

Justin Tung Ma

Dept. of Computer Science and Engineering
University of California, San Diego
9500 Gilman Dr., Dept. 0404
La Jolla, CA 92093-0404

Phone number: (858) 534-8173
Email: jtma@cs.ucsd.edu
Homepage: <http://www.cs.ucsd.edu/~jtma/>

Research Interests

- Computer systems and networking with emphasis on network security.
- Applications of machine learning to security problems.

Education

PH.D. IN COMPUTER SCIENCE – in progress (*Fall 2004—present*)
University of California, San Diego

M.S. IN COMPUTER SCIENCE – (*Fall 2004—Winter 2007*)
University of California, San Diego

B.S. IN COMPUTER SCIENCE – *summa cum laude* (*Fall 2001—Spring 2004*)
University of Maryland, College Park

B.S. IN MATHEMATICS – *summa cum laude* (*Fall 2001—Spring 2004*)
University of Maryland, College Park

Research Experience

GRADUATE RESEARCH ASSISTANT at Dept. of CSE/UCSD (*January 2008—present*)
Profs. Stefan Savage, Geoffrey M. Voelker and Lawrence K. Saul

Evaluated a system for detecting malicious URLs using feature selection over large feature sets (KDD 2009). Developing a system for real-time malicious URL detection using online learning algorithms (ICML 2009). Exploring improvements to online learning algorithms such as Bayesian logistic regression and confidence-weighted classification. Developing Web page clustering techniques for studying botnet infrastructure.

GRADUATE RESEARCH ASSISTANT at Dept. of CSE/UCSD (*August 2004—December 2007*)
Profs. Stefan Savage and Geoffrey M. Voelker

Developed a system for automated, payload-based network flow classification. Developed a large-scale virtual-machine honeypot for Internet worm detection. Developed and characterized methods for distributed termination in self-propagating code.

RESEARCH INTERN at Symantec Research Labs, Santa Monica (*July 2007—September 2007*)
Carey Nachenberg, VP and Fellow

RESEARCH INTERN at Microsoft Research, Redmond (*June 2005—September 2005*)
Helen Wang and John Dunagan

Using vulnerability signatures to quantify and characterize diversity in remote code execution exploits on the Internet.

UNDERGRADUATE RESEARCH ASSISTANT at Dept. of CS/UMCP (*June 2003—June 2004*)
Prof. William A. Arbaugh

Examined the benefits of and implemented chained authentication, where a wireless network authenticates a client by relying on authentication context from the client's previous network.

Teaching Experience

TEACHING ASSISTANT at UCSD for CSE 127 (*April 2009—present*)

Assisted Prof. Stefan Savage in teaching “Introduction to Computer Security” by leading weekly discussion sections and managing project assignments. Received TA evaluation rating of 4.54/5.00 from students.

TEACHING ASSISTANT at UCSD for CSE 150 (*April 2008—June 2008*)

Assisted Prof. Lawrence K. Saul in teaching “Intro to Artificial Intelligence: Probabilistic Reasoning and Decision-Making” by leading weekly discussion sections, grading homework assignments, and scribing lecture notes. Core topics were the theory and applications of probabilistic reasoning; inference and learning in Bayesian networks; and prediction and planning in Markov decision processes. Received TA evaluation rating of 4.68/5.00 from students.

Publications

- Justin Ma, Lawrence K. Saul, Stefan Savage, and Geoffrey M. Voelker, “Identifying Suspicious URLs: An Application of Large-Scale Online Learning,” *Proc. of the International Conference on Machine Learning (ICML)*, pages 681–688, Montreal, Quebec, June 2009.
- Justin Ma, Lawrence K. Saul, Stefan Savage, and Geoffrey M. Voelker, “Beyond Blacklists: Learning to Detect Malicious Web Sites from Suspicious URLs,” *Proc. of the ACM SIGKDD Conference*, pages, 1245–1253, Paris, France, June 2009.
- Justin Ma, Kirill Levchenko, Christian Kreibich, Stefan Savage, and Geoffrey M. Voelker, “Unexpected Means of Protocol Inference,” *Proc. of the ACM Internet Measurement Conference (IMC)*, Rio de Janeiro, Brazil, October 2006.
- Justin Ma, John Dunagan, Helen J. Wang, Stefan Savage, and Geoffrey M. Voelker, “Finding Diversity in Remote Code Injection Exploits,” *Proc. of the ACM Internet Measurement Conference (IMC)*, Rio de Janeiro, Brazil, October 2006.
- Justin Ma, Geoffrey M. Voelker, and Stefan Savage, “Self-Stopping Worms,” *Proc. of the ACM Workshop on Rapid Malcode (WORM)*, Fairfax, VA, November 2005.
- Michael Vrabie, Justin Ma, Jay Chen, David Moore, Erik Vandekieft, Alex C. Snoeren, Geoffrey M. Voelker, and Stefan Savage, “Scalability, Fidelity and Containment in the Potemkin Virtual Honeyfarm,” *Proc. of the 20th ACM Symposium on Operating System Principles (SOSP)*, Brighton, UK, October, 2005.
- Minho Shin, Justin Ma, Arunesh Mishra, and William A. Arbaugh, “Wireless Security and Interworking,” *Proc. of the IEEE*, Vol. 94, No. 2, February, 2006.

