

Gang Wang

Assistant Professor of Computer Science
Virginia Tech

2202 Kraft Drive, KW II RM 2223
Blacksburg, VA 24060
☎ +1 (540) 231-0331
✉ gangwang@vt.edu
🏠 people.cs.vt.edu/gangwang

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

- 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 **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 **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

- | | |
|------------------|--------------------|
| 2016 Hang Hu, VT | 2016 Steve Jan, VT |
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Masters Student

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

Undergraduate

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

High School Student

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|-------------------------------------|-------------------------------|
| 2015 Megan McQueen, San Marcos High | 2015 Emily Pan, Harker School |
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Thesis Committee

- | | |
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| 2017 Hannah Roth (MS), VT | 2017 Xinfeng Xu (MS), VT |
| 2016 Alexander Kedrowitsch (MS), VT | 2016 Arnab Kumar Paul (PhD), VT |
| 2016 Elaheh Raisi (PhD), VT | 2016 Nai-Ching Wang (PhD), VT |

Teaching

- 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.