

Avi Rubin's Vita



Academic Degrees

- 1994, Ph.D., Computer Science and Engineering, [University of Michigan](#), Ann Arbor
- 1991, M.S.E., Computer Science and Engineering, [University of Michigan](#), Ann Arbor
- 1989, B.S., Computer Science (Honors), [University of Michigan](#), Ann Arbor

Academic Appointments

- April, 2004 - present
Professor, [Johns Hopkins University](#)
- August, 2010 - July, 2011
Visiting Research Professor, Fulbright Scholar, [Tel Aviv University](#), Israel
- January, 2003 - April, 2004
Associate Professor, [Johns Hopkins University](#)
- January, 2003 - present
Technical Director, [Johns Hopkins University Information Security Institute](#)
- 2006 - 2010
Director and Principal Investigator (PI), National Science Foundation's ACCURATE Center

- 1995 - 1999
 - Adjunct Professor, New York University**
 - *Internet and Web Security* Spring, 1999 (with Dave Kormann)
 - *Privacy in Networks: Attacks and Defenses* Spring, 1998 (with Dave Kormann and Mike Reiter)
 - *Design and Analysis of Cryptographic Protocols* Fall, 1996 & Spring, 1997 (with Matt Franklin)
 - *Cryptography and Computer Security* Fall, 1995 & Spring, 1996

- Summer, 1999
 - Visiting Professor, École Normale Supérieure, Paris, France**

- 1988 - 1993
 - Teaching Assistant, University of Michigan**
 - 1993 *Intro. to Cryptography*
 - 1992 *Assembler Language Programming*
 - 1991 *Software Engineering*
 - 1990 *IVHS Seminar*
 - 1989-1990 **Head TA**, *Intro. to Computer Science*
 - 1988-1989 *Intro. to Computer Science*

- **Doctoral Committees**
 - **Doctoral Thesis Advisor:** Gabe Kaptchuk, JHU
 - **Doctoral Thesis Advisor:** David Russell, JHU
 - **Doctoral Thesis Advisor:** Paul Martin, JHU (February, 2016)
 - **Doctoral Thesis Advisor:** Michael Rushanan, JHU (May, 2016)
 - **Doctoral Thesis Advisor:** Ayo Akinyele, JHU (December, 2013)
 - **Doctoral Thesis Advisor:** Matthew Pagano, JHU (August, 2013)
 - **Doctoral Thesis Advisor:** Ryan Gardner, JHU (August, 2009)
 - **Doctoral Thesis Advisor:** Sam Small, JHU (May, 2009)
 - **Doctoral Thesis Advisor:** Sujata Doshi, JHU (May, 2009)
 - **Doctoral Thesis Advisor:** Joshua Mason, JHU (June, 2009)
 - **Dissertation Committee:** J. Alex Halderman, Princeton University (May, 2009)
 - **Dissertation Committee:** Sophie Qiu (May, 2007).
 - **Doctoral Thesis Advisor:** Adam Stubblefield (April, 2005).
 - **Dissertation Committee:** Kevin FU, MIT (February, 2005).
 - **Dissertation Committee:** Robert Fischer, Harvard University (June, 2003).
 - **Dissertation Committee:** Marc Waldman, New York University, (April, 2003).
 - **Dissertation Committee:** Patrick McDaniel, University of Michigan (September, 2001).
 - **Doctoral Thesis Advisor:** Fabian Monrose, New York University (April, 1999).
 - **Dissertation Committee:** Mike Just, Carleton University (November, 1998).
 - **Dissertation Committee:** Trent Jaeger, University of Michigan (October, 1996).

Industry Experience

- 2011 - present
 - Harbor Labs**, Managing Member

- 1997 - 2002
AT&T Labs - Research, Secure Systems Research Department
- 1994 - 1996
Bellcore, Cryptography and Network Security Research Group
- Summer, 1990
Great Lakes Software Co., *Programmer*, Howell, MI
- Summer, 1989
IBM, *Programmer*, Meyers Corners Lab, Poughkeepsie, NY

Books

- Aviel D. Rubin, *Brave New Ballot*, Random House, (September, 2006).
- William R. Cheswick, Steven M. Bellovin and Aviel D. Rubin, *Firewalls and Internet Security: Repelling the Wily Hacker (2e)*, Addison Wesley Publishing Company, Inc., (February, 2003).
- **Chapter 4**, *Communications Policy and Information Technology: Promises, Problems, Prospects*, MIT Press, Lorrie Faith Cranor and Shane Mitchell Greenstein, eds., (2002).
- Aviel D. Rubin, *White-hat Security Arsenal*, Addison Wesley Publishing Company, Inc., (June, 2001).
- **Chapter 8**, *Publius* and **Chapter 14**, *Trust in Distributed Systems*, Marc Waldman, Lorrie Faith Cranor, and Aviel D. Rubin, *Peer-to-Peer*, O'Reilly & Associates, Inc., (February, 2001).
- Aviel D. Rubin, Daniel Geer, Marcus J. Ranum, *Web Security Sourcebook*, John Wiley & Sons, Inc., (June, 1997).
- **Ph.D. dissertation: Nonmonotonic Cryptographic Protocols** ([ps.gz](#), [pdf](#)), University of Michigan, Ann Arbor (April, 1994).

