

# Gang Wang

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## Education

University of California, Santa Barbara, Santa Barbara, CA  
Ph.D. Candidate, Computer Science  
Advisors: Prof. Ben Y. Zhao and Prof. Heather Zheng

Sep.2010 – Jul.2016 (expected)

Tsinghua University, Beijing, China  
Bachelor of Engineering, Electronic Engineering

Sep.2006 – Jul.2010

## Research Interests

My primary research interest is Security and Privacy in Internet systems such as Online Social Networks, Crowdsourcing Systems, Mobile Networks, and Enterprise Networks. Much of my work is measurement and data driven. The goal is to uncover emerging security threats through large-scale data analytics and modeling. Based on the insights obtained from massive data analytics, I develop practical security solutions to protect online systems and users.

## Awards

Outstanding Dissertation Award, *UC Santa Barbara*, 2016  
Graduate Division Dissertation Fellowship, *UC Santa Barbara* (2015-2016)  
Best Practical Paper Award, *SIGMETRICS* (2013)  
Student Travel Grant, *NSDI'11*, *MobiCom'11*, *NSDI'12*, *WWW'13*, *USENIX Security'13*, *IMC'13*, *IMC'15*  
Scholarship for Academic Excellence, *Tsinghua University* (2007-2009)

## Professional Activities

[AISec] ACM Workshop on Artificial Intelligence and Security (with CCS), *Technical Program Committee*, 2016  
[ICWSM] AAAI International Conference on Web and Social Media, *Technical Program Committee*, 2016  
[Oakland] IEEE Symposium on Security and Privacy, *Student Program Committee*, 2016  
[HotCloud] USENIX Workshop on Hot Topics in Cloud Computing, *External Reviewer*, 2016  
[CHI] ACM Conference on Human Factors in Computing Systems, *External Reviewer*, 2016  
[WWW] The International World Wide Web Conference, *External Reviewer*, 2014, 2015  
[IMC] ACM SIGCOMM Internet Measurement Conference, *External Reviewer*, 2013, 2015  
[COSN] ACM Conference on Online Social Networks, *External Reviewer*, 2013, 2015  
[NSDI] ACM/USENIX Symposium on Networked Systems, Design and Implementation, *External Reviewer*, 2014  
[JASIST] Journal of the Association for Information Science and Technology, *Reviewer*, 2016  
[TIST] ACM Transactions on Intelligent Systems and Technology, *Reviewer*, 2015  
[TWireless] IEEE Transactions on Wireless Communications, *Reviewer*, 2015  
[COMNET] Elsevier Journal on Computer Networks, special issue on P2P Network Measurement, *Reviewer*, 2011

## Publications

- [1] **Gang Wang**, Bolun Wang, Tianyi Wang, Ana Nika, Haitao Zheng, Ben Y. Zhao. Defending Against Sybil Devices in Crowdsourced Mapping Services. In Proceedings of *The 14th ACM International Conference on Mobile Systems, Applications, and Services*, Singapore, June 2016 (**MobiSys'16**).
- [2] **Gang Wang**, Sarita Schoenebeck, Haitao Zheng, Ben Y. Zhao. "Will Check-in for Badges": Understanding Bias and Misbehavior on Location-based Social Networks. In Proceedings of *The 10th International AAAI Conference on Web and Social Media*, Cologne, Germany, May 2016 (**ICWSM'16**).
- [3] **Gang Wang**, Xinyi Zhang, Shiliang Tang, Haitao Zheng, Ben Y. Zhao. Unsupervised Clickstream Clustering For User Behavior Analysis. In Proceedings of *SIGCHI Conference on Human Factors in Computing Systems*, San Jose, CA, May 2016 (**CHI'16**).

