

CURRICULUM VITAE OF JEDIDIAH R. CRANDALL — Updated Summer 2013

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Education

Ph.D. Computer Science, Univ. of California at Davis, 2007.

Thesis title: Capturing and Analyzing Internet Worms.

B.S. Computer Science, Embry-Riddle Aeronautical University in Prescott, AZ, 2002.

Recent employment

Current position: The University of New Mexico, Albuquerque, NM. Associate Professor.
2007–2013. The University of New Mexico, Albuquerque, NM. Assistant Professor.

Selected honors and awards

UNM Office of Graduate Studies Faculty Mentor Award, 2012.

UNM Dept. of Computer Science Qforma Lectureship, 2011.

UNM Dept. of Computer Science Qforma Lectureship, 2010.

NSF CAREER Award, 2009.

Best Graduate Student Researcher Award, U.C. Davis Computer Science Dept., 2006.

GAANN (Graduate Assistance in Areas of National Need) Fellowship, 2002-2003.

Program committee memberships

Third USENIX Workshop on Free and Open Communications on the Internet (FOCI 2013). (**Co-chair**)

33rd International Conference on Distributed Computing Systems (ICDCS 2013).

Workshop on Hardware and Architectural Support for Security and Privacy (HASP 2012).

The 28th Annual Computer Security Applications Conference¹ (ACSAC 2012).

The IEEE International Conference on Cyber, Physical, and Social Computing (CPSCoM 2012).

Second USENIX Workshop on Free and Open Communications on the Internet (FOCI 2012).

12th Annual DFRWS Conference (DFRWS 2012).

32nd International Conference on Distributed Computing Systems (ICDCS 2012).

USENIX Workshop on Free and Open Communications on the Internet (FOCI 2011).

Conference on Security and Privacy in Communication Networks (SecureComm 2011).

ACM Computer and Communications Security Conference (CCS 2010).

¹I was added as an additional program committee member after ACSAC received a record number of submissions, so my name does not appear in the original call for papers.

European Workshop on System Security (EUROSEC 2010).
IEEE Symposium on Security and Privacy (Oakland 2009).
European Workshop on System Security (EUROSEC 2009).

PUBLICATIONS

NOTE: acceptance rates, where known, are shown in parentheses.

Invited chapters

Daniela Oliveira and Jedidiah R. Crandall. “Technical Foundations of Information Systems Security.” *Invited chapter in the Computing Handbook Set—Information Systems and Information Technology, Third Edition*. Volume 2, Section 7. (Editor in Chief: Alan Tucker, Volume 2 Editor: Heikki Topi).

Journal papers

Bilal Shebaro, Fernando Perez-Gonzalez, and Jedidiah R. Crandall. “Exploiting Geometrical Structure for Forensic Applications of Timing Inference Channels.” *Accepted to the International Journal of Digital Crime and Forensics, currently awaiting publication. (2013)*

Mohammed I. Al-Saleh, Antonio M. Espinoza, and Jedidiah R. Crandall. “Antivirus Performance Characterization: System-Wide View.” *Accepted to the IET Information Security Journal, currently awaiting publication. (2013).*

Bilal Shebaro and Jedidiah R. Crandall. “Privacy-Preserving Network Flow Recording.” *Digital Investigation Journal*. Vol. 8, (Aug 2011), p. S90-S100. doi:10.1016/j.diin.2011.05.011. (**Digital Investigation Journal 2011**). (23%)

Bilal Shebaro, Fernando Perez-Gonzalez, and Jedidiah R. Crandall. *Digital Investigation Journal*. Vol. 7, (Aug 2010), p. S104-S113. doi:10.1016/j.diin.2010.05.013. (**Digital Investigation Journal 2010**). (41%)

J.R. Crandall, J. Brevik, S. Ye, G. Wassermann, D.A.S. de Oliveira, Z. Su, S.F. Wu, and F.T. Chong. “Putting Trojans on the Horns of a Dilemma: Redundancy for Information Theft Detection.” *Transactions on Computational Science IV: Special Issue on Security in Computing. Springer Lecture Notes in Computer Science (Springer LNCS 2009), Volume 5430, pages 244–262. (23%)*

J.R. Crandall, F.T. Chong, and S.F. Wu. “Minos: Architectural Support for Protecting Control Data.” *ACM Transactions on Architecture and Code Optimization (ACM TACO 2006)*. Volume 3, Issue 4.