Refereed Journal Publications

- David Kotz, Kevin Fu, Carl Gunter, Avi Rubin, *Security for Mobile and Cloud Frontiers in Healthcare*, Communications of the ACM (July, 2015).
- Ayo Akinyele, Christina Garman, Matthew D. Green, Ian Miers, Matthew Pagano, Aviel D. Rubin, Michael Rushanan, *Charm: A Framework for Rapidly Prototyping Cryptosystems*, Journal of Cryptographic Engineering (JCEN), (January, 2013).
- Ryan Gardner, Sujata Garera, and Aviel D. Rubin, *Detecting Code Alteration by Creating a Temporary Memory Bottleneck*, IEEE Transactions on Information Forensics and Security: Special Issue on Electronic Voting, (December, 2009).
- Matt Blaze, John Ioannidis, Angelos D. Keromytis, Tal Malkin, Avi Rubin, *Anonymity in Wireless Broadcast Networks*, International Journal of Network Security (IJNS), (January, 2008).
- Stephen Bono, Aviel Rubin, Adam Stubblefield, and Matthew Green, *Security Through Legality*, Communications of the ACM (June, 2006).
- Adam Stubblefield, Dan S. Wallach, and Aviel D. Rubin, *Managing the Performance Impact of Web Security*, Electronic Commerce Research Journal, February, 2005.
- David Jefferson, Aviel D. Rubin, Barbara Simons, David Wagner, *Analyzing Internet Voting Security*, Communications of the ACM (October, 2004).
- Simon Byers, Aviel D. Rubin, and David Kormann, *Defending Against an Internet-based Attack on the Physical World*. ACM Transactions on Internet Technology (TOIT). August.

- Adam Stubblefield, John Ioannidis, and Aviel D. Rubin, *A Key Recovery Attack on the 802.11b Wired Equivalent Privacy Protocol (WEP)* ([pdf](#)), ACM Transactions on Information and System Security, May, 2004.
- Aviel D. Rubin, *Security Considerations for Remote Electronic Voting*, Communications of the ACM (December, 2002).
- Marc Waldman, Aviel D. Rubin, and Lorrie F. Cranor, *The Architecture of Robust Publishing Systems*, ACM Transactions on Internet Technology (TOIT), (November, 2001).
- David P. Kormann and Aviel D. Rubin, *Risks of the Passport Single Signon Protocol*, Computer Networks, (July, 2000).
- Christian Gilmore, David P. Kormann, and Aviel D. Rubin, *Secure Remote Access to an Internal Web Server*, IEEE Network, (November, 1999).
- Fabian Monrose and Aviel D. Rubin, *Keystroke Dynamics as a Biometric for Authentication*, ([pdf](#)) Future Generation Computer Systems, (March, 2000).
- Michael K. Reiter and Aviel D. Rubin, *Anonymity Loves Company: Anonymous Web Transactions with Crowds* ([ps.gz](#), [pdf](#)) Communications of the ACM (February, 1999).
- Aviel D. Rubin and Daniel E. Geer, Jr., *Mobile Code Security* ([ps.gz](#), [pdf](#)), IEEE Internet Computing (November/December, 1998).
- Aviel D. Rubin and Daniel E. Geer, Jr., *A Survey of Web Security*, IEEE Computer, (September, 1998).
- Michael K. Reiter and Aviel D. Rubin, *Crowds: Anonymity for Web Transactions* ([ps.gz](#), [pdf](#)), ACM Transactions on Information and System Security, (June, 1998).
- Aviel D. Rubin, *An Experience Teaching a Graduate Course in Cryptography* ([ps](#), [pdf](#)), Cryptologia (April, 1997).
- Aviel D. Rubin, *Extending NCP for public Key Protocols*, Mobile Networks and Applications (ACM/Balzer), 2(3) (April, 1997).
- Aviel D. Rubin, *Independent One-Time Passwords*, ([ps.gz](#), [pdf](#)) USENIX Journal of Computer Systems (February, 1996).
- Aviel D. Rubin, *Secure Distribution of Documents in a Hostile Environment*, Computer Communications (June, 1995).