- [4] **Gang Wang**, Tianyi Wang, Bolun Wang, Divya Sambasivan, Zengbin Zhang, Haitao Zheng, Ben Y. Zhao. Crowds on Wall Street: Extracting Value from Collaborative Investing Platforms. In Proceedings of *The 18th ACM conference on Computer-Supported Cooperative Work and Social Computing*, Vancouver, BC, Canada, March 2015 (**CSCW'15**).
- [5] Tianyi Wang, Yang Chen, Yi Wang, Bolun Wang, **Gang Wang**, Xing Li, Haitao Zheng, Ben Y. Zhao. The Power of Comments: Fostering Social Interactions in Microblog Networks. *Springer Frontiers of Computer Science*, 2015 (**FCS'15**).
- [6] **Gang Wang**, Bolun Wang, Tianyi Wang, Ana Nika, Haitao Zheng, Ben Y. Zhao. Whispers in the Dark: Analysis of an Anonymous Social Network. In Proceedings of *The 14th Internet Measurement Conference*, Vancouver, BC, Canada, November 2014 (**IMC'14**).
- [7] **Gang Wang**, Tianyi Wang, Haitao Zheng, Ben Y. Zhao. Man vs. Machine: Practical Adversarial Detection of Malicious Crowdsourcing Workers. In Proceedings of *The 23rd USENIX Security Symposium*, San Diego, CA, August 2014 (**USENIX Security'14**).
- [8] Xia Zhou, Zengbin Zhang, **Gang Wang**, Xiaoxiao Yu, Ben Y. Zhao, Haitao Zheng. Practical Conflict Graphs in the Wild. *ACM Transactions on Networking*, 2014 (**TON'14**).
- [9] Zengbin Zhang, Lin Zhou, Xiaohan Zhao, **Gang Wang**, Yu Su, Miriam Metzger, Haitao Zheng, Ben Y. Zhao. On the Validity of Geosocial Mobility Traces. In Proceedings of *ACM Workshop on Hot Topics in Networks*, College Park, MD, November 2013 (**HotNets'13**).
- [10] Gianluca Stringhini, **Gang Wang**, Manuel Egele, Christopher Kruegel, Giovanni Vigna, Haitao Zheng, Ben Y. Zhao. Follow the Green: Growth and Dynamics in Twitter Follower Markets. In Proceedings of *The 13th Internet Measurement Conference*, Barcelona, Spain, October 2013 (**IMC'13**).
- [11] **Gang Wang**, Tristan Konolige, Christo Wilson, Xiao Wang, Haitao Zheng, Ben Y. Zhao. You are How You Click: Clickstream Analysis for Sybil Detection. In Proceedings of *The 22nd USENIX Security Symposium*, Washington, DC, August 2013 (**USENIX Security'13**).
- [12] **Gang Wang**, Jack Stokes, Cormac Herley, David Felstead. Detecting Malicious Landing Pages in Malware Distribution Networks. In Proceedings of *The 43rd Annual IEEE/IFIP International Conference on Dependable Systems and Networks*, Budapest, Hungary, June 2013 (**DSN'13**).
- [13] Xia Zhou, Zengbin Zhang, **Gang Wang**, Xiaoxiao Yu, Ben Y. Zhao, Haitao Zheng. Practical Conflict Graphs for Dynamic Spectrum Distribution. In Proceedings of *ACM International Conference on Measurement and Modeling of Computer Systems*, Pittsburgh, PA, June 2013 (**SIGMETRICS'13**), **Best Practical Paper Award**.
- [14] **Gang Wang**, Konark Gill, Manish Mohanlal, Haitao Zheng, Ben Y. Zhao. Wisdom in the Social Crowd: an Analysis of Quora. In Proceedings of *The 22nd International World Wide Web Conference*, Rio de Janeiro, Brazil, May 2013 (**WWW'13**).
- [15] **Gang Wang**, Manish Mohanlal, Christo Wilson, Xiao Wang, Miriam Metzger, Haitao Zheng, Ben Y. Zhao. Social Turing Tests: Crowdsourcing Sybil Detection. In Proceedings of *The 20th Annual Network & Distributed System Security Symposium*, San Diego, CA, February 2013 (**NDSS'13**).
- [16] **Gang Wang**, Christo Wilson, Xiaohan Zhao, Yibo Zhu, Manish Mohanlal, Haitao Zheng, Ben Y. Zhao. Serf and Turf: Crowdturfing for Fun and Profit. In Proceedings of *The 21st International World Wide Web Conference*, Lyon, France, April 2012 (**WWW'12**).
- [17] Zengbin Zhang, Xia Zhou, Weile Zhang, Yuanyang Zhang, **Gang Wang**, Ben Y. Zhao, Haitao Zheng. I am the Antenna: Accurate Outdoor AP Location using Smartphones. In Proceedings of *The 17th Annual International Conference on Mobile Computing and Networking*, Las Vegas, NV, September 2011 (**MobiCom'11**).
- [18] Christo Wilson, Troy Steinbauer, **Gang Wang**, Alessandra Sala, Haitao Zheng, Ben Y. Zhao. Privacy, Availability and Economics in the Polaris Mobile Social Network. In Proceedings of *The 12th ACM Workshop on Mobile Computing Systems and Applications*, Phoenix, AZ, March 2011 (**HotMobile'11**).
- [19] **Gang Wang**, Shining Wu, Guodong Wang, Beixing Deng, Xing Li. Experimental Study on Neighbor Selection Policy for Phoenix Network Coordinate System. In Proceedings of *IEEE International Workshop on Peer-To-Peer Networking*, St.-Petersburg, Russia, 2009 (**P2PNet'09**).

## Academic Experiences

- SAND Lab, UC Santa Barbara**, Santa Barbara, CA 09/2010 – Present  
*Ph.D. Candidate, Research Assistant, Advised by Prof. Ben Y. Zhao and Prof. Heather Zheng*  
Worked on various topics on Security and Privacy in Online Social Networks, Crowdsourcing Systems and Mobile Networks.
- NGN Lab, Tsinghua University**, Beijing, China 05/2009 – 06/2010  
*Research Assistant, Advised by Prof. Beixing Deng*  
Worked on neighbor selection policies for Network Coordinate System.

