

Gang Wang

Assistant Professor of Computer Science
Virginia Tech

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Education

- 2010–2016 **Ph.D. in Computer Science**, *University of California in Santa Barbara*.
Advisors: Ben Y. Zhao and Heather Zheng
- 2006–2010 **B.E. in Electronic Engineering**, *Tsinghua University*.

Appointments

- 2016–Present **Assistant Professor**, *Virginia Tech*, Blacksburg, VA.
Department of Computer Science
- 2010–2016 **Research Assistant**, *UC Santa Barbara*, Santa Barbara, CA.
Advisors: Prof. Ben Y. Zhao and Prof. Heather Zheng
- 2014 **Research Internship**, *Microsoft Research*, Redmond, WA.
Mentors: Dr. Jay Stokes, Dr. Weidong Cui and Dr. Helen Wang
- 2012 **Data Scientist Internship**, *LinkedIn*, Mountain View, CA.
Mentors: Vicente Silveira and Karthik Ramasamy
- 2011 **Research Internship**, *Microsoft Research*, Redmond, WA.
Mentors: Dr. Cormac Herley and Dr. Jay Stokes

Research Interests

Security and Privacy; Data Mining; Human Computer Interaction; Online Social Networks;
Mobile Networks

Publications

- CIKM'17** Rupinder Paul Khandpur, Taoran Ji, Steve Jan, Gang Wang, Chang-Tien Lu, Naren Ramakrishnan. Crowdsourcing Cybersecurity: Cyber Attack Detection using Social Media. In Proceedings of *The 26th ACM International Conference on Information and Knowledge Management*, Singapore, November 2017
- CIKM'17** Huan Yan, Tzu-Heng Lin, Gang Wang, Yong Li, Haitao Zheng, Depeng Jin, Ben Y. Zhao. On Migratory Behavior in Video Consumption. In Proceedings of *The 26th ACM International Conference on Information and Knowledge Management*, Singapore, November 2017
- USENIX SEC'17** Fang Liu, Chun Wang, Andres Pico, Danfeng Yao, Gang Wang. Measuring the Insecurity of Mobile Deep Links of Android. In Proceedings of *The 26th USENIX Security Symposium*, Vancouver, Canada, August 2017
- TWEB'17** Gang Wang, Xinyi Zhang, Shiliang Tang, Christo Wilson, Haitao Zheng, Ben Y. Zhao. Clickstream User Behavior Models. In *ACM Transactions on the Web*, 2017
- ICWSM'17** Xinyi Zhang, Shiliang Tang, Yun Zhao, Gang Wang, Haitao Zheng, Ben Y. Zhao. Cold Hard E-Cash: Friends and Vendors in the Venmo Digital Payments System. In Proceedings of *International AAAI Conference on Web and Social Media*, Montreal, Canada, May 2017

- ICWSM'17** Huan Yan, Tzu-Heng Lin, Gang Wang, Yong Li, Haitao Zheng, Depeng Jin, Ben Y. Zhao. A First Look at User Switching Behaviors Over Multiple Video Content Providers. In Proceedings of *International AAAI Conference on Web and Social Media*, Montreal, Canada, May 2017
- MoST'17** Fang Liu, Haipeng Cai, Gang Wang, Danfeng Yao, Karim O. Elish, Barbara G. Ryder. MR-Droid: A Scalable and Prioritized Analysis of Inter-App Communication Risks. In Proceedings of *Mobile Security Technologies, in conjunction with IEEE Symposium on Security and Privacy*, San Jose, CA, May 2017
- AsiaCCS'17** Amiangshu Bosu, Fang Liu, Danfeng Yao, Gang Wang. Collusive Data Leak and More: Large-scale Threat Analysis of Inter-app Communications. In Proceedings of *ACM Asia Conference on Computer and Communications Security*, Abu Dhabi, UAE, April 2017
- TWEB'17** Tianyi Wang, Gang Wang, Bolun Wang, Divya Sambasivan, Zengbin Zhang, Xing Li, Haitao Zheng, Ben Y. Zhao. Value and Misinformation in Collaborative Investing Platforms. In *ACM Transactions on the Web*, 2017
- IMC'16** Bolun Wang, Xinyi Zhang, Gang Wang, Haitao Zheng, Ben Y. Zhao. Anatomy of a Personalized Livestreaming System. In Proceedings of *The 16th ACM SIGCOMM Internet Measurement Conference*, Santa Monica, CA, November 2016
- MobiSys'16** 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
- ICWSM'16** 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
- CHI'16** 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
- CSCW'15** 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
- FCS'15** 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. In *Springer Frontiers of Computer Science*, 2015
- IMC'14** 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
- USENIX SEC'14** 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
- TON'14** Xia Zhou, Zengbin Zhang, Gang Wang, Xiaoxiao Yu, Ben Y. Zhao, Haitao Zheng. Practical Conflict Graphs in the Wild. In *ACM Transactions on Networking*, 2014
- HotNets'13** 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

