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RESEARCH INTERESTS

Computer security: Web security, cellular network security, privacy and anonymity, firewall security.

EDUCATION

Ph.D. in Computer Science University of California, Berkeley. December 2004.
Advisor: Professor David A. Wagner.
Dissertation: *Lightweight Model Checking for Improving Software Security*.

PROFESSIONAL EXPERIENCE

University of California, Davis. Dept of Computer Science. July 2004 — present. Assistant Professor.

TEACHING EXPERIENCE

Data Structures and Programming ECS 60. University of California, Davis.
Spring 2009.

Introduction to Software Development ECS 40. University of California, Davis.
Summer 2009, Summer 2008, and Winter 2008.

Computer Security (graduate) ECS 235A. University of California, Davis.
Fall 2008, Fall 2007, Fall 2006, and Fall 2005.

Computer Security (undergraduate) ECS 153. University of California, Davis.
Winter 2009, Winter 2007, Spring 2006, and Winter 2005.

Ethnics and the Information Age ECS 188. University of California, Davis. Fall 2006.

Software Security ECS 289M. University of California, Davis. Fall 2004.

INVITED LECTURES

Invited speaker at Johns Hopkins University, Microsoft Research Redmond, Microsoft Research Asia, Sprint Labs, University of British Columbia, Purdue University, Palo Alto Research Center (PARC).

SERVICE

Program Committees

- 2009 IEEE Symposium on Security and Privacy
- 2008 International Conference on Distributed Computing Systems (ICDCS).
- 2007 Usenix security symposium.
- 2007, 2008, and 2009 International Conference on Security and Privacy in Communication Networks (SecureComm).
- 2006, 2008, 2009, and 2010 ISOC Network and Distributed System Security Symposium (NDSS).
- 2006 ACM Symposium on Information, Computer and Communications Security.

Panels

- NSF CyberTrust Panel: 2006, 2007, and 2008.

FUNDING

- **University of California MICRO Program** *Leveraging Cellular Networks for Web Authentication.* \$11,250. August 2008 – December 2009. PI.
- **NSF CNS-0831547** *Practical Privacy Preserving Technologies.* \$300,000. November 2008 – October 2011. Co-PI.
- **Department of Defense Helix: A Self-Regenerative Architecture for the Incorruptible Enterprise.** \$1,646,000. May 2007 – April 2012. PI.
- **NSF CNS-0644450 CAREER: Securing Broadband Cellular Data Networks.** \$400,000. July 2007 – June 2012. PI.
- **I3P (Institute for Information Infrastructure Protection) Fellowship** \$150,000. September 2005 — August 2007. PI.
- **NSF CNS-0520320 NeTS-NBD: Automatic Validation, Optimization, and Adaptation of Distributed Firewalls for Network Performance and Security.** \$400,000. September 2005 – August 2008. Co-PI.
- **NSF CNS-0524826 CT-ISG: Reasoning about Composable Intrusion Detection Systems.** \$179,110. October 2005 – September 2006. PI.
- **Sprint** \$30,000 in 2007 and \$30,000 in 2008. PI.
- **Microsoft** \$5,000 in 2007. PI.
- **Intel** \$150,000 in 2005. co-PI.

AWARDS

- **NSF CAREER Award**, 2007.

RESEARCH PUBLICITY

- **The New York Times**, March 19, 2007. *Researchers Track Down a Plague of Fake Web Pages.*
- **The Sacramento Bee**, October 23, 2006. *Ear for Security.*
- **Capitol Public Radio**, August 30, 2006. *Cell Phone Attacks.*

PUBLICATIONS

All the publications listed below are available at: <http://www.cs.ucdavis.edu/~hchen/>

Francis Hsu, Hao Chen, and Sridhar Machiraju. WebCallerID: Leveraging cellular networks for web authentication. *Journal of Computer Security*. Accepted.

Radmilo Racic, Denys Ma, Hao Chen, and Xin Liu. Exploiting and defending opportunistic scheduling in cellular data networks. *IEEE Transactions on Mobile Computing*. Accepted.

Liang Cai, Sridhar Machiraju, and Hao Chen. CapAuth: A capability-based handover scheme. In *IEEE INFOCOM 2010: The 27th Conference on Computer Communications*, San Diego, CA, March 15-19, 2010.

