

Weiwen Jiang

Assistant Professor

Electrical and Computer Engineering Department
George Mason University

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Employment

George Mason University AUG 2021 – NOW. VIRGINIA, U.S.

- **Assistant Professor in the Electrical and Computer Engineering Department**

University of Notre Dame (PI: Dr. Yiyu Shi) JUNE 2019 – AUG 2021. NOTRE DAME, U.S.

- **Postdoctoral Researcher in the Department of Computer Science and Engineering.** Focus on the co-exploration of neural architectures and hardware design, including quantum computer.

University of Notre Dame (Dr. Jay Brockman) JAN. 2020 – MAY 2020 NOTRE DAME, U.S.

- **Teaching Assistant.** CSE20221, Logical Design and Sequential Circuit.

Education

University of Pittsburgh (PI: Dr. Jingtong Hu) OCT. 2017 – JUNE 2019 PITTSBURGH, U.S.

- **Joint Ph.D. program in the Department of Electrical and Computer Engineering.** Focus on the co-exploration of neural architecture and hardware design.

Chongqing University (Advisor: Dr. Edwin Sha) SEPT. 2013 – JUNE 2019 CHONGQING, CHINA

- **Ph.D. degree in Computer Science.** Focus on the embedded system design and optimizations: designing high-performance and low-cost heterogeneous pipelining systems.

Nanjing Agriculture University SEPT. 2008 – JUNE 2012. JIANGSU, CHINA

- **Bachelor degree in Computer Science.** Major in Network Engineering.

Awards

NSF CAREER Award, Class of 2025 12/2024

ACM Sigda Meritorious Service Award 2024 06/2024

Best Paper Award at IEEE QuantumWeek 2023 (top 10 out of 296 submissions) 09/2023

Best Poster Award in ORNL's Quantum Computing User Forum 2023 07/2023

ACM/IEEE DAC Richard Newton Young Student Fellow Award (Student: Zhirui Hu) 07/2023

LANL Quantum Computing Summer School Fellowship (Student: Zhirui Hu) SUMMER 2023

Best Poster Award in the Student Research Forum at ASP-DAC 2023 (Student: Yi Sheng) 01/2023

Second Place at 32th ACM SIGDA University Demonstration (2 out of 10 teams) 07/2022

IEEE TCAD Donald O. Pederson Best Paper Award (2 out of 1000+ submissions)	12/2021
First Place at 31th ACM SIGDA University Demonstration (1 out of 11 teams)	12/2021
Hackathon Top Winning Award at IEEE SERVICES 2020 (2 out of 10 teams)	12/2020
Best Paper Nomination at ASP-DAC 2020 (12 out of 263 submissions)	01/2020. BEIJING
Best Paper Nomination at CODES+ISSS 2019 (3 out of 74 submissions)	10/2019. NEW YORK
Best Paper Nomination at DAC 2019 (5 out of 815 submissions)	06/2019. LAS VEGAS
Best Paper Award at ICCD 2017 (5 out of 258 submissions)	11/2017. BOSTON
Best Student Paper at ESTC 2017	11/2017. CHINA
Best Paper Nomination at ASP-DAC 2016	01/2016. MACAO
Best Paper Award at NVMSA 2015	08/2015. HONGKONG
Editor's pick of the year 2016 in IEEE TC	12/2016. USA
China National Scholarship (1% among all postgraduate students)	11/2017. CHINA

Research Grants

- *Fund Summary:*

- Total amount: 14,255,727; **Jiang's share:** 1,877,385
- *External Fund:* Total amount: 14,187,727; **Jiang's share:** 1,814,385
- *Internal Fund:* Total amount: 68,000; **Jiang's share:** 63,000

- *External Fund:*

NSF Career Award, "CAREER: Efficient and Scalable Deployment Automation for Quantum-Centric Computing", **\$641,778 (first-time submission)** 2025-2030

DoE ASCR ARQC project, "MACH-Q: Modular and Error-Aware Software Stack for Heterogeneous Quantum Computing Ecosystems", \$12,000,000 (**Share: \$200,000, site PI**) 2024-2029