Refereed Conference Publications

- Paul D. Martin, David Russel, Malek Ben Salem, Stephen Checkoway, Aviel D. Rubin, *Sentinel: Secure Mode Profiling and Enforcement for Embedded Systems*, Proc. ACM/IEEE International Conference on Internet-of-Things Design and Implementation, (April, 2018).
- Gabriel Kaptchuk, Matthew D. Green and Aviel D. Rubin, *Outsourcing Medical Dataset Analysis: A Possible Solution*, Financial Cryptography Conference, (April, 2017).
- Michael Rushanan, David Russell and Aviel D. Rubin, *MalloryWorker: Stealthy Computation and Covert Channels using Web Workers*, Proceedings of the 12th International Workshop on Security and Trust Management, (September, 2016).
- Paul Martin, Michael Rushanan, Thomas Tantillo, Christoph Lehmann and Aviel Rubin, *Applications of Secure Location Sensing in Healthcare*, Proceedings of the 7th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics, (October, 2016).
- Gabriel Kaptchuk and Aviel D. Rubin, *A Practical Implementation of a Multi-Device Split Application for Protecting Online Poker*, Proceedings of the 15th Annual Security Conference, (March, 2016).

- Aviel D. Rubin, *Taking Two-Factor to the Next Level: Protecting Online Poker, Banking, Healthcare and Other Applications*, Proceedings of the 2014 Annual Computer Security Applications Conference, Invited Keynote Essay, (December, 2014).
- Michael Rushanan, Aviel D. Rubin, Denis Foo Kune, Colleen M. Swanson, *Security and Privacy in Implantable Medical Devices and Body Area Networks*, IEEE Symposium on Security and Privacy - SoK Track (May, 2014).
- Christina Garman, Matthew Green, Ian Miers, Aviel D. Rubin, *Rational Zero: Economic Security for Zerocoin with Everlasting Anonymity*, 1st Workshop on Bitcoin Research (March, 2014).
- Paul Martin, Avi Rubin and Rafae Bhatti, *Enforcing Minimum Necessary Access in Healthcare Through Integrated Audit and Access Control*, Health Informatics Symposium at the ACM Conference on Bioinformatics, Computational Biology, and Biomedical Informatics, (September, 2013).
- Ian M. Miers, Christina Garman, Matthew D. Green, Aviel D. Rubin, *Zerocoin: Anonymous Distributed e-Cash from Bitcoin*, Proc. IEEE Symposium on Security and Privacy (May, 2013).
- Ian M. Miers, Matthew D. Green, Christoph U. Lehmann, Aviel D. Rubin, *Vis-à-Vis Cryptography: Private and Trustworthy In-Person Certifications*, In Proceedings of the 3rd USENIX/HealthSec Workshop, (August, 2012).
- Joseph A. Akinyele, Matthew W. Pagano, Matthew D. Green, Christoph U. Lehmann, Zachary N. J. Peterson and Aviel D. Rubin, *Securing Electronic Medical Records Using Attribute-Based Encryption On Mobile Devices*, ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices, (October, 2011).
- Matthew D. Green, Aviel D. Rubin, *A Research Roadmap for Healthcare IT Security inspired by the PCAST Health Information Technology Report - 4 page Extended Abstract*, In Proceedings of the 2nd USENIX/HealthSec Workshop, (August, 2011).
- Ryan Gardner, Sujata Garera, Aviel D. Rubin, *Designing for Audit: A Voting Machine with a Tiny TCB*, Financial Cryptography Conference, (January , 2010).
- Ryan Gardner, Sujata Garera, Matthew W. Pagano, Matthew D. Green, Aviel D. Rubin, *Securing Medical Records on Smart Phones, Workshop on Security and Privacy in Medical and Home-Care Systems*, (November, 2009).
- Ryan Gardner, Sujata Garera, Aviel D. Rubin, *Coercion Resistant End-to-end Voting*, Financial Cryptography Conference, (February, 2009).
- Ryan Gardner, Sujata Garera, Anand Rajan, Carols Rozas, Aviel D. Rubin, Manoj Sastry, *Protecting Patient Records from Unwarranted Access*, Future of Trust in Computing, (July, 2008).
- Sujata Garera, Niels Provos, Monica Chew and Aviel D. Rubin, *A Framework for Detection and Measurement of Phishing Attacks*, 5th ACM Workshop on Recurring Malcode (WORM 2007), (November, 2007).
- Sujata Garera and Aviel D. Rubin, *An Independent Audit Framework for Software Dependent Voting Systems*, 14th ACM Conference on Computer and Communications Security, (November, 2007).
- Ryan Gardner, Sujata Garera, and Aviel D. Rubin, *On the Difficulty of Validating Voting Machine Software with Software*, In Proceedings of the 2nd USENIX/ACCURATE Electronic Voting Technology Workshop (EVT '07), (August, 2007).
- Sujata Doshi, Fabian Monrose, and Aviel D. Rubin, *Efficient Memory Bound Puzzles using Pattern Databases*, 4th International Conference on Applied Cryptography and Network

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