## Internship Experiences

- Microsoft Research**, Redmond, WA 06/2014 – 09/2014  
*Research Intern, Security and Privacy Group*  
Worked with Dr. Jay Stokes, Dr. Weidong Cui and Dr. Helen Wang on anomaly detection for Azure internal services. Implemented a research prototype, and shipped it to production to catch internal usage anomalies and insider attacks.
- LinkedIn Corporation**, Mountain View, CA 06/2012 – 09/2012  
*Data Scientist Intern, Security Team*  
Worked on a reputation system for digital assets (IP, ISP and Email domains) by mining LinkedIn history data. Implemented the system on Hadoop and shipped it to production. The system is currently being actively used by LinkedIn applications.
- Microsoft Research**, Redmond, WA 06/2011 – 09/2011  
*Research Intern, Knowledge Tool Group*  
Worked with Dr. Cormac Herley and Dr. Jay Stokes on a machine-learning system to detect drive-by download attacks. Leveraged malware distribution networks to detect malicious landing pages. Optimized the system for shipping to production.
- Technicolor Research**, Beijing, China 04/2010 – 06/2010  
*Research Intern*  
Worked with Dr. Zhibo Chen on a system for video quality analysis. Incorporated human feedbacks to augment the video quality evaluation algorithms.
- Nokia Research Center**, Beijing, China 09/2009 – 01/2010  
*Research Intern*  
Worked on mobile sensor networks using phone as the sink. Implemented uSD-based communication middleware.

## Selected Press

- If you use Waze, hackers can stalk you, *Fusion*, (04/26/2016)  
At Whisper's news-gathering operation, data collection comes under siege, *LA Times*, (10/2014)  
Fake Followers for Hire, and How to Spot Them, *MIT Technology Review*, (06/2014)  
A Dark Force, Unleashed Online, *Boston Globe*, (01/2012)  
Growing Number of Cyber Shills Invade Online Reviews, *The Consumerist*, (12/2011)  
Cyber Shill Business Is Booming, *InfoWorld*, (12/2011)  
Million Dollar Crowdturfing Industry Dupes Social Networks, *Slashdot*, (12/2011)  
Hidden Industry Dupes Social Media Users, *MIT Technology Review*, (12/2011)

## Talks

- [1] Attacks and Defenses in Large Online Communities  
[02/01/2016] *Uber Inc., San Francisco, CA*  
[12/02/2015] *LinkedIn Inc., Mountain View, CA*
- [2] Whispers in the Dark: Analysis of an Anonymous Social Network.  
[11/05/2014] *The 14th Internet Measurement Conference, Vancouver, BC, Canada*
- [3] Man vs. Machine: Practical Adversarial Detection of Malicious Crowdsourcing Workers  
[09/02/2014] *Microsoft Membership PM R&D Team, Redmond, WA*  
[08/27/2014] *Microsoft Azure Data Science and Security Team, Redmond, WA*

[08/20/2014] *The 23rd USENIX Security Symposium, San Diego, CA*

[07/30/2014] *UW-MSR Summer Institute, Seattle, WA*

[4] **Wisdom in the Social Crowd: an Analysis of Quora**

[05/16/2013] *The 22nd International World Wide Web Conference, Rio de Janeiro, Brazil*

[5] **You are How You Click: Clickstream Analysis for Sybil Detection**

[08/15/2013] *The 22nd USENIX Security Symposium, Washington, DC, WA*

[03/15/2013] *Security Team of Renren Inc., Beijing, China*

[6] **Social Turing Tests: Crowdsourcing Sybil Detection**

[02/16/2013] *The 20th Annual Network & Distributed System Security Symposium, San Diego, CA,*

[7] **Fighting Fire With Fire: Crowdsourcing Security Threats and Solutions on the Social Web**

[01/31/2013] *AT&T Security Research Center, Middletown, NJ*

[8] **Serf and Turf: Crowdturfing for Fun and Profit**

[04/21/2012] *The 21st International World Wide Web Conference, Lyon, France*

## Teaching

[CS290F] **Smartphone-centric Systems and Applications**, *Guest Lecturer*, UCSB, 2016

[CS276] **Graduate Networking**, *Teaching Assistant*, UCSB, 2011

[CS176B] **Network Computing**, *Teaching Assistant*, UCSB, 2011

[CS64] **Computer Organization**, *Teaching Assistant*, UCSB, 2011

[CS40] **Foundations of Computer Science**, *Teaching Assistant*, UCSB, 2010

## Monitoring

I have had the fantastic opportunity to work with the following students in my research projects:

**Masters Students:** Pritha D. N. (2016), Sahaj Biyani (2015), Divya Sambasivan (2014), Konark Gill (2013), Manish Mohanla (2012)

**Undergraduate:** Adam Schmidt (2015), Nader Khalil (2015), Allen Chang (2013), Tristan Konolige (2012)

**High School Students:** Megan McQueen (2015), Emily Pan (2015)

## Patents

**Gang Wang**, Jack Stokes, Cormac Herley and David Felstead, *Identifying Web Pages In Malware Distribution Networks*, filed on 12/21/2012 by Microsoft Corporation.