

# Tian Xie

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**RESEARCH INTERESTS** Security and privacy, mobile/wireless networks and systems, Internet of things, secure cloud computing/services, blockchain technologies, AI

**APPOINTMENT** **Utah State University**, Logan, UT Aug 2023 – Present  
Assistant Professor, Department of Computer Science

**Michigan State University**, East Lansing, MI Jan 2017 – May 2023  
Research Assistant

**Apple**, Cupertino, CA May 2022 – Aug 2022  
Software Engineering Intern

**Google**, Sunnyvale, CA Sep 2021 – Dec 2021  
Software Engineering Intern

**Michigan State University**, East Lansing, MI Jan 2016 – Dec 2016  
Undergraduate Research Assistant

**EDUCATION** **Ph.D.**, Computer Science and Engineering, Jan 2017 – May 2023  
Michigan State University, East Lansing, Michigan

**B.Sc with honor**, Electrical and Computer Engineering Sep 2013 – Dec 2016  
Michigan State University, East Lansing, Michigan

**PUBLICATIONS** [MobiCom'24] Yiwen Hu, Min-Yue Chen, Haitian Yan, Chuan-Yi Cheng, Guan-Hua Tu, Chi-Yu Li, **Tian Xie**, Chunyi Peng, Li Xiao, Jiliang Tang, 'Uncovering Problematic Designs Hindering Ubiquitous Cellular Emergency Services Access,' Proceedings of ACM the 30th Annual International Conference On Mobile Computing And Networking (MobiCom) 2024, September 30- October 4, 2024, Washington, D.C., USA (Acceptance rate: 55/288 = 19.09%, Winter run)

[MobiCom'24] Jingwen Shi, Sihang Wang, Min-Yue Chen, Guan-Hua Tu, **Tian Xie**, Man-Hsin Chen, Yiwen Hu, Chi-Yu Li, Chunyi Peng, 'IMS is Not That Secure on Your 5G/4G Phones,' Proceedings of ACM the 30th Annual International Conference On Mobile Computing And Networking (MobiCom) 2024, September 30- October 4, 2024, Washington, D.C., USA (Acceptance rate: 48/207 = 23.19%, Summer run)

[ToN'24] Min-Yue Chen, Yiwen Hu, Guan-Hua Tu, Chi-Yu Li, Sihang Wang, Jingwen Shi, **Tian Xie**, Li Xiao, Chunyi Peng, Zhaowei Tan, and Songwu Lu, 'Taming the Insecurity of Cellular Emergency Services (9-1-1): From Vulnerabilities to Secure Designs,' IEEE/ACM Transactions on Networking (Impact Factor: 3.7).

[ToN'23] Sihang Wang, **Tian Xie**, Min-Yue Chen, Guan-Hua Tu, Chi-Yu Li, Xinyu Lei, Po-Yi Chou, Fucheng Hsieh, Yiwen Hu, Li Xiao, and Chunyi Peng, 'Dissecting Operational Cellular IoT Service Security: Attacks and Defenses,' IEEE/ACM Transactions on Networking (Impact Factor: 3.7).

[CNS'23] Jingwen Shi, **Tian Xie**, Guan-Hua Tu, Chunyi Peng, Chi-Yu Li, Andrew Hou, Sihan Wang and Yiwen Hu, Xinyu Lei, Min-Yue Chen, Li Xiao and Xiaoming Liu. 'When Good Turns Evil: Encrypted 5G/4G Voice Calls Can Leak Your Identities' IEEE Conference on Communications and Network Security (IEEE CNS) 2023, October 2- October 5, 2023, Orlando, Florida (Acceptance Rate: 28.5%).

[GetMobile'23] Yiwen Hu, Min-Yue Chen, Guan-Hua Tu, Chi-Yu Li, Sihan Wang, Jingwen Shi, **Tian Xie**, Xiao Li, Chunyi Peng, Zhaowei Tan, Songwu Lu. 'Unveiling the Insecurity of Operational Cellular Emergency Services (911): Vulnerabilities, Attacks, and Countermeasures' **An invited paper** to ACM GetMobile: Mobile Computing and Communications, GetMobile **Research Highlights**.

[TMC'23] **Tian Xie**<sup>†</sup>, Sihan Wang<sup>†</sup> (†: co-primary), Xinyu Lie, Jingwen Shi, Guan-Hua Tu, Chi-Yu Li. 'MPKIX: Towards More Accountable and Secure Internet Application Services via Mobile Networked Systems' IEEE Transactions on Mobile Computing, Volume: 22, Issue: 6, pp. 3489 - 3507, June 1, 2023 (Impact Factor: 7.9).

[ToN'23] Yu-Han Lu, Sandy Hsin-Yu Hsiao, Chi-Yu Li, Yi-Chen Hsieh, Po-Yi Chou, Yao-Yu Li, **Tian Xie**, Guan-Hua Tu. 'Insecurity of Operational IMS Call Systems: Vulnerabilities, Attacks, and Countermeasures' IEEE/ACM Transactions on Networking, Volume: 31, Issue: 2, pp. 800-815, April, 2023 (Impact Factor: 3.7).