NSF Core, "Collaborative Research: OAC Core: An Integrated Framework for Enabling Temporal-Reliable Quantum Learning on NISQ-era Devices", \$612,600 (**Share: \$342,600, Lead**) 2023-2026

NSF, "CyberTraining: Pilot: Quantum Research Workforce Development on End-to-End Quantum Systems Integration", **\$300,000 (Lead)** 2023-2025

Virginia Innovation Partnership Authority, "CyberseQurity: An Automated Tool to Preserve Data and Model Security in Quantum Machine Learning System", **\$50,000 (Sole)** 2024-2025

Industry fund from Leidos, "Computational Security for Cloud-Based Quantum Machine Learning", **\$20,000 (Sole)** 2022-2024

DoE NSEC project, "Intelligent Quantum Sensing with Quantum Neural Networks", \$90,000 (**Credit: \$40,000, site PI**) 2022-2023

Army Research Office, "ARO: DURIP: Wideband Realtime Millimeter-Wave Networking and Security with Reconfigurable Intelligent Surfaces", \$250,000 (**Share: \$83,333 Co-PI**) 2024-2025

NSF, "RAPID: Collaborative Research: Independent Component Analysis Inspired Statistical Neural Networks for 3D CT Scan Based Edge Screening of COVID-19", \$98,349 (**Credit: \$49,174, Co-PI**) 2020-2021

Industry fund from Facebook (now Meta), “Hardware/Software Co-Exploration of Multi-Modal Neural Architectures Targeting AR/VR Glasses”, \$75,000 (**Credit: \$37,500, Co-PI**) 2020-2021

Industry fund from EdgeCortex via NSF I/UCRC, “Software Defined FPGA Hardware and Co-Exploration for Real-Time Applications”, \$100,000 (**Credit: \$50,000, lead**) 2019-2020

- *Internal Fund:*

Mason's ORIEI Seed Fund, “Towards an Efficient, Secure and Robust Quantum Neural Network for Drug Discovery via a Full Design Stack Exploration”, **\$50,000 (Lead)** 2022-2024

Mason's QSEC Center Fund, “Hardware Efficient Quantum Circuit for Quantum Dynamics Simulation in Condensed Phases using Machine Learning Approach”, \$10,000 (**Credit: \$5,000, Co-PI**) 2023

Mason's QSEC Center Fund, “Refresh and Recycle of Quantum Neural Networks on the Near-Term Noisy Quantum Processors”, **\$8,000 (Lead)** 2022

Teaching Experience

Quantum Computing System Design (ECE499/ECE570) NEW COURSE, 2025. MASON.

Machine Learning for Embedded Systems (ECE554) 2024. MASON

FPGA Design with VHDL (ECE448) FIRST TIME, 2024. MASON

Hardware Accelerators for Machine Learning (ECE618) 2023. MASON

Machine Learning for Embedded Systems (ECE554) 2022. MASON

Hardware Accelerators for Machine Learning (ECE618) SIGNIFICANT UPDATE, 2022. MASON

Machine Learning for Embedded Systems (ECE499/590) NEW COURSE, 2021. MASON

IBM Qiskit Training Course for Quantum Computing 2021. ND

Machine Learning for Embedded Systems (TA, CSE60685) 2020. ND

Logic Design and Sequential Circuits (TA, CSE20221) 2020. ND

Mentor of Students (Now)

- Yuhong Song, 2024-Now. (Postdoc)
- Yi Sheng, 2021-Now. (Ph.D. candidate, on academic job market)
- Zhepeng Wang, 2021-Now. (Ph.D. candidate, on industry job market)
- Jinyang Li, 2022-Now. (Ph.D. student)
- Yipei Liu, 2024-Now. (Ph.D. student)
- Hanhan Wu, Start in Jan. 2025

Mentor of Students (Past)