- IMC'13** 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
- USENIX SEC'13** 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
- DSN'13** 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
- Sigmetrics'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. **(Best Practical Paper Award)**.
- WWW'13** 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
- NDSS'13** 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
- WWW'12** 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
- MobiCom'11** 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
- HotMobile'11** 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
- P2PNet'09** 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

Patents

- 2014 Gang Wang, Jack Stokes, Cormac Herley, David Felstead. Identifying Web Pages In Malware Distribution Networks. Filed by *Microsoft Corporation*, published on 07/03/2014. Pattern #: US 2014/0189864 A1.

Awards

- 2016 Assistant Professor Mentoring Grant, *Virginia Tech*
- 2016 Outstanding Dissertation Award, *UC Santa Barbara*
- 2015 Graduate Division Dissertation Fellowship, *UC Santa Barbara*
- 2013 Best Practical Paper Award, *SIGMETRICS*
- 2007–2009 Scholarship for Academic Excellence, *Tsinghua University*

2011–2015 Travel Grant: NSDI'11-12, MobiCom'11, WWW'13, USENIX Security'13, IMC'13, IMC'15

Professional Activities

Technical Program Committees

- 2017 **LocalRec**, ACM SIGSPATIAL Workshop on Recommendations for Location-based Services and Social Networks (collocated with SIGSPATIAL).
- 2017 **AIsec**, ACM Workshop on Artificial Intelligence and Security (collocated with CCS).
- 2017 **ICWSM**, AAAI International Conference on Web and Social Media.
- 2017 **WWW**, International World Wide Web Conference.
- 2016 **AIsec**, ACM Workshop on Artificial Intelligence and Security (collocated with CCS).
- 2016 **ICWSM**, AAAI International Conference on Web and Social Media.
- 2016 **Oakland**, IEEE Symposium on Security and Privacy (Student PC).

Journal Reviews

- 2017 **TMC**, Transactions on Mobile Computing.
- 2017 **IEEE Communications**, IEEE Communications Magazine.
- 2017 **TWEB**, ACM Transactions on the Web.
- 2017 **TDSC**, IEEE Transactions on Dependable and Secure Computing.
- 2017 **LOS ONE**, Public Library of Science Open Access Journal.
- 2017 **TOIT**, ACM Transactions on Internet Technology.
- 2017 **Science Advances**, AAAS Open Access Journal.
- 2016 **TDSC**, IEEE Transactions on Dependable and Secure Computing.
- 2016 **JASIST**, Journal of the Association for Information Science and Technology.
- 2015 **TIST**, ACM Transactions on Intelligent Systems and Technology.
- 2015 **TWireless**, IEEE Transactions on Wireless Communications.
- 2011 **COMNET**, Journal on Computer Networks, special issue on P2P Network Measurement.