Refereed conference and workshop publications

Tao Zhu, David Phipps, Adam Pridgen, Jedidiah R. Crandall, and Dan S. Wallach. “The Velocity of Censorship: High-Fidelity Detection of Microblog Post Deletions.” *Accepted to the 22nd USENIX Security Symposium. (USENIX Security 2013) (16%)*

Peiyong Song, Anhe Shu, David Phipps, Dan Wallach, Mohit Tiwari, Jedidiah Crandall, and George Luger. “Language Without Words: A Pointillist Model for Natural Language Processing.” *In the Proceedings of the 6th International Conference on Soft Computing and Intelligent Systems. (SCIS-ISIS 2012)*

Peiyong Song, Anhe Shu, Anyu Zhou, Dan Wallach, and Jedidiah R. Crandall. "A Pointillism Approach for Natural Language Processing of Social Media." *In the Proceedings of the 8th IEEE International Conference on Natural Language Processing and Knowledge Engineering.* (**IEEE NLP-KE 2012**) (30%)

Jeffrey Knockel and Jedidiah R. Crandall. "Protecting Free and Open Communications on the Internet Against Man-in-the-Middle Attacks on Third-Party Software: We're FOCI'd." *In the Proceedings of the 2nd USENIX Workshop on Free and Open Communications on the Internet.* (**FOCI 2012**) (50%)

Nicholas Aase, Jedidiah R. Crandall, Álvaro Díaz, Jeffrey Knockel, Jorge Ocaña Molinero, Jared Saia, Dan Wallach, and Tao Zhu. "Whiskey, Weed, and Wukan on the World Wide Web: On Measuring Censors' Resources and Motivations." *In the Proceedings of the USENIX Workshop on Free and Open Communications on the Internet.* (**FOCI 2012**) (50%)

Daniela Oliveira and Jedidiah R. Crandall. "Holographic Vulnerability Studies: Vulnerabilities as Fractures in Interpretation as Information Flows Across Abstraction Boundaries." *In the Proceedings of the New Security Paradigms Workshop.* (**NSPW 2012**) (40%)

Roya Ensafi, Mike Jacobi, and Jedidiah R. Crandall. "Students Who Don't Understand Information Flow Should be Eaten: An Experience Paper." *In the Proceedings of the 5th USENIX Workshop on Cyber Security Experimentation and Test.* (**CSET 2012**) (48%)

Antonio M. Espinoza and Jedidiah R. Crandall. "Work-in-Progress: Automated Named Entity Extraction for Tracking Censorship of Current Events." *In the Proceedings of the USENIX Workshop on Free and Open Communications on the Internet.* (**FOCI 2011**) (59%)

Jeffrey Knockel, Jedidiah R. Crandall, and Jared Saia. "Three Researchers, Five Conjectures: An Empirical Analysis of TOM-Skype Censorship and Surveillance." *In the Proceedings of the USENIX Workshop on Free and Open Communications on the Internet.* (**FOCI 2011**) (59%)

Bilal Shebaro and Jedidiah R. Crandall. "Privacy-Preserving Network Flow Recording." *In the Proceedings of the DFRWS 2011 Annual Conference.* (**DFRWS 2011**). (23%)

Mohammed I. Al-Saleh and Jedidiah R. Crandall. "Application-Level Reconnaissance: Timing Channel Attacks Against Antivirus Software." *In the Proceedings of the 4th USENIX Workshop on Large-Scale Exploits and Emergent Threats.* (**LEET 2011**) (44%)