Francis Hsu and Hao Chen. Secure file system services for Web 2.0 applications. In *Proceedings of the The ACM Cloud Computing Security Workshop (CCSW 2009)*, Chicago, IL, November 13, 2009.

Ian Goldberg, Berkant Ustaoglu, Matthew Van Gundy, and Hao Chen. Multi-party off-the-record messaging. In *Proceedings of the 16th ACM Conference on Computer and Communications Security (CCS)*, Chicago, IL, November 9-13, 2009.

Liang Cai, Gabriel Maganis, Hui Zang, and Hao Chen. Mitigating DOS attacks on the paging channel by efficient encoding in page messages. In *Proceedings of the 5th International Conference on Security and Privacy in Communication Networks (SecureComm)*, Athens, Greece, September 14-18, 2009.

Shaozhi Ye, Felix Wu, Raju Pandey, and Hao Chen. Noise injection for search privacy protection. In *Proceedings of the 2009 IEEE International Conference on Privacy, Security, Risk and Trust (PASSAT)*, Vancouver, Canada, August 29-31, 2009.

Liang Cai, Sridhar Machiraju, and Hao Chen. Defending against sensor-sniffing attacks on mobile phones. In *The First ACM SIGCOMM Workshop on Networking, Systems, Applications on Mobile Handhelds (MobiHeld)*, Barcelona, Spain, August 17, 2009.

Justin Becker and Hao Chen. Measuring privacy risk in online social networks. In *Web 2.0 Security and Privacy (W2SP)*, Oakland, CA, May 21, 2009.

Matthew Van Gundy and Hao Chen. Noncespaces: Using randomization to enforce information flow tracking and thwart cross-site scripting attacks. In *Proceedings of the 16th Annual Network and Distributed System Security Symposium (NDSS)*, San Diego, CA, February 8-11, 2009.

G Misherghi, Lihua Yuan, Zhendong Su, Chen-Nee Chuah, and Hao Chen. A general framework for benchmarking firewall optimization techniques. *IEEE Transactions on Network and Service Management*, 5(4):227–238, December 2008.

Steven Crites, Francis Hsu, and Hao Chen. Omash: Enabling secure web mashups via object abstractions. In *Proceedings of the 15th ACM Conference on Computer and Communications Security (CCS)*, pages 99–107, Alexandria, VA, October 27-31, 2008.

Yuan Niu, Francis Hsu, and Hao Chen. iPhish: Phishing vulnerabilities on consumer electronics. In *Proceedings of Usability, Psychology, and Security 2008*, San Francisco, CA, April 14, 2008.

Sridhar Machiraju, Hao Chen, and Jean Bolot. Distributed authentication for low-cost wireless networks. In *Proceedings of the Ninth Workshop on Mobile Computing Systems and Applications (HotMobile)*, pages 55–59, Napa Valley, CA, February 25-26, 2008.

Radmilo Racic, Denys Ma, Hao Chen, and Xin Liu. Exploiting opportunistic scheduling in cellular data networks. In *Proceedings of the 15th Annual Network and Distributed System Security Symposium (NDSS)*, pages 333–345, San Diego, CA, February 10-13, 2008.

Matthew Van Gundy, Hao Chen, Zhendong Su, and Giovanni Vigna. Feature omission vulnerabilities: Thwarting signature generation for polymorphic worms. In *Proceedings of the 23rd Annual Computer Security Applications Conference (ACSAC)*, pages 74–83, Miami Beach, FL, December 10-14, 2007.

Yi-Min Wang, Ming Ma, Yuan Niu, and Hao Chen. Spam double-funnel: Connecting web spammers with advertisers. In *Proceedings of the 16th International World Wide Web Conference (WWW)*, Banff, Canada, May 8-12, 2007.

Yuan Niu, Yi-Ming Wang, Hao Chen, Ming Ma, and Francis Hsu. A quantitative study of forum spamming using context-based analysis. In *Proceedings of the 14th Annual Network and Distributed System Security Symposium (NDSS)*, pages 79–92, San Diego, CA, February 28 - March 2, 2007.

