WEI WANG

CONTACT INFORMATION

Email: wei.wang.5@slu.edu   Personal Website: www.wei-wang-research.com
Google Scholar: https://scholar.google.com/citations?user=ttiMonwAAAAJ&hl

RESEARCH INTERESTS

Autonomous Driving, Cybersecurity, Internet-of-Things (IoT), and Wireless Networking

EDUCATION

University of Maryland, Baltimore County   Baltimore, Maryland

Ph.D., Electrical Engineering   2016 - 2022

University of Texas at Dallas   Dallas, Texas

M.S., Electrical Engineering   2012 - 2014

Beijing University of Posts and Telecommunications   Beijing, China

B.S., Telecommunication Engineering   2008 - 2012

ACADEMIC APPOINTMENT

Assistant Professor   2025 - Present

Department of Computer Science, Texas Tech University

Assistant Professor   2022 - 2025

Department of Computer Science, Saint Louis University

Research Assistant   2016 - 2022

Department of Computer Science, University of Maryland, Baltimore County

RESEARCH GRANTS

- **NSF Award**, **Title:** CRII: CIF: Exploiting, Modeling, and Leveraging Hidden Features in IoT for Efficient and Secure Communication   **Role:** PI
  Total Amount: $174,572   **07/01/2024 – 06/30/2026**

- **TGI (Taylor Geospatial Institute), Title:** Rethinking Multimodal Localization Systems at Scale in Challenging Scenarios (**Collaborator:** Dr. Flavio Esposito)   **Role:** Co-PI
  Total Amount: $175,000 **My Share**: $75,000,   **03/01/2023 – 05/30/2024**

PROFESSIONAL SERVICE

Chair
- **IEEE NetSoft,** Local Arrangement Co-Chair   2024

Technical Program Committee (TPC)
- IEEE Conference on Communications and Network Security (CNS)   2024
- IEEE INFOCOM   2022, 2023, 2024

Journal Reviewer
- ACM Transactions on Sensor Networks (TOSN)   2021, 2022, 2023
- IEEE Transactions on Mobile Computing (TMC)   2021, 2022
- IEEE/ACM Transactions on Networks (TON)   2019, 2022, 2023
- IEEE Transactions on Consumer Electronics   2023, 2024
- Journal of Grid Computing   2023

Conference Reviewer
- IEEE PERCOM   2024
- IEEE ICC   2023

SELECTED CONFERENCE PUBLICATIONS

Note: For a complete list of my publications, please refer to my Google Scholar Author Profile:
https://scholar.google.com/citations?user=ttiMonwAAAAJ&hl

Cybersecurity in Autonomous Driving, IoT, Wireless Communication, and Sensing

[1] Baodong Chen, **Wei Wang (co-first and corresponding author),** Pascal Sikorski, and Ting Zhu. "Adversary is on the Road: Attacks on Visual SLAM using Unnoticeable Adversarial Patch." In **USENIX** 2024: The 33rd USENIX Security Symposium. (**Acceptance Rate: 18.32%**)

[2] **Wei Wang (first and corresponding author)**, Xin Liu, Zicheng Chi, Stuart Ray, and Ting Zhu. "Key Establishment for Secure Asymmetric Cross-Technology Communication." In **AsiaCCS** 2024: The 19th ACM ASIA Conference on Computer and Communications Security. (**Acceptance Rate: 21.6%**)

[3] Xin Liu, **Wei Wang**, Guanqun Song, and Ting Zhu. "LightThief: Your Optical Communication Information is Stolen behind the Wall." In **USENIX Security** 2023: The 32nd USENIX Security Symposium. (**Acceptance Rate: 19.1%**)

[4] Dianshi Yang, Abhinav Kumar, Stuart Ray, **Wei Wang**, and Reza Tourani. "IoT Sentinel: Correlation-based Attack Detection, Localization, and Authentication in IoT Networks." In **ICCCN** 2023: The 32nd International Conference on Computer Communications and Networks.

[5] **Wei Wang**, Yao Yao, Xin Liu, Xiang Li and Ting Zhu. "I Can See the Light: Attacks on Autonomous Vehicles Using Invisible Lights" In **ACM CCS** 2021: ACM Symposium on Computer and Communications Security. (**Acceptance Rate: 16.9%**)

[6] Zicheng Chi, Yan Li, Xin Liu, **Wei Wang**, Yao Yao, Ting Zhu and Yanchao Zhang. "CounteringCross-technology Jamming Attack". In **ACM WiSec** 2020: The 13th ACM Conference on Security and Privacy in Wireless and Mobile Networks. (**Acceptance Rate: 22%**)

[7] **Wei Wang,** Zeyu Ning, Hugues Iradukunda, Qingquan Zhang, Ting Zhu, and Ping Yi. "MailLeak: Obfuscation-Robust Character Extraction Using Transfer Learning." In 2021 IEEE/ACM Symposium on Edge Computing (**SEC**).

