

# Xiaokuan Zhang

## Research Interests

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System Security, Side Channels, Privacy

## Education

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<b>Ph.D. in Computer Science and Engineering</b>	<b>The Ohio State University, Columbus, OH</b>
<i>Advisor: Prof. Yinqian Zhang</i>	Aug. 2015 - Dec. 2021
<b>B.S. in Computer Science and Technology</b>	<b>Shanghai Jiao Tong University, Shanghai, China</b>
<i>Advisor: Prof. Haojin Zhu</i>	Sep. 2011 - Jun. 2015

## Professional Experience

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<b>Postdoctoral Researcher</b>	<b>Georgia Institute of Technology, Atlanta, GA</b>
<i>Mentor: Dr. Taesoo Kim</i>	Sep. 2021 - present
<b>Research Intern</b>	<b>Microsoft Research, Redmond, WA</b>
<i>Mentor: Dr. Marcus Peinado</i>	May 2019 - Aug. 2019
<b>Software Engineering Intern</b>	<b>Google, Mountain View, CA</b>
<i>Mentor: Dr. Bo Zhu</i>	May 2018 - Aug. 2018

## Honors & Awards

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• NortonLifeLock (Symantec) Graduate Fellowship	2020
• Graduate Research Award, CSE Department, Ohio State University	2020
• Nomination for Google Research Fellowship, CSE Department, Ohio State University	2019
• Top 10 Finalists of CSAW Applied Security Research Competition	2016, 2018
• Outstanding Graduate, Shanghai Jiao Tong University	2015
• Academic Excellence Scholarship, Shanghai Jiao Tong University	2012, 2014
• Outstanding Student Cadre, Shanghai Jiao Tong University	2013
• National Olympiad in Informatics in Provinces (NOIP), First Prize in Fujian Province	2010

## Publications

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1. **[ATC'22]** Fan Sang, Ming-Wei Shih, Sangho Lee, **Xiaokuan Zhang**, Michael Steiner, Mona Vij, Taesoo Kim. "PRIDWEN: Universally Hardening SGX Programs via Load-Time Synthesis". In Proceedings of

- the 2022 USENIX Annual Technical Conference, Carlsbad, CA, USA, Jul. 2022. (Acceptance rate: 16.3%)
2. **[IJIS'22] Xiaokuan Zhang**, Jihun Hamm, Michael K. Reiter, Yinqian Zhang. “*Defeating traffic analysis via differential privacy: a case study on streaming traffic*”. International Journal of Information Security. (journal paper)
  3. **[CCS'21]** Suibin Sun, Le Yu, **Xiaokuan Zhang**, Minhui Xue, Ren Zhou, Haojin Zhu, Shuang Hao, Xiaodong Lin. “*Understanding and Detecting Mobile Ad Fraud Through the Lens of Invalid Traffic*”. In Proceedings of the 28th ACM Conference on Computer and Communication Security, Virtual Event, Nov. 2021. (Acceptance rate: 22.3%)
  4. **[CCS'21]** Tong Zhu, Yan Meng, Haotian Hu, **Xiaokuan Zhang**, Minhui Xue, Haojin Zhu. “*Dissecting Click Fraud Autonomy in the Wild*”. In Proceedings of the 28th ACM Conference on Computer and Communication Security, Virtual Event, Nov. 2021. (Acceptance rate: 22.3%)
  5. **[UIST'20]** Frederik Brudy, David Ledo, Michel Pahud, Nathalie Henry Riche, Christian Holz, Anand Waghmare, Hemant Surale, Marcus Peinado, **Xiaokuan Zhang**, Shannon Joyner, Badrish Chandramouli, Umar Farooq Minhas, Jonathan Goldstein, Bill Buxton, Ken Hinckley. “*SurfaceFleet: Exploring Distributed Interactions Unbounded from Device, Application, User, and Time*”. In Proceedings of the 33rd Annual Symposium on User Interface Software and Technology, Virtual Event, Oct. 2020. (Acceptance rate: 21.5%)
  6. **[Security'20]** Mengya Zhang\*, **Xiaokuan Zhang\***, Yinqian Zhang, Zhiqiang Lin. “*TXSPECTOR: Uncovering Attacks in Ethereum from Transactions*”. In Proceedings of the 29th USENIX Security Symposium, Virtual Event, Aug. 2020. (Acceptance rate: 16.1%) (\*equal contribution)
  7. **[NDSS'19] Xiaokuan Zhang**, Jihun Hamm, Michael K. Reiter, Yinqian Zhang. “*Statistical Privacy for Streaming Traffic*”. In Proceedings of the 26th Network and Distributed System Security Symposium, San Diego, CA, USA, Feb. 2019. (Acceptance rate: 17.1%)
  8. **[ACSAC'18]** Bo Lu\*, **Xiaokuan Zhang\***, Ziman Ling, Yinqian Zhang, Zhiqiang Lin. “*A Measurement Study of Authentication Rate-Limiting Mechanisms of Modern Websites*”. In Proceedings of the 34th Annual Computer Security Applications Conference, San Juan, Puerto Rico, USA, Dec. 2018. (Acceptance rate: 20.1%) (\*equal contribution)
  9. **[CCS'18]** Wei Zhang, Yan Meng, Yugeng Liu, **Xiaokuan Zhang**, Yinqian Zhang, Haojin Zhu. “*HoMonit: Monitoring Smart Home Apps from Encrypted Traffic*”. In Proceedings of the 25th ACM Conference on Computer and Communication Security, Toronto, Canada, Oct. 2018. (Acceptance rate: 16.6%)
  10. **[NDSS'18] Xiaokuan Zhang**, Xueqiang Wang, Xiaolong Bai, Yinqian Zhang, XiaoFeng Wang. “*OS-level Side Channels without Procs: Exploring Cross-App Information Leakage on iOS*”. In Proceedings of the 25th Network and Distributed System Security Symposium, San Diego, CA, USA, Feb. 2018. (Acceptance rate: 21.5%) (**Top 10 Finalists of CSAW'18 Applied Security Research Competition**)
  11. **[AsiaCCS'17]** Sanchuan Chen, **Xiaokuan Zhang**, Michael K. Reiter, Yinqian Zhang. “*Detecting Privileged Side-Channel Attacks in Shielded Execution with DEJA VU*”. In Proceedings of the 12th ACM Asia Conference on Computer and Communications Security, Abu Dhabi, UAE, Apr. 2017. (Acceptance rate: 20.3%)
  12. **[CCS'16] Xiaokuan Zhang**, Yuan Xiao, Yinqian Zhang. “*Return-Oriented Flush-Reload Side Channels on ARM and Their Implications for Android Devices*”. In Proceedings of the 23rd ACM Conference on Computer and Communication Security, Vienna, Austria, Oct. 2016. (Acceptance rate: 16.5%)
  13. **[Security'16]** Yuan Xiao, **Xiaokuan Zhang**, Yinqian Zhang, Mircea-Radu Teodorescu. “*One Bit Flips,*