- Anthony Alberto Lopez, Jamie H Kim, Justin Dylan Vinluan, Julian A Szuscik, Donovan Andrew Graham, Hisham Ahmed Abutaleb, 2024 (Senior Design Project at Mason)
- Hanad Elmi, Summer 2024. (Undergraduate at Mason via NSF REU)
- Noah M Khan, Summer 2024. (Undergraduate at Mason via NSF REU)
- Zhirui Hu, 2022-2023. (Master student at GMU)

- Chiranjivan Krishnakumar Nirmala, 2022-2023 (Master student at GMU)
- Isaacshubhan Putla, 2022-2023 (Master student at GMU)
- Venkat Kalyan Reddy Yasa, 2021-2022 (Master student at GMU)
- Sumanth Kalluru, Summer 2022 (Thomas Jefferson High School)
- Karthik Bhargav, Fall 2022 (Thomas Jefferson High School)
- Zhding Liang, 2021-2022 (Co-Advised Ph.D. student at the University of Notre Dame)
- Panjie Qi, 2020-2021. (Master student at East China Normal University)
- Zhuorui Zhao, 2020-2021. (Ph.D. candidate at the University of Notre Dame)
- Colin McDonald, 2020-2021. (CS Junior at the University of Notre Dame)
- Zheyu Yan, 2019-2021. (Ph.D. candidate at the University of Notre Dame)
- Matthew Coffey, Nov. 2020-Jan. 2021. (CS Senior at the University of Notre Dame)
- Qing Lu, 2018-2021. (Ph.D. candidate at the University of Notre Dame)
- Hanjing Zhu, Summer 2020 (Undergraduate student at the University of Notre Dame)
- Alicia Hu, Feb. 2018- May 2018. (Undergraduate student at the University of Pittsburgh)
- Xinyi Zhang, 2017-Dec. 2020. (Ph.D. candidate at the University of Pittsburgh)
- Hailiang Dong (Master at Chongqing University)
- Xinchu Li (Master at Chongqing University)
- Yutong Liang (Master at Chongqing University)
- Zhulin Ma (Ph.D. candidate at Chongqing University)

Publications

(Students in JQub is highlighted using **bold font**)

Journal Papers

- [1] Z., Liang, Z., He, Y., Sun, D., Herman, Q., Jiao, Y., Zhu, **W. Jiang**, X., Xu, D., Wu, M., Pistoia, and Y., Shi. "Synergizing quantum techniques with machine learning for advancing drug discovery challenge." *Scientific Reports*, 2024 Dec 28, 14(1), 31216.
- [2] Y., Geng, P. Dong, M. Sun, W. Niu, Z. Li, Y. Cai, Y. Li, J. Liu, **W. Jiang**, X. Lin and B. Ren. "Mobile or FPGA? A Comprehensive Evaluation on Energy Efficiency and a Unified Optimization Framework." *ACM Transactions on Embedded Computing Systems*. 2022 Dec 9, 21, no. 5 (2022): 1-22.
- [3] S. Ruan, Y. Wang, **W. Jiang**, Y. Mao, and Q. Guan, "Vacsen: A visualization approach for noise awareness in quantum computing", *IEEE Transactions on Visualization and Computer Graphics*, 2022 Sep 27, 29, no. 1 (2022): 462-472.
- [4] D. Manu, P. Tshakwanda, Y. Lin, **W. Jiang**, and L. Yang, "Seismic Waveform Inversion Capability on Resource-Constrained Edge Devices", *Journal of Imaging*, 8.12 (2022): 312.
- [5] B. Lu, J. Yang, **W. Jiang**, Y. Shi and S. Ren, "One Proxy Device Is Enough for Hardware-Aware Neural Architecture Search", *ACM on Measurement and Analysis of Computing Systems*, 2021, 5(3): 1-34.

