

Tian Xie

◇ Utah State University ◇ Homepage: <https://xietian1.github.io/> ◇ Email: tian.xie@usu.edu

Research Interests

Mobile Networking, Network and System Security, Internet of Things, AI in Mobile
Network Security

Appointment

Utah State University	Logan, UT
Assistant Professor, Department of Computer Science	08/2023 - Present
Apple	Cupertino, CA
Software Engineering Intern	05/2022 - 08/2022
Google	Sunnyvale, CA
Software Engineering Intern	09/2021 - 12/2021
Michigan State University	East Lansing, MI
Research Assistant	01/2017 - 05/2023

Education

Michigan State University	East Lansing, MI
Ph.D., Computer Science	01/2017 - 05/2023
Michigan State University	East Lansing, MI
B.Sc with Honor , Electrical and Computer Engineering	09/2013 - 12/2016

Honors & Awards

• SIGMOBILE Research Highlights	2022
• ACM MobiCom Best Community Paper Award Runner-Up	2022
• AT&T Security Award	2022
• Dissertation Completion Fellowship	2022
• Google Android Security Reward	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	2017, 2018, 2019
• B.Sc Graduation with Honor	2016
• MSU Capstone Design Second Prize	2016
• MSU Dean's List	2013, 2014, 2015, 2016

Selected 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, Sihan 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, Sihan 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, Volume: 32, Issue: 4, pp. 3076 - 3091, Aug. 1, 2024 [**Impact Factor: 3.7**]

[**ToN'23**] Sihan 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, Volume: 32, Issue: 2, pp. 1229 - 1244, April 1, 2024 [**Impact Factor: 3.7**]

[**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†, Sihan Wang†(†: 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**]

[**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' Proceedings 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%**]

[**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.**

Full Publications

Journal/Magazine Articles

- [J8] Min-Yue Chen, Yiwen Hu, Guan-Hua Tu, Chi-Yu Li, Sihan 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, Volume: 32, Issue: 4, pp. 3076 - 3091, Aug. 1, 2024 [**Impact Factor: 3.7**]
- [J7] Sihan 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, Volume: 32, Issue: 2, pp. 1229 - 1244, April 1, 2024 [**Impact Factor: 3.7**]
- [J6] 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.**
- [J5] **Tian Xie**†, Sihan Wang†(†: 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**]
- [J4] 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**]
- [J3] **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**]

- [J2] 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**]
- [J1] 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**]

Conference Papers

- [C16] 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]
- [C15] Jingwen Shi, Sihan 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]
- [C14] 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%**]
- [C13] 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.**
- [C12] 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%]
- [C11] 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%]
- [C10] 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' Proceedings 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%**]

- [C9] 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%]
- [C8] 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%]
- [C7] Xinyu Lei, Tian Xie, Guan-Hua Tu and Alex X. Liu. 'An Inter-blockchain 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%]
- [C6] 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%]
- [C5] 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
- [C4] 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.**
- [C3] 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%]
- [C2] 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%]
- [C1] 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

Grants

- [G1] **Advancing 5G/4G and Beyond Cellular Network Standards with Enhanced LLM**
 Sponsor: National Artificial Intelligence Research Resource Pilot
 Investigators: **Tian Xie (PI) (50%)**, Shuhan Yuan
 Amount: \$20,000 (250,000 SUs)
 Period: 04/08/2025 - 04/07/2026

Teaching Experience

- CS 5890/6890 Computer Network and Security Instructor, Utah State University Fall 2024, Fall 2023
- CS 4460 Introduction to Cybersecurity Instructor, Utah State University Spring 2025, Spring 2024, Spring 2023
- CSE 232 Introduction to Programming II TA, Michigan State University Summer 2023
- CSE 824 Advanced Computer Networks and Communications TA, Michigan State University Fall 2022
- CSE 320 Computer Organization and Architecture TA, Michigan State University Summer 2020
- CSE 476 Mobile App Development TA, Michigan State University Fall 2019, Fall 2017
- CSE 425 Intro to Computer Security TA, Michigan State University Fall 2018, Spring 2018
- CSE 422 Computer Network TA, Michigan State University Spring 2017
- ECE 313 Control Systems TA, Michigan State University Spring 2016

Academic Service

Conference Reviewer

- Infocom2023, BigData2023, Mobicom2022, CNS2022, Mobicom2021, IFIP2020, VNC2020, Big-Data2020, 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

Conference Chair Positions

- IEEE DSC'25 Program Chair (Experience and Practice Track) 2025

Technical Program Committee

- ACM Mobicom S3 2019