ZEBO YANG

Washington University in St. Louis, MO 63130
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EDUCATION

Washington University in St. Louis Aug 2021 - Present (May 2025 expected)
Ph.D. candidate in Computer Science

- **Advisor**: Prof. Raj Jain
- **Research Area**: Security, Quantum Computing, Quantum Networks, Machine Learning, and Blockchains.
- **Teaching Assistant**: CSE574S: Recent Advances in Wireless and Mobile Networking (Fall 2024, Fall 2022 and Fall 2020); CSE473S: Introduction to Computer Networks (Spring 2022); CSE570S: Recent Advances in Networking (Fall 2023 and Fall 2021)
- **Mentoring**: Chenliang Tian - Master's Project (Spring/Summer/Fall 2024)

Washington University in St. Louis Aug 2019 - 2021
Visiting Research Associate (Hosted by Prof. Raj Jain)

Waseda University Aug 2017 - 2019
Master's in Computer Engineering

- Advisor: Prof. Tatsuo Nakajima. Research Area: Distributed Systems, IoT, Ubiquitous Computing.
- Thesis: Sloth: A Reconfigurable Compiler for Task-based Intermittent Programming

Guangdong University of Foreign Studies Aug 2008 - 2012
Bachelor's in Computer Engineering

- Thesis: Image Smoothing Based on Partial Differential Equation

EXPERIENCE

DJI, Inc. Jul 2015 - 2017
Senior Software Engineer *Shenzhen, China*

- Role: Head of the hybrid-app team in the Department of Research and Development (R&D).
- Responsibility: Led the architecture design and development of the hybrid software applications, including DJI Assistant 2, DJI Ground Station, Drone Simulator Game, and the internal hybrid-app framework.

Misfit Wearables Jul 2014 - 2015
Senior Web Engineer *Shenzhen, China*

- Role: Web Product Owner and Developer.
- Responsibility: Managed and developed web applications to enhance cloud services and online accessibility for the company's wearables, including platforms such as my.misfit.com, store.misfit.com, and misfit.com.

Baidu, Inc. Jul 2011 - 2014
Senior Software Engineer *Shenzhen, China*

- Role: Full Stack Developer - Front-end and Back-end Software/Web Development.
- Responsibility: Developed software and website solutions for global users, including anti-malware software and input methods. Developed the automated internal framework for localization and multilingual support.

Tencent, Inc. Jul 2010 - Oct 2010
Web Engineering Intern *Shenzhen, China*

- Responsibility: Developed the website interface for Tencent Pay (now known as Wechat Pay).

PUBLICATIONS

Zebo Yang, Ali Ghubaish, Raj Jain, Ramana Kompella, and Hassan Shapourian. Multi-tree quantum routing in realistic topologies. *IEEE Communications Magazine*, 2024

Zebo Yang, Ali Ghubaish, Raj Jain, Hassan Shapourian, and Alireza Shabani. Asynchronous entanglement routing for the quantum internet. *AVS Quantum Science*, 6(1), 2024

Ali Ghubaish, **Zebo Yang**, and Raj Jain. Hdrl-ids: A hybrid deep reinforcement learning intrusion detection system for enhancing the security of medical applications in 5g networks. In *2024 International Conference on Smart Applications, Communications and Networking (Best Paper Award)*, pages 1–6, 2024

Ali Ghubaish, **Zebo Yang**, Aiman Erbad, and Raj Jain. Lemda: A novel feature engineering method for intrusion detection in iot systems. *IEEE Internet of Things Journal*, pages 1–1, 2023

Zebo Yang, Haneen Alfauri, Behrooz Farkiani, Raj Jain, Roberto Di Pietro, and Aiman Erbad. A survey and comparison of post-quantum and quantum blockchains. *IEEE Communications Surveys & Tutorials*, pages 1–1, 2023

Zebo Yang, Maede Zolanvari, and Raj Jain. A survey of important issues in quantum computing and communications. *IEEE Communications Surveys & Tutorials*, 25(2):1059–1094, 2023

Tara Renduchintala, Haneen Alfauri, **Zebo Yang**, Roberto Di Pietro, and Raj Jain. A survey of blockchain applications in the fintech sector. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(4):185, 2022

Zebo Yang, Tara Salman, Raj Jain, and Roberto Di Pietro. Decentralization using quantum blockchain: A theoretical analysis. *IEEE Transactions on Quantum Engineering*, 3:1–16, 2022

Maede Zolanvari, **Zebo Yang**, Khaled Khan, Raj Jain, and Nader Meskin. Trust xai: Model-agnostic explanations for ai with a case study on iiot security. *IEEE internet of things journal*, 2021

Zebo Yang, Ali Ghubaish, Devrim Unal, and Raj Jain. Factors affecting the performance of sub-1 ghz iot wireless networks. *Wireless Communications and Mobile Computing*, 2021:1–13, 2021

Zebo Yang, Mingshu Zhang, Taili Zhang, Linhao Fu, and Tatuso Nakajima. Real world third-person with multiple point-of-views for immersive mixed reality. In *Society with Future: Smart and Liveable Cities: First EAI International Conference, SC4Life 2019, Braga, Portugal, December 4-6, 2019, Proceedings 1*, pages 97–108. Springer International Publishing, 2020

