Yinxin Wan

Assistant Professor in Computer Science

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Professional Experiences

2023–present	**Assistant Professor**, Computer Science Department, UMass Boston

Education

2018–2023	**Ph.D. in Computer Science**, *Arizona State University (ASU)*
Co-Advisor	Dr. Guoliang Xue — ✉ xue@asu.edu — 🌐 `www.public.asu.edu/~gxue1/`
Co-Advisor	Dr. Kuai Xu — ✉ Kuai.Xu@asu.edu — 🌐 `www.public.asu.edu/~kxu01/`
	Dean's Dissertation Award, GPA: 4.00
2014–2018	**B.E. in Information Security**, *University of Science and Technology of China (USTC)*
	Outstanding Graduate Award, GPA: 3.66

Research Experiences

2018–2023	**Research Assistant, ASU**
Co-Supervisor	Dr. Guoliang Xue — ✉ xue@asu.edu — 🌐 `www.public.asu.edu/~gxue1/`
Co-Supervisor	Dr. Kuai Xu — ✉ Kuai.Xu@asu.edu — 🌐 `www.public.asu.edu/~kxu01/`
2017–2018	**Undergraduate Researcher, Information Network Lab, USTC**
Supervisor	Dr. Kaiping Xue — ✉ kpxue@ustc.edu.cn — 🌐 `staff.ustc.edu.cn/~kpxue/`

Publications

C.13 Xuanli Lin, Zhaofeng Zhang, **Yinxin Wan**, Ethan Z Teo, Guoliang Xue, Yanchao Zhang; "Most Vulnerable Attack Trace in a Probabilistic Attack Graph";
MILCOM'2024: accepted by IEEE Military Communications Conference, 2024.

C.12 Alena Chang, **Yinxin Wan**, Xuanli Lin, Guoliang Xue, Arunabha Sen; "Entanglement Distribution in LEO Satellite-based Dynamic Quantum Networks";
GLOBECOM'2024: accepted by IEEE Global Communications Conference, 2024.

C.11 Arunabha Sen, Christopher Sumnicht, Sandipan Choudhuri, Alena Chang, Guoliang Xue, **Yinxin Wan**; "Quantum Communication in 6G Satellite Networks: Entanglement Distribution Across Changing Topologies";
ICC'2024: IEEE International Conference on Communications; Denver, USA; June 9-13, 2024.

J.5 Alena Chang, **Yinxin Wan**, Guoliang Xue, Arunabha Sen; "Entanglement Distribution in Satellite-based Dynamic Quantum Networks";
IEEE Network; Vol. 38 (2024), pp. 79-86. [Impact Factor: 9.3]

C.10 Kuai Xu, **Yinxin Wan**, Xuanli Lin, Feng Wang, Guoliang Xue; "Exploring Machine Learning Algorithms for User Activity Inference from IoT Network Traffic";
MASS'2023: IEEE International Conference on Mobile Ad Hoc and Smart Systems; Toronto, Canada; September 25-27, 2023.

C.9 **Yinxin Wan**, Xuanli Lin, Abdulhakim Sabur, Alena Chang, Kuai Xu, Guoliang Xue; "IoT System Vulnerability Analysis and Network Hardening with Shortest Attack Trace in a Weighted Attack Graph";
IoTDI'2023: ACM/IEEE Conference on Internet of Things Design and Implementation; San Antonio, USA; May 9-12, 2023.
Best Paper Award, Best Paper Award for IoT Security

C.8 **Yinxin Wan**, Xuanli Lin, Kuai Xu, Feng Wang, Guoliang Xue; "Extracting Spatial Information of IoT Device Events for Smart Home Safety Monitoring";
INFOCOM'2023: IEEE International Conference on Computer Communications; New York, USA; May 17-20, 2023. [Acceptance Rate: 19.2%]

C.7 Xuanli Lin, **Yinxin Wan**, Kuai Xu, Feng Wang, Guoliang Xue; "Inferring User Activities from IoT Device Events in Smart Homes: Challenges and Opportunities";
ICCCN'2022: International Conference on Computer Communications and Networks; Virtual; July 25-27, 2022.

J.4 Guoliang Xue, **Yinxin Wan**, Xuanli Lin, Kuai Xu, Feng Wang; "An Effective Machine Learning Based Algorithm for Inferring User Activities from IoT Device Events";
IEEE Journal on Selected Areas in Communications (JSAC); Vol. 40 (2022), pp. 2733-2745. [Impact Factor: 16.4]

C.6 **Yinxin Wan**, Kuai Xu, Feng Wang, Guoliang Xue; "IoTMosaic: Inferring User Activities from IoT Network Traffic in Smart Homes";
INFOCOM'2022: IEEE International Conference on Computer Communications; Virtual; May 2-5, 2022. [Acceptance Rate: 19.7%]

J.3 **Yinxin Wan**, Kuai Xu, Feng Wang, Guoliang Xue; "IoTAthena: Unveiling IoT Device Activities from Network Traffic";
IEEE Transactions on Wireless Communications (TWC); Vol. 21 (2022), pp. 651-664. [Impact Factor: 10.4]

