JINDI WU

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RESEARCH INTEREST

Her research interests include quantum computing, machine learning, and security and privacy, with a particular focus on quantum machine learning, quantum error modeling and mitigation, quantum circuit compilation, quantum networks, and addressing security and privacy challenges in quantum cloud computing.

EDUCATION

William & Mary, VA, USA Aug. 2020 - May 2025 (expected)
Ph.D. Candidate in Computer Science
Advisor: Prof. Qun Li

Syracuse University, NY, USA Sep. 2018 - May 2020
M.S. in Computer Science

Nanjing University of Aeronautics and Astronautics, China Sep. 2013 - Jun. 2017
B.E. in Information Security

PUBLICATIONS

Peer-reviewed Conference Papers

1. Detecting Fraudulent Services on Quantum Cloud Platforms via Dynamic Fingerprinting
Jindi Wu, Tianjie Hu, and Qun Li
43rd IEEE/ACM International Conference on Computer-Aided Design (ICCAD'24)

2. Quantum Network Routing Based on Surface Code Error Correction
Tianjie Hu, **Jindi Wu**, and Qun Li
44th IEEE International Conference on Distributed Computing Systems (ICDCS'24), pp. 1236-1247

3. MORE: Measurement and Correlation-Based Variational Quantum Circuit for Multi-Classification
Jindi Wu, Tianjie Hu, and Qun Li
4th IEEE International Conference on Quantum Computing and Engineering (QCE'23), pp. 208-218

4. LAWS: Look Around and Warm-Start Natural Gradient Descent for Quantum Neural Networks
Zeyi Tao, **Jindi Wu**, and Qun Li
2rd IEEE International Conference on Quantum Software (QSW'23), pp. 76-82

5. Scalable Quantum Neural Networks for Classification
Jindi Wu, Zeyi Tao, and Qun Li
3rd IEEE International Conference on Quantum Computing and Engineering (QCE'22), pp. 38-48

6. Efficient Privacy-Preserving Federated Learning for Resource-Constrained Edge Devices
Jindi Wu, Qi Xia, and Qun Li
17th International Conference on Mobility, Sensing and Networking (MSN'21), pp. 191-198

7. SAFE: Similarity-Aware Multi-Modal Fake News Detection
Xinyi Zhou, **Jindi Wu**, and Reza Zafarani
24th Pacific-Asia Conference on knowledge discovery and data mining(PAKDD'20), pp. 354-367

Journal & Magazine Articles

1. Q-ID: Lightweight Quantum Network Server Identification through Fingerprinting
   Jindi Wu, Tianjie Hu, and Qun Li
   IEEE Network 38(5): 146-152, 2024

2. Distributed Quantum Machine Learning: Federated and Model-Parallel Approaches
   Jindi Wu, Tianjie Hu, and Qun Li
   IEEE Internet Computing 28(2): 65-72, 2024

3. SurfaceNet: Fault-Tolerant Quantum Networks with Surface Codes
   Tianjie Hu, **Jindi Wu**, and Qun Li
   IEEE Network 38(1): 155-162, 2024

4. A Survey of Federated Learning for Edge Computing: Research Problems and Solutions
   Qi Xia, Winson Ye, Zeyi Tao, **Jindi Wu**, and Qun Li
   High-Confidence Computing 1(1): 100008, 2021. (HCC'21)

Posters

1. Scalable Quantum Convolutional Neural Networks for Edge Computing
   Jindi Wu and Qun Li
   7th IEEE/ACM Symposium on Edge Computing (SEC'22), pp. 307-309

2. Fingerprinting Cloud-Based Quantum Computers Using Quantum Noise
   Jindi Wu, Tianjie Hu, and Qun Li
   3rd Commonwealth Cyber Initiative Symposium (CCI Symposium'24)

Under review

1. Fidelity Evolution: Reliability Estimation of Noisy Quantum Circuits for Robust Quantum Systems
   Jindi Wu, Tianjie Hu, and Qun Li
   Submitted to conference

2. Noise-Resilient Quantum Federated Learning
   Jindi Wu, Tianjie Hu, and Qun Li
   Submitted to conference

3. QuanGuard: Error Evolution-based Fingerprinting for Fraud Detection in Quantum Cloud Services
   Jindi Wu, Tianjie Hu, and Qun Li
   Submitted to IEEE Transactions on Computers

4. Distributed and Localized Training for Scalable Quantum Convolutional Neural Networks
   Jindi Wu, Tianjie Hu, and Qun Li
   Submitted to ACM Transactions on Quantum Computing

PROFESSIONAL EXPERIENCE

Research Assistant Sep. 2020 - Present
Department of Computer Science, William & Mary, Williamsburg, VA, USA
Advisor: Prof. Qun Li

Teaching Assistant Sep. 2020 - May 2022
William & Mary

- CSCI 303 Algorithms, Spring 2022
- CSCI 416 Introduction to Machine Learning, Fall 2021

- CSCI 304 Computer Organization, Spring 2021
- CSCI 301 Software Development, Fall 2020

Graduate Assistant May 2019 - Sep. 2020
Machine Learning Lab, College of Engineering and Computer Science, Syracuse University, NY, USA
Advisor: Prof. Qinru Qiu
UAV Trajectory Planning and Real-Time Simulation

Graduate Assistant Mar. 2019 - Jan. 2020
Data Lab, College of Engineering and Computer Science, Syracuse University, NY, USA
Advisor: Prof. Reza Zafarani
Fake News Detection

Undergraduate Assistant Feb. 2016 - Jun. 2017
Intelligent Aviation Computing Systems Lab, Department of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics, Jiangsu, China
Advisor: Prof. Lisong Wang
Development of Aircraft Display Control Software

TALKS

- **Detecting Fraudulent Services on Quantum Cloud Platforms via Dynamic Fingerprinting**
  ICCAD'24, Newark, New Jersey
- **MORE: Measurement and Correlation-Based Variational Quantum Circuit for Multi-Classification**
  QCE'23, Bellevue, Washington
- **Quantum Machine Learning**
  W&M Graduate & Honors Research Symposium'23, Williamsburg, Virginia
- **Scalable Quantum Neural Networks for Classification**
  QCE'22, Broomfield, Colorado
- **Efficient Privacy-Preserving Federated Learning for Resource-Constrained Edge Devices**
  MSN'21, Virtual

HONORS & AWARDS

- W&M Graduate Research Seed Grants 2024
- W&M International Student Opportunity Scholarship 2022
- SEC'22 Travel Grant 2022
- High-Confidence Computing (HCC) 2021 Best Paper Award 2021
- W&M CS Conference Fund 2021

COMMUNITY SERVICE

- Grace Hopper Celebration 23 (GHC'23) Graduate Chaperone 2023
- QCE'23 StableQ Workshop PC Member 2023

- SEC'22 Ph.D. Forum Co-chair 2022

Reviewer

- IEEE Transactions on Parallel and Distributed Systems 2024
- Quantum Machine Intelligence 2024
- Quantum Information Processing 2024
- IEEE Internet Computing 2023, 2024
- Expert Systems With Applications (ESWA) 2023, 2024
- IEEE Network Magazine 2024
- IEEE Transactions on Computers 2021, 2022, 2023
- ICCAD'23 Quantum Contest 2023
- IEEE Internet of Things Journal 2023
- Applied Intelligence (APIN) 2023
- 4th IEEE International Conference on Quantum Computing and Engineering (QCE'23) 2023
- 10th IEEE Conference on Communications and Network Security (IEEE CNS) 2022
- Journal of Reliable Intelligent Environments (JRIE) 2022