Invited Talks

UC Irvine AI/ML Seminar (*October 2009*)

Presentation on “Identifying Suspicious URLs: An Application of Large-Scale Online Learning”

Laboratoire d’Informatique de Paris 6 (*July 2009*)

Presentation on “Identifying Suspicious URLs: An Application of Large-Scale Online Learning.”

Google Pittsburgh (*May 2009*)

Presentation on “Identifying Suspicious URLs: An Application of Large-Scale Online Learning.”

University of Maryland, Syschat (*April 2009*)

Presentation on “Identifying Suspicious URLs: An Application of Large-Scale Online Learning.” Hosted by University of Maryland systems group.

University of Maryland, ACM (*April 2009*)

Presentation titled “Why Grad School?”, discussing why undergraduates should considering going to graduate school. Hosted by University of Maryland ACM chapter.

Professional Activities

- Reviewer for IEEE/ACM Transactions on Networking, IEEE Journal on Selected Areas in Communications, IEEE INFOCOM 2006, ACM WORM 2006, NSDI 2007, IEEE Symposium on Security and Privacy 2007, NIPS 2009, Data Mining and Knowledge Discovery 2009.

Awards

- Symantec Research Labs Graduate Fellowship (2007–2008)
- ACM Internet Measurement Conference Student Travel Grant (October 2006)
- University Medal (May 2004) — awarded by the President of the University of Maryland, College Park to one graduating senior each year who “best personifies academic distinction, extraordinary character and extracurricular contributions to the campus or public communities.”
- Academic Excellence Awards for Departments of Computer Science and Mathematics (May 2004) — from Dean of the College of Computer, Mathematical and Physical Sciences, University of Maryland, College Park.
- Asian Academic Excellence Award (May 2003) — awarded by Office of Multi-Ethnic Student Education, University of Maryland, College Park.

Avocation

Wushu (Chinese martial arts)

- Judge, 2007 Canadian National Team Selections in Montreal, Canada (August 2007)
- Tournament Director, 2007 US Wushu Team Trials at Ritchie Coliseum, College Park, MD (July 2007)
- Judge, 1st World Junior Wushu Championships in Kuala Lumpur, Malaysia (August 2006)
- Assistant Head Judge, 6th Pan American Wushu Championships in Toronto, Canada (July 2006)
- Head Judge, Contemporary Ring, USAWKF National Championships in Chicago, IL (June 2006)
- Tournament Director, 2006 US Junior Wushu Team Trials at Ritchie Coliseum, College Park, MD (May 2006)
- Judge, 8th World Wushu Championships in Hanoi, Vietnam, judged in C-group (difficulties) for all six barehand events (December 2005)
- Member, USA Wushu-Kungfu Federation Wushu Technical Committee (August 2005—2007)

- Judge, US Wushu Team Trials (August 2005)
- Coached women's Fanzi-style gold medalist at First International Traditional Wushu Festival (Summer 2004)
- Certified International Judge (International Wushu Federation, April 2004)
- Head Judge, Contemporary Ring, International Wushu-Kungfu Festival & Championships (July 2004)
- US Team Member, A Team (2001, 2003)
- Judge, International Chicago Wushu-Gongfu Tournament (April 2002)
- 2001 USA Wushu-Kungfu Federation Wushu Athlete of the Year
- President (Sept 2001—May 2003) and Founder, Terp Wushu Club (University of Maryland, College Park)