- [6] X. Chen, E. H.-M. Sha, X. Wang, C. Yang, **W. Jiang**, and Q. Zhuge, "Contour: A process variation aware wear-leveling mechanism for inodes of persistent memory file systems", *IEEE Transactions on Computers*, 70.7 (1 July 2021): 1034-1045.
- [7] **W. Jiang**, J. Xiong, and Y. Shi, "A Co-Design Framework of Neural Networks and Quantum Circuits Towards Quantum Advantage", *Nature Communications*, 12(1): 1-13, 2021.
- [8] **W. Jiang**, L. Yang, E. H.-M. Sha, Q. Zhuge, S. Gu, S. Dasgupta, Y. Shi and J. Hu, "Hardware/Software Co-Exploration of Neural Architectures", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, Mar. 2020 (**2021 Donald O. Pederson Best Paper Award, 1 of the 2 selected from all the submissions at TCAD in the past 2 years**)
- [9] **W. Jiang**, E. H.-M. Sha, X. Zhang, L. Yang, Q. Zhuge, Y. Shi, and J. Hu, "Achieving Super-Linear Speedup across Multi-FPGA for Real-Time DNN Inference", International Conference on Hardware/Software Co-design and System Synthesis (CODES+ISSS@New York), also appears at ACM Transactions on Embedded Computing Systems (TECS), 2019. (3 out of 74 submissions, **Best Paper Nomination**)
- [10] **W. Jiang**, E. H.-M. Sha, Q. Zhuge, L. Yang, H. Dong and X. Chen, "On the Design of Minimal-Cost Pipeline Systems Satisfying Hard/Soft Real-Time Constraints," *IEEE International Conference on Computer Design (ICCD@Boston)* and in *IEEE Transactions on Emerging Topics in Computing (TETC)*, Jan. 2018. (5 out of 258 submissions, **Best Paper Award**)
- [11] Y. Ding, **W. Jiang**, Q. Lou, J. Liu, J. Xiong, X. Sharon Hu, X. Xu, and Y. Shi, "The Impact of Neural Networks' Competency-Awareness on Hardware Design", accepted by **Nature Electronics**, Aug. 2020
- [12] **W. Jiang**, B. Xie, C-C Liu and Y. Shi, "Integrating Memristors and CMOS for Better AI", accepted by **Nature Electronics**, Sept. 2019
- [13] **W. Jiang**, L. Yang, S. Dasgupta, J. Hu, and Y. Shi, "Standing on the Shoulders of Giants: Hardware and Neural Architecture Co-Search with Hot Start", Accepted by International Conference on Hardware/Software Co-design and System Synthesis (CODE+ISSS), also appear at *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2020.
(acceptance rate $94/375=25.1\%$)
- [14] **W. Jiang**, Q. Lou, Z. Yan, L. Yang, J. Hu, X. Hu, and Y. Shi, "Device-Circuit-Architecture Co-Exploration for Computing-in-Memory Neural Accelerators", *IEEE Transactions on Computers (TC)*, Apr. 2020.
- [15] **W. Jiang**, E. H.-M. Sha, Q. Zhuge, L. Yang, X. Chen and J. Hu, "Heterogeneous FPGA-based Cost-Optimal Design for Timing-Constrained CNNs", accepted by CASES 2018 (in ESWEEK) and appear in *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*.
(acceptance rate $67/270=24.8\%$)
- [16] **W. Jiang**, E. H.-M. Sha, Q. Zhuge, L. Yang, X. Chen and J. Hu, "On the Design of Time-Constrained and Buffer-Optimal Self-Timed Pipelines", in *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, May 2018.

