

# ZEBO YANG

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## EDUCATION

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### 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

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### 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

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**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

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- 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 (×2)
- 2022-2023 Honors Award (top 5%) in Periodic Review of Doctoral Students - Washington University
- 2019 CSCE Department Award - Waseda University
- 2009-2010 2<sup>nd</sup> Prize of the National Universities Open Source and Innovation Contest
- 2<sup>nd</sup> Prize of the National Challenge Cup Competition
- 2008-2012 Scholarship from the School of Informatics

## RESEARCH GRANT WRITING

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- 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

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**Reviewer:** IEEE Journal on Selected Areas in Communications (JSAC) ×2; IEEE Network ×10; IEEE Communications Magazine ×2; IEEE/ACM Transactions on Networking ×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

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- 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

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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

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

**Quantum Programming and Simulation**  
**Computer Languages**  
**Databases**  
**Tools and Libraries**

Qiskit, Cirq, Amazon Braket, NetSquid, etc.  
Python, Node.js, C/C++, Go, Fortran, etc.  
NoSQL (Dynamodb, MongoDB), MySQL, etc.  
PyTorch, TensorFlow, Matlab, CPLEX, Wolfram, Vim, etc.