Conference Reviews

- 2017 **CSCW**, ACM Conference on Computer-Supported Cooperative Work and Social Computing.
- 2017 **CHI**, ACM Conference on Human Factors in Computing Systems.
- 2016 **HotCloud**, USENIX Workshop on Hot Topics in Cloud Computing.
- 2016 **CHI**, ACM Conference on Human Factors in Computing Systems.
- 2015 **WWW**, The International World Wide Web Conference.
- 2015 **IMC**, ACM SIGCOMM Internet Measurement Conference.
- 2015 **COSN**, ACM Conference on Online Social Networks.
- 2014 **WWW**, The International World Wide Web Conference.
- 2014 **NSDI**, ACM/USENIX Symposium on Networked Systems, Design and Implementation.
- 2013 **IMC**, ACM SIGCOMM Internet Measurement Conference.
- 2013 **COSN**, ACM Conference on Online Social Networks.

Selected Press

- 05/2017 Now You Really Wanna Cry? *WVTF Radio/NPR*
- 04/2017 Android apps can conspire to mine information from your smartphone, *phys.org*

- 04/2017 Thousands of Android apps can “collude” to leak information, research shows, *The Hill*
- 04/2017 Your smartphone apps are “secretly colluding” to spy on you in terrifying detail, researchers warn, *The Sun*
- 04/2017 Android apps can breach and share your personal data, *Business Insider*
- 04/2017 Android apps share data between them without your permission, *New Scientist*
- 04/2017 Android apps secretly steal users’ data by colluding with each other, finds research, *Independent*
- 04/2017 Android apps are “secretly colluding” to spy on the private lives of millions of users, *Daily Mail*
- 04/2017 Virginia Tech researchers: Android apps can conspire to mine information from your smartphone, *VT News, ACM TechNews*
- 04/2017 Beware, Your Android Smartphone May Be Secretly Spying You, *news18*
- 04/2017 Your Android Apps Are Secretly Getting Chatty with Your Data, *Android GadgetHacks*
- 04/2017 Google Android Apps Swap Information Without Your Own Permission, *live24News*
- 01/2017 Internet Scams, Hacks and Malware: A Cat & Mouse Game, *WVTF Radio/NPR*
- 04/2016 If You Use Waze, Hackers Can Stalk You, *Fusion*
- 04/2016 Hackers can stalk you via Waze app, *Channel 10 CBS News*
- 04/2016 Google’s Waze says, Nope, hackers can’t stalk you on, *Recode/CNBC*
- 04/2016 Waze comes up with a fix for hack that let researchers track users’ movements, *Fusion*
- 04/2016 Vulnerability In Popular Waze Navigation App Could Let Hackers Stalk You In Real Time, *Tech Times*
- 04/2016 Waze downplays exploit that let researchers track users, *Tech Crunch*
- 04/2016 Flaw in maps app Waze lets hackers track you, *The Telegraph*
- 04/2016 Here’s How Google’s Waze Can Reportedly Be Used to Stalk Drivers, *Fortune*
- 04/2016 Waze hack lets creeps track your driving, *Engadget*
- 04/2016 Waze vulnerability lets hackers monitor your travels, *Slash Gear*
- 04/2016 U.S. Researchers Expose “Waze” Security Lapse, *i24 News*
- 04/2016 Waze Drivers Can Be Tracked, Network Flooded with Fake Traffic, *Softpedia*
- 04/2016 How to prevent snoops from stalking you in Waze with “ghost” drivers, *NakedSecurity*
- 04/2016 Waze Hackers Have You in Their Sights, *TechNewsToday*
- 04/2016 Waze App: The Road to Stalking Drivers, *Infosecurity Magazine*
- 04/2016 Hackers Can Exploit Waze to Track Drivers in Real Time, *Android Headlines*
- 10/2014 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*
- 01/2012 A Dark Force, Unleashed Online, *Boston Globe*
- 12/2011 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*

Talks

- 2017 **Measuring the Insecurity of Mobile Deep Links of Android.**
The 26th USENIX Security Symposium (USENIX Security), Vancouver, Canada (08/18/2017)

