
Toby Ehrenkranz <ehrenkranz@gmail.com>

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EDUCATION

University of Oregon — B.S. in Math and Computer Science, Minor in Chinese *Sep. 1998 - Jun. 2002*
GPA: 3.68 overall, 3.84 in Computer Science

Central University for Nationalities — Intensive Chinese Language Program *Sep. 1999 - Jun. 2000*
Part of the University of Oregon's study abroad program in Beijing, China

University of Oregon — Ph.D. in Computer Science *Sep. 2004 - Present*
GPA: 3.81, Advanced to candidacy and passed Oral Comprehensive Exam with distinction on May 30, 2008

SKILLS

Java	C/C++	Python	Tcl	Unix/Linux (many distributions)	Network & System administration
AWK	Bash	Vi	L ^A T _E X	Chinese Fluency (Mandarin)	Native English

PUBLICATIONS

- [1] Toby Ehrenkranz and Jun Li. On the state of IP spoofing defense. *ACM Transactions on Internet Technology*, 9(2), May 2009.
- [2] Jun Li, Jelena Mirkovic, Toby Ehrenkranz, Mengqiu Wang, Peter Reiher, and Lixia Zhang. Learning the valid incoming direction of IP packets. *Computer Networks*, 52(2):399–417, 2008.
- [3] Jun Li, Michael Guidero, Zhen Wu, Eric Purpus, and Toby Ehrenkranz. BGP routing dynamics revisited. *ACM SIGCOMM Computer Communication Review*, 37(2):7–16, April 2007.
- [4] Shad Stafford, Jun Li, and Toby Ehrenkranz. Enhancing SWORD to detect zero-day-worm-infected hosts. *SIMULATION: Transactions of the Society for Modeling and Simulation International*, 83(2):199–212, February 2007.
- [5] Shad Stafford, Jun Li, and Toby Ehrenkranz. On the performance of SWORD in detecting zero-day-worm-infected hosts. In *Proceedings of the Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS)*, volume 38, pages 559–566, Calgary, Canada, July 2006.
- [6] Shad Stafford, Toby Ehrenkranz, and Jun Li. Detecting zero-day self-propagating Internet worms based on their fundamental behavior. In *Proceedings of the USENIX Security Symposium*, August 2006. poster.
- [7] Toby Ehrenkranz and Jun Li. ID-SAVE: Incrementally deployable source address validity enforcement. In *Proceedings of the USENIX Security Symposium*, August 2006. work-in-progress.
- [8] Jun Li, Toby Ehrenkranz, Geoff Kuenning, and Peter Reiher. Simulation and analysis on the resiliency and efficiency of malnets. In *Symposium on Measurement, Modeling, and Simulation of Malware*, pages 262–269, Monterey, CA, June 2005.

COMPUTING WORK EXPERIENCE

University of Oregon — Graduate Research Fellow *Sep. 2004 - Present*
Eugene, OR USA

- Worked in the Computer and Information Science Department's Network Security Research Lab
- Contributed heavily to IP spoofing research:
 - Published a survey of existing IP spoofing prevention mechanisms in a top journal
 - Designed a new, more effective, more incrementally deployable router-level network protocol enabling routers to detect IP spoofing (used Java and Tcl)
 - Modeled, simulated, and analyzed many IP spoofing scenarios using a Java based simulator (used Java, Tcl, and AWK)
- Contributed heavily to IP prefix hijacking research:
 - Analyzed the inadequacies and vulnerabilities of existing IP prefix hijacking detection systems
 - Designed and analyzed a novel control-plane based method for IP prefix hijacking detection (used Python, MySQL, and C)
- Assisted colleagues with research including defending against Internet worms and malware, securing and incentivizing P2P file sharing, and understanding Internet routing behavior
- Assisted research lab director in applying for NSF grants (some of which were awarded)
- Administered the lab's computing resources

- University of Oregon** — Graduate Teaching Fellow *Sep. 2007 - Dec. 2007, Jun. 2008 - Aug. 2008*
 Eugene, OR USA
- Assisted in teaching CIS 210: “Computer Science I”
 - Led a weekly interactive lab session, using Java, to ensure students apply concepts from their lectures
 - Held office hours to help students understand programming concepts and problems
 - Designed, taught, and evaluated a freshman-level course, CIS 170: “The Science of Computing”
 - Introduced students to a variety of aspects of Computer Science
 - Taught basics of Ruby and MySQL programming

- University of Oregon** — Networking Systems Administrator *Feb. 2001 - Aug. 2001, Jan. 2002 - Jun. 2002*
 Eugene, OR USA
- Administered and installed Windows, Linux, and Solaris systems along with server software
 - Troubleshooted hardware and software problems
 - Configured and installed Cisco routers

- Bonneville Power Administration** — Web Designer, Unix Admin *Jun. 1997 - Aug. 1997, Jun. 1998 - Sep. 1998*
 Portland, OR USA
- ASE (Apprenticeships in Sci. and Eng.) Apprentice
 - Redesigned and rewrote webpages for use on the agency intranet
 - Assisted in configuring computers, including Linux and Windows NT machines
 - Supported and Administered Unix systems
 - Upgraded and installed Linux and DEC Unix systems
 - Ported scripts from DEC Unix and SCCS to Linux and RCS (RCS and SCCS are version control systems)

AWARDS

- Clarence & Lucille Dunbar Scholarship** *2008-2009*
- CPATH I18N Workshop Travel Grant** (led the student forum) *Oct. 2008, May 2009*
- ACM SIGCOMM Travel Grant** *Aug. 2007*
- USENIX Security Travel Grant** (presented a poster and work-in-progress) *Aug. 2006*
- Baerncopf Scholarship** *2001 & 2002*

AFFILIATIONS

- Association for Computing Machinery (ACM)** *2007-Present*
- Institute of Electrical and Electronics Engineers (IEEE)** *2006-Present*
- USENIX** *2006-Present*
- Upsilon Pi Epsilon (UPE)** 2006-2007 Vice President of UO Chapter *2006-Present*

OTHER WORK EXPERIENCE

- Office Depot** — Retail Salesman *Jun. 2004 - Sep. 2004*
 Beaverton, OR USA
- Assisted customers in finding products that matched their requirements
 - Focused on sales of technology items
- Olive Tree English Kindergarten** — Lead Teacher *Aug. 2002 - May 2004*
 Chengdu, Sichuan China
- Taught 18 Chinese children aged $2\frac{1}{2}$ to $3\frac{1}{2}$ years old
 - Worked as a team with a mixture of English and Chinese speaking coworkers
 - Communicated each child’s weekly activities and progress to parents