Rob G. Jansen

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Education

University of Minnesota

Ph.D., Computer Science — *October 2012*
Thesis: *Privacy Preserving Performance Enhancements for Anonymous Communication Networks*

M.S., Computer Science — *January 2011*

B.A., Computer Science, Mathematics minor, with distinction — *May 2008*

Software Development: Internet Simulation

I designed, implemented, and maintain **Shadow**: an open source, parallel, discrete-event network simulator

- Unique hybrid simulation/emulation approach that runs existing software over a virtual, simulated operating system and network stack
- Facilitates distributed systems research for several institutions around the world
- Used by The Tor Project to develop, debug, and test their anonymous communication software
- Gained community recognition through several research publications and invited talks
- 20k lines of C, 3k lines of Python, available at https://github.com/shadow

Research: Distributed Privacy and Security Systems

My research interests include: distributed systems; privacy and anonymity systems; network and protocol security; and usable security. I have gained experience in 4 major U.S. research labs, resulting in 15 publications in top security conferences and workshops. I have served on 5 program committees and reviewed papers for several computer security conferences, workshops, and journals.

Selected Professional Experience

Computer Scientist, U.S. Naval Research Laboratory — *June 2011–present*

- Awarded a 2-year fellowship for "Performance Attacks on Communication Systems"
- Researched anonymous communication and high assurance computer systems

Graduate Research Assistant, University of Minnesota — *Fall 2008–June 2011*

- Wrote dissertation on performance enhancements for anonymous communication systems
- Researched distributed systems and peer-to-peer networks

Summer Research Program Intern, MIT Lincoln Laboratory — *Summer 2010*

- Researched trusted computing for allowing remote attestation of trust in satellite terminals

Network Research Graduate Intern, BBN Technologies — *Summer 2009*

- Implemented the Bundle Security Protocol for Delay Tolerant Networks

Selected Peer-reviewed Publications

- IMUX: Managing Tor Connections from Two to Infinity, and Beyond. In *WPES'14: the Workshop on Privacy in the Electronic Society*, 2014.
- Never Been KIST: Tors Congestion Management Blossoms with Kernel-Informed Socket Transport. In *SEC'14: Proceedings of the 23rd Usenix Security Symposium*, 2014.
- From Onions to Shallots: Rewarding Tor Relays with TEARS. In *HotPETs'14: the 7th Workshop on Hot Topics in Privacy Enhancing Technologies*, 2014.
- A TorPath to TorCoin: Proof-of-Bandwidth Altcoins for Compensating Relays. In *HotPETs'14: the 7th Workshop on Hot Topics in Privacy Enhancing Technologies*, 2014.
- The Sniper Attack: Anonymously Deanonymizing and Disabling the Tor Network. In *NDSS'14: Proceedings of the 21st Symposium on Network and Distributed System Security*, 2014.
- Users Get Routed: Traffic Correlation on Tor by Realistic Adversaries. In *CCS'13: Proceedings of the 20th ACM Conference on Computer and Communications Security*, 2013.
- How Low Can You Go: Balancing Performance with Anonymity in Tor. In *PETS'13: Proceedings of the 13th Privacy Enhancing Technologies Symposium*, 2013. **Best Student Paper Award.**
- LIRA: Lightweight Incentivized Routing for Anonymity. In *NDSS'13: Proceedings of the 20th Symposium on Network and Distributed System Security*, 2013.
- Throttling Tor Bandwidth Parasites. In *SEC'12: Proceedings of the 21st Usenix Security Symposium*, 2012.
- Methodically Modeling the Tor Network. In *CSET'12: Proceedings of the 5th Workshop on Cyber Security Experimentation and Test*, 2012.
- Shadow: Running Tor in a Box for Accurate and Efficient Experimentation. In *NDSS'12: Proceedings of the 19th Symposium on Network and Distributed System Security*, 2012. **2013 PET Award Runner Up.**
- Toward Delay Tolerant Network Anonymity: Threshold Pivot Scheme. In *MILCOM'10: Proceedings of the 29th Military Communications Conference*, 2010.
- Recruiting New Tor Relays with BRAIDS. In *CCS'10: Proceedings of the 17th ACM Conference on Computer and Communications Security*, 2010.
- Membership-concealing overlay networks. In *CCS'09: Proceedings of the 16th ACM Conference on Computer and Communications Security*, 2009.

Selected Talks

- Never Been KIST: Tors Congestion Management Blossoms with Kernel-Informed Socket Transport. At the *USENIX Security Symposium*, 2014.
- On Traffic Analysis in Tor. At the *Department of Electrical Engineering, Princeton University*, 2014.
- Shadow: Simple HPC for Systems Security Research. At the *Department of Computer and Information Sciences, Kansas State University*, 2013.
- How Low Can You Go: Balancing Performance with Anonymity in Tor. At the *DC-area Anonymity, Privacy, and Security Seminar*, 2013.
- Methodically Modeling the Tor Network. At *Cyber Security Experimentation and Test*, 2012.
- Shadow: Running Tor in a Box for Accurate and Efficient Experimentation. At the *Symposium on Network and Distributed System Security*, 2012.

Service

- Program committee for PETS'15, ACSAC'14, WWW'14, PETS'14, WPES'13, and CSET'13.
- External peer reviewer for 19 conferences, workshops, and journals, including USENIX Security, IEEE S&P, NDSS, CCS, WPES, PETS, FOCI, FC, ESORICS, AsiaCCS, SecureComm, ISC, WCM, MobiHoc, CSET, ICDCS, TISSEC, and TDSC.