- 2017 **Identity Abuse in Mobile Social Networks and Email Systems.**
Institute for Creativity, Arts, and Technology, Virginia Tech, Blacksburg, VA (03/17/2017)
- 2016 **Sybil Devices in Crowdsourced Mapping Services.**
Workshop on Data and Algorithmic Transparency, New York City, NY (11/19/2016)
- 2016 **Human Factors in the Security of Online and Mobile Systems.**
Virginia Tech CS Graduate Seminar, Blacksburg, VA (09/02/2016)
- 2016 **“Will Check-in for Badges”: Understanding Bias and Misbehavior on Location-based Social Networks.**
International AAAI Conference on Web and Social Media, Cologne, Germany (05/18/2016)
- 2016 **Unsupervised Clickstream Clustering For User Behavior Analysis.**
SIGCHI Conference on Human Factors in Computing Systems, San Jose, CA (05/09/2016)
- 2016 **Attacks and Defenses in Large Online Communities.**
Uber Inc., San Francisco, CA (02/01/2016)
LinkedIn Inc., Mountain View, CA (12/02/2015)
- 2014 **Whispers in the Dark: Analysis of an Anonymous Social Network.**
[11/05/2014] The 14th Internet Measurement Conference, Vancouver, BC, Canada
- 2014 **Man vs. Machine: Adversarial Detection of Malicious Crowdsourcing Workers.**
Microsoft Membership PM R&D Team, Redmond, WA (09/02/2014)
Microsoft Azure Data Science and Security Team, Redmond, WA (08/27/2014)
The 23rd USENIX Security Symposium, San Diego, CA (08/20/2014)
UW-MSR Summer Institute, Seattle, WA (07/30/2014)
- 2013 **Wisdom in the Social Crowd: an Analysis of Quora.**
The 22nd International World Wide Web Conference, Rio de Janeiro, Brazil (05/16/2013)
- 2013 **You are How You Click: Clickstream Analysis for Sybil Detection.**
The 22nd USENIX Security Symposium, Washington, DC, WA (08/15/2013)
Security Team of Renren Inc., Beijing, China (03/15/2013)
- 2013 **Social Turing Tests: Crowdsourcing Sybil Detection.**
The 20th Annual Network & Distributed System Security Symposium, San Diego, CA (02/16/2013)
- 2013 **Fighting Fire With Fire: Crowdsourcing Security Threats and Solutions on Social Web.**
AT&T Security Research Center, Middletown, NJ (01/31/2013)
- 2012 **Serf and Turf: Crowdturfing for Fun and Profit.**
The 21st International World Wide Web Conference, Lyon, France (04/21/2012)

Advising

PhD Student

- 2017 Peng Peng, VT
2016 Hang Hu, VT
- 2016 Steve Jan, VT

Masters Student

- 2017 Xiangwen Wang, VT
2016 Chun Wang, VT
2016 Pritha D. N., UCSB
2015 Sahaj Biyani, UCSB
- 2014 Divya Sambasivan, UCSB
2013 Konark Gill, UCSB
2012 Manish Mohanla, UCSB

Undergraduate

- 2015 Adam Schmidt, UCSB
2015 Nader Khalil, UCSB
- 2013 Allen Chang, UCSB
2012 Tristan Konolige, UCSB

High School Student

2015 Megan McQueen, San Marcos High

2015 Emily Pan, Harker School

Thesis Committee

2017 Da Pu (MS), VT

2017 Hannah Roth (MS), VT

2016 Alexander Kedrowitsch (MS), VT

2016 Elaheh Raisi (PhD), VT

2017 Xinfeng Xu (MS), VT

2016 Arnab Kumar Paul (PhD), VT

2016 Nai-Ching Wang (PhD), VT

Teaching

2017 **Instructor**, *CS6604: Applied Machine Learning in Security*, Virginia Tech.

2016 **Instructor**, *CS4264: Principles of Computer Security*, Virginia Tech.

2016 **Guest Lecturer**, *CS290F: Smartphone-centric Systems and Applications*, UCSB.

2011 **Teaching Assistant**, *CS276: Graduate Networking*, UCSB.

2011 **Teaching Assistant**, *CS176B: Network Computing*, UCSB.

2011 **Teaching Assistant**, *CS64: Computer Organization*, UCSB.

2010 **Teaching Assistant**, *CS40: Foundations of Computer Science*, UCSB.