Zebo Yang. Sloth: a reconfigurable compiler for task-based intermittent programming. *Waseda University*, 2019

Zebo Yang and Tatsuo Nakajima. Connecting smart objects in iot architectures by screen remote monitoring and control. *Computers*, 7(4):47, 2018

▷ Submitted / Under Preparation:

Zebo Yang, Ali Ghubaish, Raj Jain, Ala Al-Fuqaha, Aiman Erbad, Ramana Kompella, and Hassan Shapourian. Layer-wise security framework and analysis for the quantum internet. *Submitted to IEEE Journal on Selected Areas in Communication, under revision*, 2024

Chenliang Tian, **Zebo Yang**, Raj Jain, Ramana Kompella, and Hassan Shapourian. Asynchronous routing for multipartite entanglement in quantum networks. *Submitted to IEEE Network*, 2024

Zebo Yang and Raj Jain. Resource management for distributed quantum computing. *Under Preparation*, 2024

Chenliang Tian, **Zebo Yang**, and Raj Jain. Asynchronous entanglement routing for simultaneous users in quantum networks. *Under Preparation*, 2024

Zebo Yang and Raj Jain. Sdda: Strategic defense against ddos attacks in quantum networks. *Under Preparation*, 2024

AWARDS AND HONORS

2024	NSF Networking Technology and Systems Early-Career Investigators (NeTS-ECI) Workshop, Travel Grants, https://sites.google.com/view/nets-early-career-2025/participants
2023-2024	Honors Award (top 5%) in Periodic Review of Doctoral Students - Washington University
2024	Best Paper Award - IEEE SmartNets
2023	Papers featured on social media of IEEE Communications Surveys & Tutorials ($\times$2)
2023	Google Quantum AI - Qubit by Qubit Scholarship
2022-2023	Honors Award (top 5%) in Periodic Review of Doctoral Students - Washington University
2019	CSCE Department Award - Waseda University
2009-2010	2^{nd} Prize of the National Universities Open Source and Innovation Contest
	2^{nd} Prize of the National Challenge Cup Competition
2008-2012	Scholarship from the School of Informatics

RESEARCH GRANT WRITING

2024 "Quantum-Native Resource Management and Congestion Control for Quantum Data Centers," awarded by the Cisco University Research Grant #92627757.

2024 "Optimal Resource Allocation in the Next-Generation Quantum-Classical Computer Networks," awarded by the Qatar Research, Development, and Innovation (QRDI) Academic Research Grant.

2023 "Building the Foundation for a Scalable and Secure Quantum Internet," awarded by the Qatar Research, Development, and Innovation (QRDI) Academic Research Grant #ARG01-0501-230053, PIs: Prof. Mounir Hamdi (HBKU), Prof. Aiman Erbad (QU) and Prof. Raj Jain (WUSTL).

2023 "Asynchronous Quantum-Native Routing for Quantum Networks," awarded by the Cisco University Research Gift #86944165.

ACADEMIC ACTIVITIES

Reviewer: IEEE Journal on Selected Areas in Communications (JSAC) $\times$2; IEEE Network $\times$10; IEEE Communications Magazine $\times$2; IEEE/ACM Transactions on Networking $\times$2; IEEE Internet of Things Journal; Separation and Purification Technology - Elsevier; Information Processing & Management - Elsevier; Scientific Reports - Springer Nature; Annalen der Physik; Quantum Machine Intelligence - Springer; Sustainable Futures - Elsevier; The Journal of Supercomputing - Springer; Academia Quantum; IEEE Transactions on Vehicular Technology; ACM Journal on Autonomous Transportation Systems; ACM 2021 CHI Conference.

TALKS

2024 Zebo Yang, "Quantum Variational Circuit for Machine Learning," AI for Health Seminar.

2023 Zebo Yang, "Building Blocks of Quantum Networks," Special Topics in Quantum Computing, 544T.

2022 Zebo Yang, "Asynchronous Routing for the Quantum Internet," DSS Talk, Washington University.

2019 Zebo Yang, "Multiple Point-of-views for Immersive Mixed Reality," EAI SC4Life, Braga, Portugal.

2019 Zebo Yang, "Task-based Intermittent Programming," Ubiquitous and Distributed Computing Lab Seminar, Waseda University.

PATENTS

Zhuo Guo, Zhuo Xie, Haoyu Li, Wenlin Li, Ding Wang, and Zebo Yang. Flight control method and apparatus, and control device, January 30 2024. U.S. Patent 11,886,203

TECHNICAL STRENGTHS

A full-stack researcher with both industry and research experience in networks, security, and quantum systems.

Quantum Programming and Simulation	Qiskit, Cirq, Amazon Braket, NetSquid, etc.
Computer Languages	Python, Node.js, C/C++, Go, Fortran, etc.
Databases	NoSQL (Dynamodb, Mongodb), MySQL, etc.
Tools and Libraries	PyTorch, TensorFlow, Matlab, CPLEX, Wolfram, Vim, etc.