J.2 **Yinxin Wan**, Kuai Xu, Feng Wang, Guoliang Xue; "Characterizing and Mining Traffic Patterns of IoT Devices in Edge Networks";
IEEE Transactions on Network Science and Engineering (TNSE); Vol. 8 (2021), pp. 89-101. [Impact Factor: 6.6]

C.5 Ruozhou Yu, Guoliang Xue, **Yinxin Wan**, Jian Tang, Dejun Yang, Yusheng Ji; "Robust Resource Provisioning in Time-Varying Edge Networks";
MobiHoc'2020: ACM International Symposium on Mobile Ad Hoc Networking and Computing; Shanghai, China; October 11-14, 2020. [Acceptance Rate: 15.3%]

C.4 **Yinxin Wan**, Kuai Xu, Guoliang Xue, Feng Wang; "IoTArgos: A Multi-Layer Security Monitoring System for Internet-of-Things in Smart Homes";
INFOCOM'2020: IEEE International Conference on Computer Communications; Toronto, Canada; July 6-9, 2020. [Acceptance Rate: 19.7%]

C.3 Ruozhou Yu, **Yinxin Wan**, Vishnu Teja Kilari, Guoliang Xue, Jian Tang, Dejun Yang; "P4PCN: Privacy-Preserving Path Probing for Payment Channel Networks";
GLOBECOM'2019: IEEE Global Communications Conference; Waikoloa, USA; December 9-13, 2019.

C.2 Kuai Xu, **Yinxin Wan**, Guoliang Xue, Feng Wang; "Multidimensional Behavioral Profiling of Internet-of-Things in Edge Networks";
IWQoS'2019: IEEE/ACM International Symposium on Quality of Service; Phoenix, USA; June 24-25, 2019. [Acceptance Rate: 27.4%]

J.1 Kuai Xu, **Yinxin Wan**, Guoliang Xue; "Powering Smart Homes with Information-Centric Networking";
IEEE Communications Magazine; Vol. 57(2019), pp. 40-46. [Impact Factor: 11.2]

C.1 Peixuan He, **Yinxin Wan**, Qiudong Xia, Shaohua Li, Jianan Hong, Kaiping Xue; "LASA: Lightweight, Auditable and Secure Access Control in ICN with the Limitation of Access Times";
ICC'2018: IEEE International Conference on Communications; Kansas City, USA; May 20-24, 2018.

Patents

submitted 6/5/2023 "Systems, Methods, and Apparatuses for Inferring User Activities From Internet of Things (IoT) Connected Device Events Using Machine Learning" (pending), US patent application number 63/506,316

submitted 3/30/2023 "Systems and Methods for Inferring User Activities From IoT Network Traffic" (pending), US patent application number 63/455,868

Public Talks

2019 "Understanding and Securing Smart Home IoT Devices with Smart Routers", presented at ASU Cybersecurity and Forensics Science Seminar.

2019 "Catch the Devil Penetrating Your Home IoT Devices with Machine Learning", presented at ASU Machine Learning Day 2019.

Honors and Awards

2023 ASU Ira A. Fulton Schools of Engineering, Dean's Dissertation Award

2023 IoTDI 2023, Best Paper Award and Best Paper Award for IoT Security

2023 INFOCOM 2023, Student Travel Grant

2023 ASU SCAI, Doctoral Fellowship Award

2022 INFOCOM 2022, Student Conference Award

2022 ASU SCAI, Doctoral Fellowship Award

2020 INFOCOM 2020, Student Conference Award

2020 ASU, Engineering Graduate Fellowship Award

2020 ASU CIDSE, Doctoral Fellowship Award

2018 USTC, Outstanding Graduate Award

2017 USTC, Outstanding Student Scholarship Gold Award

Teaching Experiences

2023 Instructor of **CSE449 Introduction to Computer Security**, UMB

2022 Teaching Assistant of **CSE310 Data Structures and Algorithms**, ASU

2019 Instructor of **AI4ALL Summer Program**, ASU

2017 Teaching Assistant of **Computer Network**, USTC

Professional Services

Conference Publicity Chair, IEEE INFOCOM 2025
Poster Chair, IEEE IPCCC 2024

Reviews IEEE/ACM Transactions on Networking (ToN)
IEEE Transactions on Mobile Computing (TMC)
IEEE Transactions on Dependable and Secure Computing (TDSC)
IEEE Transactions on Wireless Communications (TWC)
IEEE Transactions on Network and Service Management (TNSM)
IEEE Internet of Things Journal (IoTJ)
Springer Journal of Network and Systems Management (JONS)

TPC IEEE INFOCOM'2025
IEEE PST'2024
IEEE IPCCC'2023
IEEE ICCCN'2023
IEEE INFOCOM'2023 PerAI-6G Workshop
IEEE INFOCOM'2022 PerAI-6G Workshop