[8] Yao Yao, Yan Li, Xin Liu, Zicheng Chi, **Wei Wang**, Tiantian Xie, and Ting Zhu. "Aegis: An interference-negligible RF sensing shield." In **IEEE INFOCOM** 2018: The 37th IEEE International Conference on Computer Communications. (**Acceptance Rate: 19.2%**)

[9] Yunyu Liu, Zhiyang Xia, Ping Yi, Yao Yao, Tiantian Xie, Wei Wang, and Ting Zhu. "GENPass: A General Deep Learning Model for Password Guessing with PCFG Rules and Adversarial Generation." In 2018 IEEE International Conference on Communications (**ICC**) (pp. 1-6).

[10] Jianwen Xu, Ping Yi, Tiantian Xie, **Wei Wang**, Xin Liu, and Ting Zhu. "Charge station placement in electric vehicle energy distribution network." In 2017 IEEE International Conference on Communications (**ICC**) (pp. 1-6).

Internet of Things (IoT)

[11] Xin Liu, Zicheng Chi, **Wei Wang**, Yao Yao, Pei Hao and Ting Zhu. "Verification and Redesign of OFDM Backscatter". In **NSDI** 2021: The 18th USENIX Symposium on Networked Systems Design and Implementation. (**Acceptance Rate: 15.7%**)

[12] Zicheng Chi, Xin Liu, **Wei Wang**, Yao Yao and Ting Zhu. "Leveraging Ambient LTE Traffic for Ubiquitous Passive Communication". In **ACM SIGCOMM** 2020: Proceedings of the Annual Conference of the ACM Special Interest Group on Data Communication on the Applications, Technologies, Architectures, and Protocols for Computer Communication. (**Acceptance Rate: 14%**)

[13] Xin Liu, Zicheng Chi, **Wei Wang**, Yao Yao and Ting Zhu. "VMscatter: A Versatile MIMO Backscatter." In **NSDI** 2020: The 17th USENIX Symposium on Networked Systems Design and Implementation. (**Acceptance Rate: 18.4%**)

Wireless Networking

[14] **Wei Wang**, Xin Liu, Yao Yao and Ting Zhu. "Exploiting WiFi AP for Simultaneous Data Dissemination among WiFi and ZigBee Devices" In **IEEE ICNP** 2021: The 29th IEEE International Conference on Network Protocols. (**Acceptance Rate: 24%**)

[15] **Wei Wang**, Xin Liu, Yao Yao, Yan Pan, Zicheng Chi, and Ting Zhu. "CRF: Coexistent Routing and Flooding using WiFi Packets in Heterogeneous IoT Networks." In **IEEE**

INFOCOM 2019: The 38th IEEE International Conference on Computer Communications. (**Acceptance Rate: 19.2%**)

[16]   **Wei Wang**, Tiantian Xie, Xin Liu, and Ting Zhu. "ECT: Exploiting Cross-Technology Concurrent Transmission for Reducing Packet Delivery Delay in IoT Networks." In **IEEE INFOCOM** 2018: The 37th IEEE International Conference on Computer Communications. (**Acceptance Rate: 19.2%**)

Wireless Sensing

[17]   Zicheng Chi, Yao Yao, Tiantian Xie, Xin Liu, Zhichuan Huang, **Wei Wang**, and Ting Zhu. "EAR: Exploiting Uncontrollable Ambient RF Signals in Heterogeneous Networks for Gesture Recognition." In **ACM SenSys** 2018: The 16th ACM Conference on Embedded Networked Sensor Systems. (**Acceptance Rate: 15.6%**)

PREFERRED JOURNAL PUBLICATIONS

Cybersecurity

[1] Zhiyang Xia, Ping Yi, Yunyu Liu, Bo Jiang, **Wei Wang**, and Ting Zhu. "GENPass: a multi-source deep learning model for password guessing." In IEEE Transactions on Multimedia (2019), 22(5), 1323-1332.

[2] Cheng Huang, Ping Yi, Futai Zou, Yao Yao, **Wei Wang**, and Ting Zhu. "CCID: Cross-Correlation identity distinction method for detecting shrew DDoS." In Wireless Communications and Mobile Computing, 2019.