- [17] **W. Jiang**, E. H.-M. Sha, X. Chen, L. Yang, L. Zhou and Q. Zhuge, "Optimal Functional-Unit Assignment for Heterogeneous Systems under Timing Constraint," in *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 28(9): 2567-2580, 2017.
- [18] E. H.-M. Sha, **W. Jiang**, H. Dong, Z. Ma, R. Zhang, X. Chen and Q. Zhuge, "Towards the Design of Efficient and Consistent Index Structure with Minimal Write Activities for Non-Volatile Memory", in *IEEE Transactions on Computers (TC)*, 67(3): 432-448, 2018.
- [19] **W. Jiang**, E. H.-M. Sha, Q. Zhuge and Lin Wu, "Efficient Assignment Algorithms to Minimize Operation Cost for Supply Chain Networks in Agile Manufacturing," in *Computers & Industrial Engineering*, 108: 225-239, 2017.
- [20] **W. Jiang**, E. H.-M. Sha, X. Chen, L. Wu and Q. Zhuge, "Synthesizing Distributed Pipelining Systems with Timing Constraints via Optimal Functional Unit Assignment and Communication Selection," in *Journal of Computational Science*, 26: 332-343, 2018.
- [21] **W. Jiang**, Q. Zhuge, X. Chen, L. Yang, J. Yi, and E. H.-M. Sha, "Properties of Self-Timed Ring Architectures for Deadlock-Free and Consistent Configuration Reaching Maximum Throughput," in *Journal of Signal Processing Systems*, 84(1): 123-137, 2016.
- [22] W. Liu, L. Yang, **W. Jiang**, L. Feng, N. Guan, W. Zhang, and N. Dutt, "Thermal-aware Task Mapping on Dynamically Reconfigurable Network-on-Chip based Multiprocessor System-on-Chip", in *IEEE Transactions on Computers (TC)*, 2018.
- [23] L. Yang, W. Liu, **W. Jiang**, M. Li, P. Chen and E. H.-M. Sha, "FoToNoC: A Folded Torus-Like Network-on-Chip based Many-Core Systems-on-Chip in the Dark Silicon Era," in *IEEE Transactions on Parallel and Distributed Systems*, Dec. 2016.
- [24] L. Yang, W. Liu, **W. Jiang**, M. Li, J. Yi and E. H. M. Sha, "Application Mapping and Scheduling for Network-on-Chip-Based Multiprocessor System-on-Chip With Fine-Grain Communication Optimization" *IEEE Transactions on Very Large Scale Integration Systems*, 24(10): 3027-3040, Oct. 2016.
- [25] E. H.-M. Sha, X. Chen, Q. Zhuge, L. Shi and **W. Jiang**, "A New Design of In-Memory File System Based on File Virtual Address Framework," in *IEEE Transactions on Computers*, 65(10):2959-2972, Oct. 2016.
- [26] X. Chen, E. H.-M. Sha, Q. Zhuge, C. J. Xue, **W. Jiang** and Y. Wang, "Efficient data placement for improving data access performance on domain-wall memory" *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, 24(10): 3094-3104, 2016.

Conference Papers

- [1] **W. Jiang** and Youzuo Lin, "QuGeo: An End-to-end Quantum Learning Framework for Geoscience — A Case Study on Full-Waveform Inversion", In Proceedings of the 61st ACM/IEEE Design Automation Conference (pp. 1-6) ([acceptance rate: 23%](#))
- [2] **Z. Wang**, R. Bao, Y. Wu, J. Taylor, C. Xiao, F. Zheng, **W. Jiang**, S. Gao, Y. Zhang, "Unlocking memorization in large language models with dynamic soft prompting", In Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing, EMNLP 2024, Miami, FL, USA, November 12-16, 2024. ([acceptance rate: 20.8%](#))