[MobiCom'22] Yiwen Hu, Min-Yue Chen, Guan-Hua Tu, Chi-Yu Li, Sihan Wang, Jingwen Shi, **Tian Xie**, Xiao Li, Chunyi Peng, Zhaowei Tan, Songwu Lu. 'Uncovering Insecure Designs of Cellular Emergency Services (911)' Proceedings of ACM the 28th Annual International Conference On Mobile Computing And Networking (MobiCom) 2022, October 17- October 21, 2022, Sydney, Australia (Acceptance Rate: 18.1%), **SIGMOBILE Research Highlight, Best Community Paper Award Runner-Up, AT&T Security Award**.

[TMC'21] **Tian Xie**, Guan-Hua Tu, Bangjie Yin, Chi-Yu Li, Chunyi Peng, Mi Zhang, Hui Liu, and Xiaoming Liu. 'The Untold Secrets of WiFi-Calling Services: Vulnerabilities, Attacks, and Countermeasures' IEEE Transactions on Mobile Computing, Volume: 20, Issue: 11, pp. 3131-3147, Nov. 1 2021 (Impact Factor: 7.9).

[TMC'21] **Tian Xie**, Guan-Hua Tu, Chi-Yu Li, and Chunyi Peng. 'How Can IoT Services Pose New Security Threats In Operational Cellular Networks?' IEEE Transactions on Mobile Computing, vol. 20, no. 8, pp. 2592-2606, 1 Aug. 2021 (Impact Factor: 7.9)

[CODASPY'21] Xinyu Lei, Guan-Hua Tu, **Tian Xie**, and Sihan Wang. 'BFastPay: A Routing-free Protocol for Fast Payment in Bitcoin Network' Proceedings of the 11th ACM Conference on Data and Application Security and Privacy (CODASPY) 2021, April 26-28, 2021, taking place virtually, pp. 77-87 (Acceptance Rate: 29%).

[CODASPY'21] Yiwen Hu, Sihan Wang, Guan-Hua Tu, Li Xiao, **Tian Xie**, Xinyu Lei, and Chi-Yu Li. 'Security Threats from Bitcoin Wallet Smartphone Applications: Vulnerabilities, Attacks, and Countermeasures' Proceedings of the 11th ACM Conference on Data and Application Security and Privacy (CODASPY) 2021, April 26-28, 2021, taking place virtually, pp. 89-100 (Acceptance Rate: 29%).

[MobiCom'21] Sihan Wang, Guan-Hua Tu, Xinyu Lei, **Tian Xie**, Chi-Yu Li, Po-Yi Chou, Fucheng Hsieh, Yiwen Hu, Li Xiao, Chunyi Peng. 'Insecurity of Operational Cellular IoT Service: New Vulnerabilities, Attacks, and Countermeasures' Proceed-

ings of ACM the 27th Annual International Conference On Mobile Computing And Networking (MobiCom) 2021, March 28 - April 1, 2022, New Orleans, United States, pp. 437-450 (Acceptance Rate: 19.9%).

[**MobiCom'20**] Yu-Han Lu, Chi-Yu Li, Yao-Yu Li, Sandy Hsin-Yu Hsiao, **Tian Xie**, Guan-Hua Tu, Wei-Xun Chen. '*Ghost Calls from Operational 4G Call Systems: IMS Vulnerability, Call DoS Attack, and Countermeasure*' Proceedings of ACM the 26th Annual International Conference On Mobile Computing And Networking (MobiCom) 2020, Sep. 21-25, 2020, London, United Kingdom, pp. 1-14 (Acceptance Rate: 16.15%).

[**MobiSys'20**] Xinyu Lei, Guan-Hua Tu, Chi-Yu Li, **Tian Xie**, Mi Zhang. '*SecWIR: Securing Smart Home IoT Communications via Wi-Fi Routers with Embedded Intelligence*' Proceedings of the 18th ACM International Conference on Mobile Systems, Applications, and Service (MobiSys) 2020, June 16-19, 2020, Toronto, Canada, pp. 260-272 (Acceptance Rate: 19.4%).

[**ICDCS'20**] Xinyu Lei, **Tian Xie**, Guan-Hua Tu and Alex X. Liu. '*An Interblockchain Escrow Approach For Fast Bitcoin Payment (Extended Abstract)*' 2020 IEEE 40th International Conference on Distributed Computing Systems (ICDCS), Singapore, Singapore, 2020, pp. 1201-1202 (Acceptance Rate: 20.0%).

[**CNS'20**] Xinyu Lei, Guan-Hua Tu, Alex X. Liu, **Tian Xie**. '*Fast and Secure kNN Query Processing in Cloud Computing*' 2020 IEEE Conference on Communications and Network Security (CNS), Avignon, France, 2020, pp. 1-9 (Acceptance Rate: 28.4%).