Mohammed I. Al-Saleh and J.R. Crandall. "On Information Flow for Intrusion Detection: What if Accurate Full-system Dynamic Information Flow Tracking Was Possible?." *In the Proceedings of the New Security Paradigms Workshop.* (**NSPW 2010**). (44%)

Roya Ensafi, Jong C. Park, Deepak Kapur, and Jedidiah R. Crandall. "**Idle Port Scanning and Non-interference Analysis of Network Protocol Stacks Using Model Checking.**" *In the Proceedings of the 19th USENIX Security Symposium.* (**USENIX Security 2010**) (15%)

Bilal Shebaro, Fernando Perez-Gonzalez, and Jedidiah R. Crandall. "Leaving Timing Channel Fingerprints in Hidden Service Log Files." *In the Proceedings of the DFRWS 2010 Annual Conference.* (**DFRWS 2010**). (41%)

Jong C. Park and Jedidiah R. Crandall. "Empirical Study of a National-Scale Distributed Intrusion Detection System: Backbone-Level Filtering of HTML Responses in China." *In the Proceedings of the 30th International Conference on Distributed Computing Systems.* (**ICDCS 2010**). (14%)

Mohammed I. Al-Saleh, Patrick B. Bridges, and Jedidiah R. Crandall. "Architectural Support for Securing Sensor Networks Against Remote Attacks." *In the Proceeding of the ISCA First International Conference on Sensor Networks and Applications* (**SNA 2009**). (71%)

Jedidiah R. Crandall, Roya Ensafi, Stephanie Forrest, Joshua Ladau, and Bilal Shebaro. "The Ecology of Malware." *In the Proceedings of the New Security Paradigms Workshop (NSPW 2008)*. (32%)

Daniela A.S. de Oliveira, Jedidiah R. Crandall, Gary Wassermann, Shaozhi Ye, Felix Wu, Zhendong Su, and Frederic T. Chong. "Bezoar: Automated Virtual Machine-based Full-System Recovery from Control-Flow Hijacking Attacks." *In the Proceedings of the 2008 IEEE/IFIP Network Operations and Management Symposium (NOMS 2008)*. (29%)

Ryan Iwahashi, Daniela Oliveira, S. Felix Wu, Jedidiah Crandall, Young-Jun Heo, Jin-Tae Oh, and Jong-Soo Jang. "Towards Automatically Generating Double-Free Vulnerability Signatures Using Petri Nets." *In the Proceedings of the 11th Information Security Conference (ISC 2008)*. (29%)

Jedidiah R. Crandall, Daniel Zinn, Michael Byrd, Earl Barr, and Rich East. "ConceptDoppler: A Weather Tracker for Internet Censorship." *In the Proceedings of the 14th ACM Conference on Computer and Communications Security (CCS 2007)*. (18%)

J.R. Crandall, G. Wassermann, D.A.S. de Oliveira, Z. Su, S.F. Wu, and F.T. Chong. "Temporal Search: Detecting Hidden Malware Timebombs with Virtual Machines." *In the Proceedings of the Twelfth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2006)*. (22%)

J.R. Crandall, Z. Su, S.F. Wu, and F.T. Chong. "On Deriving Unknown Vulnerabilities from Zero-Day Polymorphic and Metamorphic Worm Exploits." *In the proceedings of the 12th ACM Conference on Computer and Communications Security (CCS 2005)*. (15%)

J.R. Crandall, S.F. Wu, and F.T. Chong. "Experiences Using Minos as A Tool for Capturing and Analyzing Novel Worms for Unknown Vulnerabilities." *GI/IEEE SIG SIDAR Conference on Detection of Intrusions and Malware and Vulnerability Assessment (DIMVA 2005)*. *Springer Lecture Notes in Computer Science*. (27%)

J.R. Crandall and F.T. Chong. "Minos: Control Data Attack Prevention Orthogonal to Memory Model." *In the Proceedings of the 37th International Symposium on Microarchitecture (MICRO 2004)*. (18%)

J.R. Crandall and F.T. Chong. "A Security Assessment of the Minos Architecture." *In the Proceedings of the Workshop on Architectural Support for Security and Anti-virus (WASSA 2004)*. Boston, Massachusetts.