- [3] **Y. Sheng**, J. Yang, H. Wang, Y. Feng, Y. Chen, X. Guo, Y. Lin, **W. Jiang**, and L. Yang, "Tutorial on Novel Toolkits toward AI for Science on Resource-Constrained Computing Systems", In Proceedings of 2024 International Conference on Hardware/Software Codesign and System Synthesis (CODES+ ISSS) (pp. 3-4). IEEE.
- [4] **J. Li**, A. Li, **W. Jiang**, "QuApprox: A Framework for Benchmarking the Approximability of Variational Quantum Circuit", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP). IEEE, 2024. ([acceptance rate: 45%, the top conference in signal processing](#)).
- [5] **Sheng Y**, Wang H, Liu Y, Yang J, **W. Jiang**, Lin Y, Yang L, "APS-USCT: Ultrasound Computed Tomography on Sparse Data via AI-Physic Synergy", In International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), pp. 99-108. ([Acceptance rate: 31%, the top conference in AI for medical imaging](#))
- [6] **Sheng Y**, Yang L, Li J, James J, Xu X, Shi Y, Hu J, **W. Jiang** and Yang L, "Data-Algorithm-Architecture Co-Optimization for Fair Neural Networks on Skin Lesion Dataset", In International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), pp. 153-163. ([Acceptance rate: 31%, the top conference in AI for medical imaging](#))
- [7] **Z. Wang**, R. Bao, Y. Wu, G. Liu, L. Yang, L. Zhan, F. Zheng, **W. Jiang**, Y. Zhang, "Self-guided Knowledge-Injected Graph Neural Network for Alzheimer's Diseases", In International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), pp. 378-388. ([Acceptance rate: 31%, the top conference in AI for medical imaging](#))
- [8] **Y. Sheng**, J. Yang, Y. Lin, **W. Jiang** and L. Yang, "Toward Fair Ultrasound Computing Tomography: Challenges, Solutions and Outlook", In Proceedings of the Great Lakes Symposium on VLSI 2024 (pp. 748-753). ([Acceptance rate: 27%](#))
- [9] **Z. Wang**, **Y. Sheng**, Nirajan Koirala, Taeho Jung and **W. Jiang**, "PristiQ: A Co-Design Framework for Preserving Data Security of Quantum Machine Learning in the Cloud", Accepted by ISLVLSI 2024
- [10] X. Li, V. Kulkarni, DT. Chen, Q. Guan, **W. Jiang**, N. Xie, S. Xu, and V. Chaudhary, "Efficient Circuit Wire Cutting Based on Commuting Groups", In 2024 IEEE International Conference on Quantum Computing and Engineering (QCE) (Vol. 1, pp. 117-123). IEEE. ([Leading venue for quantum computing and engineering](#))
- [11] MG. Meena, Y. Zhang, **W. Jiang**, Y. Lin, S. Gunther, X. Gao, "Towards a Quantum Algorithm for the Incompressible Nonlinear Navier-Stokes Equations", In 2024 IEEE International Conference on Quantum Computing and Engineering (QCE) (Vol. 1, pp. 662-668). IEEE. ([Leading venue for quantum computing and engineering](#))
- [12] P. Senapati, SYC. Chen, B. Fang, TM. Athawale, A. Li, W. Jiang, CC. Lu, and Q. Guan, "PQML: Enabling the Predictive Reproducibility on NISQ Machines for Quantum ML Applications", In 2024 IEEE International Conference on Quantum Computing and Engineering (QCE) (Vol. 1, pp. 1413-1424). IEEE. ([Leading venue for quantum computing and engineering](#))
- [13] **Z. Hu**, R. Wolle, M. Tian, Q. Guan, T. Humble, **W. Jiang**, "Toward Consistent High-fidelity Quantum Learning on Unstable Devices via Efficient In-situ Calibration", In 2023 IEEE