[**SSCI'19**] **Tian Xie**, Sihan Wang, Guan-Hua Tu, Chi-Yu Li, Xinyu Lei. '*Exploring the Insecurity of Google Account Registration Protocol via Model Checking*' 2019 IEEE Symposium Series on Computational Intelligence (SSCI), Xiamen, China, 2019, pp. 3087-3096.

[**CNS'18**] **Tian Xie**, Guan-Hua Tu, Chi-Yu Li, Chunyi Peng, Jiawei Li, and Mi Zhang. '*The Dark Side of Operational Wi-Fi Calling Services.*' 2018 IEEE Conference on Communications and Network Security (CNS), Beijing, China, 2018, pp. 1-9 (Acceptance Rate: 28.1%), **Best Paper Award**, **Google Security Reward**.

[**CNS'18**] Lei, Xinyu, Guan-Hua Tu, Alex X. Liu, Chi-Yu Li, and **Tian Xie**. '*The Insecurity of Home Digital Voice Assistants-Vulnerabilities, Attacks and Countermeasures.*' 2018 IEEE Conference on Communications and Network Security (CNS), Beijing, China, 2018, pp. 1-9 (Acceptance Rate: 28.1%).

[**ICC'18**] **Tian Xie**, Chi-Yu Li, Jiliang Tang, and Guan-Hua Tu. '*How Voice Service Threatens Cellular-Connected IoT Devices in the Operational 4G LTE Networks.*' 2018 IEEE International Conference on Communications (ICC), Kansas City, MO, USA, 2018, pp. 1-6 (Acceptance Rate: 39%).

[**NEMS'17**] **Tian Xie**, Xiaopeng Bi, Rui Luo, Fan Bin, Zhe Wang, and Wen Li. '*Optical propagation of blue LED light in brain tissue and Parylene-C.*' 2017 IEEE 12th International Conference on Nano/Micro Engineered and Molecular Systems (NEMS), Los Angeles, CA, USA, 2017, pp. 599-602.

[**TBioCAS'16**] Xiaopeng Bi, **Tian Xie**, Bin Fan, Wasif Khan, Yue Guo, and Wen Li. '*A flexible, micro-lens-coupled LED stimulator for optical neuromodulation.*'

IEEE Transactions on Biomedical Circuits and Systems, 10.5 (2016): 972-978 (Impact Factor: 5.1).

## HONORS & AWARDS

- SIGMOBILE Research Highlights 2022
- ACM MobiCom Best Community Paper Award Runner-Up 2022
- Dissertation Completion Fellowship 2022
- Google Android Security Reward 2019
- Graduate Office Fellowship 2019
- Kaggle Competition Gold Medal 2018
- Kaggle Competition Bronze Medal 2018
- IEEE CNS Travel Grant 2018
- IEEE CNS Best Paper Award 2018
- Graduate Office Fellowship 2018
- Graduate Office Fellowship 2017
- B.Sc Graduation with Honor 2016
- MSU Capstone Design Second Prize 2016
- MSU Dean's List 2016
- MSU Dean's List 2015
- MSU Dean's List 2014
- MSU Dean's List 2013

## TEACHING EXPERIENCE

- Instructor: CS 5890/6890 Computer Network and Security, Utah State University, Fall 2024
- Instructor: CS 4460 Introduction to Cybersecurity, Utah State University, Spring 2024
- Instructor: CS 5890/6890 Computer Network and Security, Utah State University, Fall 2023
- Teaching Assistant: CSE 232 Introduction to Programming II, Michigan State University, Summer 2023
- Teaching Assistant: CSE 824 Advanced Computer Networks and Communications, Michigan State University, Fall 2022
- Teaching Assistant: CSE 320 Computer Organization and Architecture, Michigan State University, Summer 2020
- Teaching Assistant: CSE 476 Mobile App Development, Michigan State University, Fall 2019
- Teaching Assistant: CSE 425 Intro to Computer Security, Michigan State University, Fall 2018
- Teaching Assistant: CSE 425 Intro to Computer Security, Michigan State University, Spring 2018
- Teaching Assistant: CSE 476 Mobile App Development, Michigan State University, Fall 2017
- Teaching Assistant: CSE 422 Computer Network, Michigan State University, Spring 2017
- Undergraduate Assistant: ECE 313 Control Systems, Michigan State University, Spring 2016

**ACADEMIC  
SERVICE**

**Technical Program Committee**

- ACM Mobicom S3 2019

**Conference Reviewer**

- Infocom2023, BigData2023, Mobicom2022, CNS2022, Mobicom2021, IFIP2020, VNC2020, BigData2020, BigData2019, IFIP2019, ICDCS2019, Globalcom2019, VNC2018

**Journal Reviewer**

- IEEE Transactions on Information Forensics & Security (TIFS), IEEE Transactions on Mobile Computing (TMC), IEEE/ACM Transactions on Networking (ToN), Computer Networks, Computer & Security, ACM Transactions on Privacy and Security (TOPS/TISSEC), IEEE Transactions on Reliability, IEEE Transactions on Vehicular Technology