Autonomous Driving

[3] J Xu, Ping Yi, **Wei Wang**, and Ting Zhu. "A power storage station placement algorithm for power distribution based on electric vehicle," In International Journal of Distributed Sensor Networks, 2017.

Internet of Things (IoT)

[4] Xin Liu, Zicheng Chi, **Wei Wang**, Yao Yao, Pei Hao, and Ting Zhu. "High-Granularity Modulation for OFDM Backscatter." In IEEE/ACM Transactions on Networking (**TON**) 2023.

Wireless Networking

[5] **Wei Wang**, Xin Liu, Yao Yao, Zicheng Chi, Stuart Ray, Ting Zhu, and Yanchao Zhang. "Simultaneous Data Dissemination among WiFi and ZigBee Devices." In IEEE/ACM Transactions on Networking (**TON**) 2023.

[6] **Wei Wang**, Xin Liu, Yao Yao, Zicheng Chi, and Ting Zhu. "Coexistent Routing and Flooding Using WiFi Packets in Heterogeneous IoT Network." In IEEE/ACM Transactions on Networking (**TON**) 29.6 (2021): 2807-2819.

[7] **Wei Wang**, Tiantian Xie, Xin Liu and Ting Zhu. "ECT: Exploiting Cross-TechnologyConcurrent Transmission for Reducing Packet Delivery Delay in IoT Networks," In ACM Transactions on Sensor Networks (**TOSN**), 2019.

[8] Ping Yi, Yuxiang Guan, Futai Zou, Yao Yao, **Wei Wang**, and Ting Zhu. "Web Phishing Detection Using a Deep Learning Framework." In Wireless Communications and Mobile Computing, 2018.

PREFERRED WORKSHOP PUBLICATIONS

[1] **Wei Wang**, Zicheng Chi, Xin Liu, and Ting Zhu. "A Secured Protocol for IoT Devices in Tactical Networks." In MILCOM 2022 (CyberNet workshop).

[2] Yu Sui, Ping Yi, Xin Liu, **Wei Wang**, Ting Zhu. "Optimization for charge station placement in electric vehicles energy network," In Proceedings of the Workshop on Smart Internet of Things, 2017.

TEACHING ACTIVITIES

Instructor   **Saint Louis University**

- Wireless Networking (CSCI 4590/5590)   Fall 2023
- Autonomous Driving (CSCI 4860/5860)   Spring 2023, Spring 2024
- Data Structure (CSCI 2100/5002)   Fall 2022, Spring 2023, Spring 2024, Fall 2024

Teaching Assistant   **University of Maryland, Baltimore County**

- Automated Driving Systems   Spring 2021
- Special Topics in Big Data   Spring 2020
- Special Topics in Big Data   Spring 2019
- Special Topics in Big Data   Spring 2018
- Special Topics in Big Data   Spring 2017

PRESENTATION & TALKS

- **Title:** "Smart Sensing: Approaches and Defense Strategies"

  Event: SLU Graduate Research Conference, 2023   **Location:** St. Louis

- **Title:** "I Can See the Light: Attacks on Autonomous Vehicles Using Invisible Lights"

  Event: ACM CCS 2021   **Location:** Online

- **Title:** "Exploiting WiFi AP for Simultaneous Data Dissemination among WiFi and ZigBee Devices"

  Event: IEEE ICNP 2021   **Location:** Online

- **Title:** "Aegis: An interference-negligible RF sensing shield."

  Event: IEEE INFOCOM 2018   **Location:** Manoa, Hawaii

- **Title:** "ECT: Exploiting Cross-Technology Concurrent Transmission for Reducing Packet Delivery Delay in IoT Networks."

  Event: IEEE INFOCOM 2018   **Location:** Manoa, Hawaii

- **Title:** "Optimization for charge station placement in electric vehicles energy network"

  Event: ACM SEC 2017   **Location:** San Jose, California

AWARDS

- **Travel Awards**
  IEEE INFOCOM 2018
  ACM SEC 2017

STUDENTS AND ALUMNI

- **Current Postdoc**
  Seyyd Ahmed Lahmer (Co-supervisor)

- **Current Ph.D. Students**
  Zijian Wan
  Chiyu Zhou
  Baodong Chen (Co-supervisor)

- **Undergraduate Students**
  Stuart Ray
  Pascal Sikorski
  Graham Bishop

- **Previous Postdoc**
  Qianqian Pan

- **Previous MS Student**
  Dianshi Yang (now Ph.D. Student @ University of Delaware)

- **Previous Undergraduate Student**
  Stuart Ray (now Software Engineer @ Mastercard)