- International Conference on Quantum Computing and Engineering (QCE) (Vol. 1, pp. 848-858). IEEE. (**Best Paper Award, top 10 out of 296 submissions, i.e., top 3.38%**)
- [14] **J. Li**, Q. Guan, D. Tao, **W. Jiang**, “Carbon Emissions of Quantum Circuit Simulation: More than You Would Think”, In Proceedings of the 14th International Green and Sustainable Computing Conference (pp. 11-13).
 - [15] **Z. Wang, J. Li, Z. Hu**, B. Gage, E. Iwasawa, **W. Jiang**, “QuMoS: A Framework for Preserving Security of Quantum Machine Learning Model”, In 2023 IEEE International Conference on Quantum Computing and Engineering (QCE) (Vol. 1, pp. 1089-1097). IEEE. ([Leading venue for quantum computing and engineering](#))
 - [16] **J. Li, Z. Wang, Z. Hu**, P. Date, A. Li, **W. Jiang**, “A Novel Spatial-Temporal Variational Quantum Circuit to Enable Quantum Deep Learning on NISQ Devices”, In 2023 IEEE International Conference on Quantum Computing and Engineering (QCE) (Vol. 1, pp. 272-282). IEEE. ([Leading venue for quantum computing and engineering](#))
 - [17] P. Senapati, **Z. Wang, W. Jiang**, T. Humble, B. Fang, S. Xu, Q. Guan, “Towards Redefining the Reproducibility in Quantum Computing: A Data Analysis Approach on NISQ Devices”, In 2023 IEEE International Conference on Quantum Computing and Engineering (QCE) (Vol. 1, pp. 468-474). IEEE. ([Leading venue for quantum computing and engineering](#))
 - [18] **Z. Hu**, Y. Lin, Q. Guan, **W. Jiang**, “Battle Against Fluctuating Quantum Noise: Compression-Aided Framework to Enable Robust Quantum Neural Network”, In 2023 60th ACM/IEEE Design Automation Conference (DAC) (pp. 1-6). IEEE. (**Rank No. 1 in the Tack**, [acceptance rate: 22.7%](#)).
 - [19] **Y. Sheng**, J. Yang, L. Yang, Y. Shi, J. Hu, **W. Jiang**, “Muffin: A Framework Toward Multi-Dimension AI Fairness by Uniting Off-the-Shelf Models”, In 2023 60th ACM/IEEE Design Automation Conference (DAC) ([acceptance rate: 22.7%](#)).
 - [20] J. Yang, **Y. Sheng**, Y. Zhang, **W. Jiang**, L. Yang, “On-Device Unsupervised Image Segmentation”, In 2023 60th ACM/IEEE Design Automation Conference (DAC) (pp. 1-6). IEEE. (**Rank No. 1 in the Tack**, [acceptance rate: 22.7%](#)).
 - [21] **Y. Sheng**, J. Yang, **W. Jiang**, L. Yang, “Toward Fair and Efficient Hyperdimensional Computing”, In Proceedings of the 28th Asia and South Pacific Design Automation Conference (ASP-DAC), pp. 612-617. ([acceptance rate: 31%](#))
 - [22] Z. Hu, J. Li, Z. Pan, S. Zhou, L. Yang, C. Ding, O. Khan, T. Geng and **W. Jiang**, “On the Design of Quantum Graph Convolutional Neural Network in the NISQ era and beyond”, In 2022 IEEE 40th International Conference on Computer Design (ICCD), page 290-297. IEEE, 2022 ([acceptance rate: 30.2%](#))
 - [23] W. Mu, Y. Mao, L. Cheng, Q. Wang, **W. Jiang**, and P. Chen, “Iterative qubits management for quantum index searching in a hybrid system”, In 2022 IEEE 41th International Performance Computing and Communications Conference (IPCCC), pages 1-7. IEEE, 2022.
 - [24] Z. Hu, P. Dong, Z. Wang, Y. Lin, Y. Wang, and **W. Jiang**, “Quantum neural network compression”, In 2022 IEEE/ACM International Conference on Computer-Aided Design (ICCAD), pages 1-8. IEEE, 2022. ([acceptance rate: 22%](#))