J. Oliver, R. Rao, P. Sultana, J. Crandall, E. Czernikowski, L. Jones IV, D. Franklin, V. Akella, and F.T. Chong. "Synchrosalar: A Multiple Clock Domain, Power-Aware, Tile-Based Embedded Processor." *In the Proceedings of the 31st International Symposium on Computer Architecture (ISCA 2004)*. (14%)

Invited talks, panels, and posters

Invited talk: "Can you trust your web browser?" At the Santa Fe Institute/Fidelity Investments Identity and Trust in the Internet Age Business Network Topical Meeting. April 2013.

Invited talk series: "Thwarting Surveillance: Can cryptography protect you from online eavesdroppers?" Talk given to high school students in Española, Los Alamos, Albuquerque, and Santa Fe as part of the New Mexico Cafe Scientifique program. Spring 2013.

Poster: Maria Khater, Rafael Fierro, Antonio M. Espinoza, and Jedidiah R. Crandall. "A Hybrid System Approach to Model Dynamic Information Flow Tracking." At the 2012 International Workshop on Feedback Computing.

Panel: “*Embedding Social Trust Policies in Operating Systems or Browsers.*” At the 2012 Workshop on Semantic Computing and Security (WSCS). May 2012.

Poster: “*Hybrid Channels for Enhancing the Performance of Anonymous Networks.*” Jong Chun Park and Jedidiah R. Crandall. At the USENIX Security 2011 poster session. August 2011.

Panel: “*Firewalls and Cyber-kills: Do they work?*” At the 2011 UNM National Security Symposium: Global Cyber-Impact: Society and World Politics. March 2011.

Panel: “*Targeted Viruses and Denial of Service (DoS): Did Stuxnet work and what is next?*” At the 2011 UNM National Security Symposium: Global Cyber-Impact: Society and World Politics. March 2011.

Panel: “*The International Scene.*” At the Georgia Tech Workshop on Free and Open Communication on the Internet. February 2011.

Poster: “*Privacy-Preserving Network Flow Recording.*” Bilal Shebaro and Jedidiah R. Crandall. At FloCon 2011. January 2011.

Invited talk series: “*Is Big Brother Watching and Restricting Your Internet Activities?*” Talk given to high school students in Española, Los Alamos, Albuquerque, and Santa Fe as part of the New Mexico Cafe Scientifique program. Fall 2010.

Poster: “*Tools for Tracking and Understanding Keyword-based Internet Censorship.*” Antonio Espinoza, Ronald Garduño, Leif Guillermo, Veronika Strnadová, and Jedidiah R. Crandall. At the USENIX Security 2010 poster session. August 2010.

Invited talk: “*Global Internet Censorship, and What We Can Do About It.*” Santa Fe Institute Colloquia Series. Santa Fe, New Mexico. April 2009.

Invited talk: “*Global Internet Censorship, and What We Can Do About It.*” Asilomar Microcomputer Workshop. Pacific Grove, California. April 2009.

Invited talk: “*ConceptDoppler: A Weather Tracker for Internet Censorship.*” Sandia National Labs CSRI Colloquium. Albuquerque, New Mexico. November 2007.

Invited talk: “*Temporal Search: Detecting Hidden Malware Timebombs with Virtual Machines.*” ARO-DARPA-DHS Special Workshop on Botnets. Alexandria, Virginia. June 2006.

Invited talk: “*Minos: A Tool for Capturing and Analyzing Novel Worms for Unknown Vulnerabilities.*” Invited talk at the 2nd Workshop on Rapid Malcode (WORM). Fairfax, Virginia. October 2004.