Jiarui Zhang

jiarui.zhang.2@stonybrook.edu http://zjr506.github.io

Objective

To seek a tenure-track Assistant Professor position at a research university.

Education

Stony Brook University Aug. 2017 – Present
Doctor of Philosophy candidate in Computer Engineering

- Advised by Prof. Yuanyuan Yang

Shanghai Jiao Tong University Sep. 2013 – Jun. 2017
Bachelor in Computer Science and Technology

- ACM Honored Class Program, a pilot computer science class in China with extensive academic reputation.
- Advised by Prof. Xiaotie Deng

Hong Kong University Sep. 2016 – Jan. 2017
Research Assistant

- Advised by Prof. Zhiyi Huang

Research Interests

Edge and Internet of Things (IoT) computing, Blockchain-based distributed systems, Quantum networking and distributed quantum computing, Cross-layer network optimization and algorithmic system design.

Publications

Journal Publications

[1] Y. Zeng*, **J. Zhang***, J. Liu, Z. Liu and Y. Yang, "Multi-Entanglement Routing Design over Quantum Networks Using Greenberger-Horne-Zeilinger Measurements," in *IEEE/ACM Transactions on Networking (TON)*, Oct. 2025.

[2] Y. Zeng*, **J. Zhang***, J. Liu, Z. Liu and Y. Yang, "Entanglement Routing Design Over Quantum Networks," in *IEEE/ACM Transactions on Networking (TON)*, vol. 32, no. 1, pp. 352-367, Feb. 2024.

[3] Y. Zeng*, **J. Zhang***, Z. Liu and Y. Yang, "Entanglement Management Through Swapping over Quantum Internets," in *ACM SIGMETRICS Perform. Eval. Rev.*, vol. 51, no. 2, pp. 69–71, Sept. 2023.

[4] **J. Zhang**, Y. Cheng, X. Deng, B. Wang, J. Xie and Y. Yang, "A Reputation-Based Mechanism for Transaction Processing in Blockchain Systems," in *IEEE Transactions on Computers (TC)*, vol. 71, no. 10, pp. 2423-2434, Oct. 2022.

[5] Y. Huang, **J. Zhang**, J. Duan, B. Xiao, F. Ye and Y. Yang, "Resource Allocation and Consensus of Blockchains in Pervasive Edge Computing Environments," in *IEEE Transactions on Mobile Computing (TMC)*, vol. 21, no. 9, pp. 3298-3311, Sept. 2022.

Conference Publications

[6] **J. Zhang**, W. Lin, Y. Zeng, X. Shang and Y. Yang, "Secured Data Sharing and Storage System for Intelligent Transportation System via Lightweight Blockchain," in Proceedings of *2025 50th IEEE Conference on Local Computer Networks (LCN)*, Sydney, Australia, 2025, pp. 1-8. (**Invited Paper**)

[7] **J. Zhang** and Y. Yang, "A Novel Reputation-based Sharding Blockchain System in Edge Sensor Networks," in Proceedings of *2025 IEEE 45th International Conference on Distributed Computing Systems (ICDCS)*, Glasgow, Scotland, UK, 2025, pp. 34-44.

[8] **J. Zhang**, X. Shang, Y. Zeng and Y. Yang, "A Novel Blockchain-based System for Service Quality Improvement in Multi-Tenant O-RANs," in Proceedings of *2024 IEEE Global Communications Conference (GLOBECOM)*, Cape Town, South Africa, 2024, pp. 19-24.

[9] Y. Zeng*, **J. Zhang***, X. Shang, J. Liu, Z. Liu and Y. Yang, "Multi-User Entanglement Routing Design over Quantum Internets," in Proceedings of *2024 IEEE 44th International Conference on Distributed Computing Systems (ICDCS)*, Jersey City, NJ, USA, 2024, pp. 266-276. (**Distinguished Paper Award**)

[10] Y. Zeng*, **J. Zhang***, J. Liu, Z. Liu and Y. Yang, "Entanglement Routing Over Quantum Networks Using Greenberger-Horne-Zeilinger Measurements," in Proceedings of *2023 IEEE 43rd International Conference on Distributed Computing Systems (ICDCS)*, Hong Kong, Hong Kong, 2023, pp. 350-360.

[11] **J. Zhang** and Y. Huang, "ITF: A Blockchain System with Incentivized Transaction Forwarding," in Proceedings of *2022 IEEE 42nd International Conference on Distributed Computing Systems (ICDCS)*, Bologna, Italy, 2022, pp. 213-223.

