programming languages, including C, Perl and Python, Fortran
 - Manage Research Computer Infrastructure
 - Responsible for the network security of Geophysics Beowulf Linux cluster
 - Supervise and train support staff
- *School Lunch Computer Services, Inc* *Princeton, NJ*
Applications Programmer *March 1996-1997*
 - Develop customized routines and macros for customers and in-house users
 - Test and document new versions of software

- Max Otte, Director US Eastern Region, Kienbaum & Partners* *Princeton, NJ*
 • *GmbH, Dsseldorf* *Jan-March 1996*
Programmer/Research Assistant

 - Responsible for developing multiple on-line research projects
- Pennington School* *Pennington, NJ*
 • *Pennington, NJ Information Systems Manager* *Oct. 1993-March 1996*

 - Responsible for all computer systems, custom applications, software testing, taught extra-curricular C programming course
 - Supervised student support staff
- Princeton Plasma Physics Laboratory* *Princeton, NJ*
 • *Applications Programmer* *1987-1989*

 - Designed, implemented and tested programs for experimental and theoretical physicists
- Allied Bendix Aerospace* *Teterboro, NJ*
 • *Software Engineer* *1983-1987*

 - Designed, implemented and tested backup Flight Control Computer System for US Air Force F-16 jet fighter from mechanical engineers specifications. Designed developed, tested and documented Gate-level software simulator (IGGLOSS) for NASA.

3 EDUCATION:

- University of Pennsylvania -PhD. Candidate Philadelphia, PA
 Research interests: 2008-Present

 - The Computer Security Arms Race
 - Cyber-Security Eco-System
 - Technology and Policy
 - Exploitation/Malware Economics
 - Human-Scale Security
 - Computer Security Metrics

Advisor: Matt Blaze, Co-Advisor: Jonathan Smith
- Brigham Young University Provo, UT
 B.A. German Language/Computer Science 1984
- Westminster Choir College Princeton, NJ
 Classical Vocal Music Student 1990-1997

 - Performed concerts with major world orchestras and conductors including New York Philharmonic, Philadelphia Philharmonic, Berlin Philharmonic

4 PROFESSIONAL SERVICES

- *Defcon Conference Program Committee* 2015-
- *ShmooCon Conference Program Committee* 2015-
- *Capability Needs for Cyber Security Experimentation of the Future Study Group* 2014-
USC Information Sciences Institute and SRI International
- *Cyber Security Consulting* 2012, present
- *Usenix Security Program Committee Invited Talks* 2014, 2011, 2010
- *Usenix Security HotSec Program Committee* 2011

5 PRESENTATIONS:

excludes presentations at conferences and workshops

- *Media, Popular Misconceptions, and the CSI Effect: What Does It Mean for InfoSec and Tech Policy?*, HOPE X, New York, NY, July 2014
- *The Deter Experimental Platform, A User's Experience*, Cyber Security Experimentation Capabilities: Collaborative R&D, Tel Aviv Israel, January 22-23, 2014
- *Sigint for the Rest of Us*, Defcon #20, Las Vegas, NV July 2012
- *Practical Insecurity in Encrypted Radio*, CONFidence 2012, Krakow, Poland, May 2012
- *INSIDE THE OODA LOOP - TOWARDS AN AGGRESSIVE DEFENSE*, Shmoocon 2012, Washington, D.C. February 2012
- *Familiarity Breeds Contempt: The Honeymoon Effect and the Role of Legacy Code in Zero-Day Vulnerabilities*, BlackHat Briefings/Defcon #19, Las Vegas NV, August 2011
- *Practical Insecurity in Encrypted Radio*, HOPE Number 9, New York NY, July 2012
- *Security Vulnerabilities in US E-Voting Systems*, Hackcon #4, Oslo Norway February 2009
- *Storming the Ivy Tower: How to hack your way into Academia*, Shmoocon 2009, Washington D.C., January 2009
- *Climbing Everest: An Insider's Look at One State's Voting Systems*, Defcon 16, Las Vegas, NV July 2008
- *Hacking Democracy: An In Depth Analysis of the ES&S Voting Systems*, The Last Hope (HOPE Number 7), New York, NY July 2008
- *Law Enforcement Wiretaps: Background and Vulnerabilities*. HOPE Number 6, New York, NY July 2006