Jedidiah R. Crandall

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Education

Ph.D. Computer Science, University of California at Davis, 2007.
Thesis Title: Capturing and Analyzing Internet Worms

B.S. Computer Science, Embry-Riddle Aeronautical University, 2002. Summa Cum Laude.

Research Interests

Interests include systems, security, computer architecture, virtual machines, and malware (including worms, botnets, and viruses). My recent work has a particular focus on behavior-based malware analysis, where malware can be characterized by behaviors such as its perception of time or use of entropy. Another research interest of mine is to model and understand various forms of Internet censorship.

Awards and Honors

Best Graduate Researcher Award, Department of Computer Science, U.C. Davis, 2006

U.C. Davis Graduate Student Association Summer Research Assistantship Award, 2004

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

Conference and Journal Publications

Jedidiah R. Crandall, Daniel Zinn, Michael Byrd, Earl Barr, and Rich East. **Concept-Doppler: A Weather Tracker for Internet Censorship.** *14th ACM Conference on Computer and Communications Security* **(CCS 2007).** *Alexandria, Virginia. October 2007.*

Jedidiah R. Crandall, Gary Wassermann, Daniela A. S. de Oliveira, Zhendong Su, S. Felix Wu, and Frederic T. Chong. **Temporal Search: Detecting Hidden Malware Timebombs with Virtual Machines.** *Twelfth International Conference on Architectural Support for Programming Languages and Operating Systems* **(ASPLOS XII).** *San Jose, California. October 2006.*

Jedidiah R. Crandall, Frederic T. Chong, and S. Felix Wu. **Minos: Architectural Support for Protecting Control Data.** *To appear in the December, 2006 issue of Transactions on Architecture and Code Optimization* **(TACO).**

Jedidiah R. Crandall, Zhendong Su, S. Felix Wu, and Frederic T. Chong. **On Deriving Unknown Vulnerabilities from Zero-Day Polymorphic and Metamorphic Worm Exploits.** *12th ACM Conference on Computer and Communications Security* **(CCS 2005).** *Alexandria, Virginia. November 2005.*

Jedidiah R. Crandall, S. Felix Wu, and Frederic 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**). *Vienna, Austria. July 2005. Springer Lecture Notes in Computer Science.*

Jedidiah R. Crandall and Frederic T. Chong. **Minos: Control Data Attack Prevention Orthogonal to Memory Model.** *37th International Symposium on Microarchitecture* (**MICRO-37**). *Portland, Oregon. December 2004.*

John Oliver, Ravishankar Rao, Paul Sultana, Jedidiah Crandall, Erik Czernikowski, Leslie Jones IV, Diana Franklin, Venkatesh Akella, Frederic T. Chong. **Synchroscalar: A Multiple Clock Domain, Power-Aware, Tile-Based Embedded Processor.** *The 31st Annual International Symposium on Computer Architecture* (**ISCA 2004**). *Munich, Germany. June 2004.*

Workshops

Daniela A. S. de Oliveira, Jedidiah R. Crandall, Gary Wassermann, S. Felix Wu, Zhendong Su, and Frederic T. Chong. **ExecRecorder: VM-Based Full-System Replay for Attack Analysis and System Recovery.** *Workshop on Architectural and System Support for Improving Software Dependability, in conjunction with ASPLOS-XII* (**ASID 2006**). *San Jose, California. October 2006.*

Jedidiah R. Crandall and Frederic T. Chong. **A Security Assessment of the Minos Architecture.** *Workshop on Architectural Support for Security and Anti-virus, in conjunction with ASPLOS-XI* (**WASSA 2004**). *Boston, Massachusetts. October 2004.*

Ravishankar Rao, John Oliver, Paul Sultana, Jedidiah Crandall, Erik Czernikowski, Leslie W. Jones IV, Dean Copsey, Diana Keen, Venkatesh Akella, and Frederic T. Chong. **Synchroscalar: Initial Lessons in Power-Aware Design of a Tile-Based Embedded Architecture.** *Workshop on Power-Aware Computer Systems* (**PACS**). *San Diego, California. December 2003.*

Invited Talks

Jedidiah R. Crandall. **Temporal Search: Detecting Hidden Malware Timebombs with Virtual Machines.** *At the ARO-DARPA-DHS Special Workshop on Botnets. Arlington, Virginia. June 2006.*

Jedidiah R. Crandall. **Minos: A Tool for Capturing and Analyzing Novel Worms for Unknown Vulnerabilities.** *At the 2nd Workshop on Rapid Malcode* (**WORM 2004**). *Fairfax, Virginia. October 2004.*

Professional Activities

Program Committee: U.C. Davis Student Workshop on Computing, 2003 and 2004.

Reviewer for ISCA 2004, HPCA 2004, SPAA 2005, MICRO-38, Internationl Journal of Systems and Networks, FSE 2006, MESA 2006, LSAD 2006, HPCA 2006, ICC 2006, ASPLOS-XII, Transactions on Architecture and Code Optimization, MICRO-39, and ISCA 2007.