[12] Y. Zeng*, **J. Zhang***, J. Liu, Z. Liu and Y. Yang, "Multi-Entanglement Routing Design over Quantum Networks," in Proceedings of *2022 IEEE Conference on Computer Communications (INFOCOM)*, London, United Kingdom, 2022, pp. 510-519.

[13] **J. Zhang**, Y. Huang, F. Ye and Y. Yang, "A Novel Proof-of-Reputation Consensus for Storage Allocation in Edge Blockchain Systems," in Proceedings of *2021 IEEE/ACM 29th International Symposium on Quality of Service (IWQOS)*, Tokyo, Japan, 2021, pp. 1-10.

[14] M. Zhang, Y. Cheng, X. Deng, B. Wang, J. Xie, Y. Yang and **J. Zhang**, "Accelerating Transactions Relay in Blockchain Networks via Reputation," in Proceedings of *2021 IEEE/ACM 29th International Symposium on Quality of Service (IWQOS)*, Tokyo, Japan, 2021, pp. 1-10.

[15] **J. Zhang**, Y. Cheng, X. Deng, B. Wang, J. Xie and Y. Yang, "Preventing Spread of Spam Transactions in Blockchain by Reputation," in Proceedings of *2020 IEEE/ACM 28th International Symposium on Quality of Service (IWQoS)*, Hang Zhou, China, 2020, pp. 1-6.

[16] Y. Huang, **J. Zhang**, J. Duan, B. Xiao, F. Ye and Y. Yang, "Resource Allocation and Consensus on Edge Blockchain in Pervasive Edge Computing Environments," in Proceedings of *2019 IEEE 39th International Conference on Distributed Computing Systems (ICDCS)*, Dallas, TX, USA, 2019, pp. 1476-1486.

* - Equal contribution

Teaching Experience

ESE 123, Introduction to Electrical and Computer Engineering — Stony Brook University
Teaching Assistant — Fall 2024, Fall 2021, Spring 2021, Spring 2020, Fall 2017

ESE 124, Programming Fundamentals — Stony Brook University
Teaching Assistant — Spring 2024, Spring 2019, Spring 2018

ESE 224, Advanced Programming and Data Structures — Stony Brook University
Teaching Assistant — Fall 2023

ESE 272, Electronics — Stony Brook University
Teaching Assistant — Spring 2022

ESE 356, Digital System Specification and Modeling — Stony Brook University
Teaching Assistant — Fall 2020, Fall 2019

Internet Market Design — Shanghai Jiao Tong University
Teaching Assistant — Spring 2016

Services

Journal and Conference reviewer

- IEEE Conference on Computer Communications (INFOCOM)
- IEEE/ACM International Symposium on Quality of Service (IWQoS)
- IEEE Global Communications Conference (GLOBECOM)
- IEEE Transactions on Parallel and Distributed Systems (TPDS)
- IEEE/ACM Transactions on Networking (TON)
- IEEE Transactions on Cloud Computing (TCC)

Oral presentations

"Secured Data Sharing and Storage System for Intelligent Transportation System via Lightweight Blockchain," in Proceedings of *2025 50th IEEE Conference on Local Computer Networks (LCN)*, Sydney, Australia, 2025. (**Invited Paper**)

"A Novel Reputation-based Sharding Blockchain System in Edge Sensor Networks," *2025 IEEE 45th International Conference on Distributed Computing Systems (ICDCS)*, Glasgow, Scotland, UK, 2025.

"A Novel Blockchain-based System for Service Quality Improvement in Multi-Tenant O-RANs," *2024 IEEE Global Communications Conference (GLOBECOM)*, Cape Town, South Africa, 2024.

"ITF: A Blockchain System with Incentivized Transaction Forwarding," *2022 IEEE 42nd International Conference on Distributed Computing Systems (ICDCS)*, Bologna, Italy, 2022.

"A Novel Proof-of-Reputation Consensus for Storage Allocation in Edge Blockchain Systems," *2021 IEEE/ACM 29th International Symposium on Quality of Service (IWQOS)*, Tokyo, Japan, 2021.

"Preventing Spread of Spam Transactions in Blockchain by Reputation," *2020 IEEE/ACM 28th International Symposium on Quality of Service (IWQoS)*, Hang Zhou, China, 2020. (**Video Presentation Award**)

ACM-ICPC Team Coach

Stony Brook University — Dec. 2018 – Present

Shanghai Jiao Tong University — Jun. 2015 – Jul. 2016