Jiarui Zhang

I received the B.Eng. degree in Computer Science and Technology from Shanghai Jiao Tong University in 2017. I am currently pursuing the Ph.D. degree in Electrical and Computer Engineering at Stony Brook University. My research interests include algorithms and systems for blockchain, edge computing, and quantum networking.

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

Cornell University Jul. 2016 – Aug. 2016
Exchange Program
Advised by Prof. John Hopcroft

PUBLICATIONS

J. Zhang*, Y. Zeng*, 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, 2025.

J. Zhang, W. Lin, Y. Zeng, X. Shang and Y. Yang, "Secured Data Sharing and Storage System for Intelligent Transportation System via Lightweight Blockchain," 2025 50th IEEE Conference on Local Computer Networks (LCN), Sydney, Australia, 2025.

J. Zhang and Y. Yang, "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.

J. Zhang, X. Shang, Y. Zeng and Y. Yang, "A Novel Blockchain-based System for Service Quality Improvement in Multi-Tenant O-RANs," 2024 IEEE Global Communications Conference, Cape Town, South Africa, 2024.

J. Zhang*, Y. Zeng*, X. Shang, J. Liu, Z. Liu and Y. Yang, "Multi-User Entanglement Routing Design over Quantum Internets," 2024 IEEE 44th International Conference on Distributed Computing Systems (ICDCS), Jersey City, NJ, USA, 2024. (**Best paper award**)

J. Zhang*, Y. Zeng*, Z. Liu and Y. Yang, "Entanglement management through swapping over quantum internets," ACM SIGMETRICS Performance Evaluation Review, 2023.

J. Zhang*, Y. Zeng*, J. Liu, Z. Liu and Y. Yang, "Entanglement Routing Over Quantum Networks Us-

ing Greenberger-Horne-Zeilinger Measurements," 2023 IEEE 43rd International Conference on Distributed Computing Systems (ICDCS), Hong Kong, Hong Kong, 2023.

J. Zhang*, Y. Zeng*, J. Liu, Z. Liu and Y. Yang, "Entanglement Routing Design Over Quantum Networks," in IEEE/ACM Transactions on Networking, 2023.

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

J. Zhang*, Y. Zeng*, J. Liu, Z. Liu and Y. Yang, "Multi-Entanglement Routing Design over Quantum Networks," IEEE INFOCOM 2022 - IEEE Conference on Computer Communications, London, United Kingdom, 2022.

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, 2021.

J. Zhang, Y. Huang, F. Ye and Y. Yang, "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.

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

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, 2021.

J. Zhang, Y. Cheng, X. Deng, B. Wang, J. Xie and Y. Yang, "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**)

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," 2019 IEEE 39th International Conference on Distributed Computing Systems (ICDCS), Dallas, TX, USA, 2019.

J. Zhang, Y. Huang, Y. Zeng, X. Shang and Y. Yang, "ITFC: A Blockchain System with Incentivized Transaction Forwarding in Cloud Network," Submitted to IEEE Transactions on Cloud Computing. Under review

J. Zhang, Y. Zeng, and Y. Yang, "Merging Proof-of-Work and Quantum Proofs". In progress

* - Equal contribution

TEACHING EXPERIENCE

Stony Brook University ACM-ICPC Team Dec. 2018 – Present
Assistant Coach

- As the best result in SBU history, the 2020 team ranked 3rd in the 2020 Greater New York Regional, and the 2023 team ranked 19th in the 2023 North American Championship.

Shanghai Jiao Tong University ACM-ICPC Team Jun. 2015 – Jul. 2016
Assistant Coach

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

ESE 124, Programming Fundamentals Spring 2024, Spring 2019, Spring 2018
Teaching Assistant

ESE 224, Advanced Programming and Data Structures Fall 2023
Teaching Assistant

ESE 272, Electronics Spring 2022
Teaching Assistant

ESE 356, Digital System Specification and Modeling Fall 2020, Fall 2019
Teaching Assistant

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

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," 2025 50th IEEE Conference on Local Computer Networks (LCN), Sydney, Australia, 2025.

"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, 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**)