Francis Hsu, Hao Chen, Thomas Ristenpart, Jason Li, and Zhendong Su. Back to the future: A framework for automatic malware removal and system repair. In *Proceedings of 22rd Annual Computer Security Applications Conference (ACSAC)*, Miami Beach, FL, December 11-15, 2006.

Radmilo Racic, Denys Ma, and Hao Chen. Exploiting MMS vulnerabilities to stealthily exhaust mobile phone's battery. In *Proceedings of the Second IEEE Communications Society / CreateNet International Conference on Security and Privacy in Communication Network (SecureComm)*, Baltimore, MD, August 28 - September 1, 2006.

Lihua Yuan, Jianning Mai, Zhendong Su, Hao Chen, Chen-Nee Chuah, and Prasant Mohapatra. FIREMAN: A toolkit for FIREwall Modeling and ANalysis. In *Proceedings of 2006 IEEE Symposium on Security and Privacy*, pages 199–213, Berkeley, CA, May 21-24, 2006.

Benjamin Schwarz, Hao Chen, David Wagner, Geoff Morrison, Jacob West, Jeremy Lin, and Wei Tu. Model

checking an entire Linux distribution for security violations. In *Proceedings of the 2005 Annual Computer Security Applications Conference (ACSAC)*, Tucson, Arizona, December 5-9, 2005.

Hao Chen and Jonathan Shapiro. Using build-integrated static checking to preserve correctness invariants. In *Proceedings of the 11th ACM Conference on Computer and Communications Security (CCS)*, pages 288–297, Washington, DC, November 25–29, 2004.

Hao Chen, Drew Dean, and David Wagner. Model checking one million lines of C code. In *Proceedings of the 11th Annual Network and Distributed System Security Symposium (NDSS)*, pages 171–185, San Diego, CA, February 4–6, 2004.

Hao Chen, David Wagner, and Drew Dean. Setuid demystified. In *Proceedings of the 11th USENIX Security Symposium*, pages 171–190, San Francisco, CA, August 5–9, 2002.

Hao Chen and David Wagner. MOPS: an infrastructure for examining security properties of software. In *Proceedings of the 9th ACM Conference on Computer and Communications Security (CCS)*, pages 235–244, Washington, DC, November 18–22, 2002.

Susan Dumais, Edward Cutrell, and Hao Chen. Optimizing search by showing results in context. In *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI)*, pages 277–284, Seattle, WA, April 2001.

Hao Chen and Susan Dumais. Bringing order to the web: Automatically categorizing search results. In *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI)*, pages 145–152, The Hague, The Netherlands, April 2000.

Susan Dumais and Hao Chen. Hierarchical classification of web content. In *Proceedings of the 23rd ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR)*, pages 256–263, Athens, Greece, July 2000.

Susan Dumais, Edward Cutrell, and Hao Chen. Classified displays of web search results. In *Proceedings of the 11th ASIST SIG/CR Classification Research Workshop*, pages 87–90, November 2000.

Hao Chen and Tin K. Ho. Evaluation of decision forests on text categorization. In *Proceedings of the SPIE Conference on Document Recognition and Retrieval VII*, volume 3967, pages 191–199, San Jose, CA, January 2000.

Hao Chen, Jianying Hu, and Richard Sproat. Integrating geometrical and linguistic analysis for e-mail signature block parsing. *ACM Transactions on Information Systems*, 17(4):343–366, October 1999.

Richard Sproat, Jianying Hu, and Hao Chen. *Emu*: An e-mail preprocessor for text-to-speech. In *1998 Workshop on Multimedia Signal Processing*, pages 239–244, Redondo Beach, CA, December 1998. IEEE Signal Processing Society.

Hao Chen, Jianying Hu, and Richard Sproat. E-mail signature block analysis. In *Proceedings of the 14th*

International Conference on Pattern Recognition (ICPR), pages 1153–1156, Brisbane, Australia, August 1998.

Hao Chen, Oscar E. Agazzi, and Ching Y. Suen. Piecewise linear modulation model of handwriting. In *Proceedings of the 4th International Conference on Document Analysis and Recognition (ICDAR)*, pages 363–367, Ulm, Germany, August 1997.