*One Cloud Flops: Cross-VM Row Hammer Attacks and Privilege Escalation*". In Proceedings of the 25th USENIX Security Symposium, Austin, TX, USA, Aug. 2016. (Acceptance rate: 15.6%) (**Top 10 Finalists of CSAW'16 Applied Security Research Competition**)

14. **[ICCC'15]** Bett Ben Chirchir, **Xiaokuan Zhang**, Mengyuan Li, Qiyang Qian, Na Ruan, Haojin Zhu. "SmartSec: Secret Sharing-based Location-aware Privacy Enhancement in Smart Devices". In Proceedings of the 4th IEEE/CIC International Conference on Communications in China, Senzhen, China, Nov. 2015.
15. **[GLOBECOM'14]** **Xiaokuan Zhang**, Haizhong Zheng, Xiaolong Li, Suguo Du, and Haojin Zhu. "You are Where You Have Been: Sybil Detection via Geo-location Analysis in OSNs". In Proceedings of the 33rd Global Communications Conference, Austin, TX, USA, Dec. 2014.

## Teaching Experience

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### Graduate Teaching Assistant

**The Ohio State University**

- CSE 3341: Principles of Programming Languages Jan. 2016 - May 2016
- CSE 3461: Computer Networking and Internet Technologies Aug. 2015 - Dec. 2015

### Undergraduate Teaching Assistant

**Shanghai Jiao Tong University**

- EI 209: Computer Architecture and Design Sep. 2014 - Jan. 2015

## Service

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### Program Committee

- EAI International Conf. on Security and Privacy in Comm. Net. (SecureComm) 2022
- International Conf. on Knowledge Science, Engineering and Management (KSEM) 2022
- ACM Cloud Computing Security Workshop (CCSW) 2020, 2021
- NYU CSAW Cyber Security Applied Research Paper Competition 2020, 2021
- IEEE International Conf. on Cloud Computing Technology and Science (CloudCom) 2020

### Journal Reviewer

- IEEE Transactions on Mobile Computing (TMC) 2021
- IEEE Transactions on Dependable and Secure Computing (TDSC) 2019

### External Reviewer

- IEEE Symposium on Security and Privacy (Oakland) 2016 - 2018, 2020, 2022
- ACM Conference on Computer and Communications Security (CCS) 2016 - 2020
- USENIX Security Symposium (Security) 2017, 2022
- ISOC Network and Distributed System Security Symposium (NDSS) 2018, 2020
- ACM Asia Conference on Computer and Communications Security (AsiaCCS) 2018, 2020

## Presentations & Talks

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- Statistical Privacy for Streaming Traffic  
*NDSS'19*, San Diego, CA, USA Feb. 2019
- A Measurement Study of Authentication Rate-Limiting Mechanisms of Modern Websites  
*ACSAC'18*, San Juan, PR, USA Dec. 2018
- OS-level Side Channels without Procfs: Exploring Cross-App Information Leakage on iOS  
*CSAW'18 Applied Security Research Competition*, New York City, NY, USA Nov. 2018  
*NDSS'18*, San Diego, CA, USA Feb. 2018
- Return-Oriented Flush-Reload Side Channels on ARM and Their Implications for Android Devices  
*CCS'16*, Vienna, Austria Oct. 2016
- You are Where You Have Been: Sybil Detection via Geo-location Analysis in OSNs  
*GLOBECOM'14*, Austin, TX, USA Dec. 2014

## References

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