- [25] Z. Liang, H. Wang, J. Cheng, Y. Ding, H. Ren, X. Qian, S. Han, **W. Jiang**, Y. Shi, "Variational quantum pulse learning", In 2022 IEEE international conference on quantum computing and engineering (QCE), pages 1-10. IEEE, 2022. ([Leading venue for quantum computing and engineering](#))
- [26] Y. Sheng, J. Yang, Y. Wu, Y. Shi, J. Hu, **W. Jiang**, L. Yang, "The Larger The Fairer? Small Neural Networks Can Achieve Fairness for Edge Devices", Accepted by DAC'22 ([acceptance rate 22.6%](#)).
- [27] H. Peng, S. Huang, S. Chen, B. Li, T. Geng, A. Li, **W. Jiang**, W. Wen, J. Bi, H. Liu and C. Ding, "A Length Adaptive Algorithm-Hardware Co-design of Transformer on FPGA Through Sparse Attention and Dynamic Pipelining", Accepted by DAC'22 ([acceptance rate 22.6%](#)).
- [28] B. Lu, J. Yang, **W. Jiang**, Y. Shi and S. Ren, "One Proxy Device Is Enough for Hardware-Aware Neural Architecture Search" *Proc. of ACM SIGMETRICS/Performance*, 2022 ([acceptance rate 23.9%](#)).
- [29] S. Chang, Y. Li, M. Sun, **W. Jiang**, S. Liu, Y. Wang, and X. Lin, "RMSMP: A Novel Deep Neural Network Quantization Framework with Row-wise Mixed Schemes and Multiple Precisions" *Proc. of 2021 IEEE/CVF International Conference on Computer Vision (ICCV)* ([acceptance rate 23.9%](#)).
- [30] W. Niu, Z. Kong, G. Yuan, **W. Jiang**, J. Guan, C. Ding, P. Zhao, S. Liu, B. Ren, Y. Wang, "A Compression-Compilation Framework for On-mobile Real-time BERT Applications", *Demo Paper at International Joint Conference on Artificial Intelligence (IJCAI-21)* ([acceptance rate 13.9%](#)).
- [31] Z. Wang, Z. Liang, S. Zhou, C. Ding, J. Xiong, Y. Shi, **W. Jiang**, "Exploration of Quantum Neural Architecture by Mixing Quantum Neuron Designs" *Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, 2021 (Invited Paper) ([acceptance rate 23.5%](#))
- [32] Z. Liang, Z. Wang, J. Yang, L. Yang, J. Xiong, Y. Shi, **W. Jiang**, "Can Noise on Qubits Be Learned in Quantum Neural Network? A Case Study on QuantumFlow" *Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, 2021 (Invited Paper) ([acceptance rate 23.5%](#))
- [33] Y. Song, **W. Jiang**, B. Li, Q. Zhuge, E. H.-M. Sha, S. Dasgupta, Y. Shi, C. Ding, "Dancing along Battery: Enabling Transformer with Run-time Reconfigurability", *Proc. Design Automation Conference DAC-21* ([acceptance rate 23%](#))
- [34] D. Manu, Y. Sheng, J. Yang, J. Deng, T. Geng, A. Li, C. Ding, **W. Jiang**, L. Yang, "FL-DISCO: Federated Generative Adversarial Network for Graph-based Molecule Drug Discovery", *Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, 2021 (Invited Paper) ([acceptance rate 23.5%](#))
- [35] H. Peng, S. Chen, Z. Wang, J. Yang, S. A. Weitze, T. Geng, A. Li, J. Bi, M. Song, **W. Jiang**, H. Liu, C. Ding, "Optimizing FPGA-based Accelerator Design for Large-Scale Molecular Similarity Search", *Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, 2021 (Invited Paper) ([acceptance rate 23.5%](#))
- [36] Y. Zhang, Y. Fu, **W. Jiang**, C. Li, H. You, M. Li, V. Chandra, and Y. Lin, "DIAN: Differentiable Accelerator-Network Co-Search Towards Maximal DNN Efficiency", *Proc. of*

ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED) (acceptance rate 26.4%)

- [37] **W. Jiang**, J. Xiong and Y. Shi, "When Machine Learning Meets Quantum Computers: A Case Study," *Proc. of IEEE/ACM Asia and South Pacific Design Automation Conference (ASP-DAC)*, 2021 (Invited Paper) (acceptance rate 32.8%)
- [38] D. Zeng, **W. Jiang**, T. Wang, X. Xu, H. Yuan, M. Huang, J. Zhuang, J. Hu, and Y. Shi, "Towards Cardiac Intervention Assistance: Hardware-Aware Neural Architecture Exploration for Real-Time 3D Cardiac Cine MRI Segmentation," *Proc. of IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, 2020 (Invited Paper) (acceptance rate 24%)
- [39] S. Bian, X. Xu, **W. Jiang**, Y. Shi and T. Sato, "BUNET: Blind Medical Image Segmentation Based on Secure UNET", *Proc. Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Lima, Peru, 2020 (acceptance rate 30%)
- [40] X. Yan, **W. Jiang**, Y. Shi and C. Zhuo, "MS-NAS: Multi-Scale Neural Architecture Search for Medical Image Segmentation", *Proc. Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Lima, Peru, 2020 (acceptance rate 30%)
- [41] L. Yang, Z. Yan, M. Li, H. Kwon, L. Lai, T. Krishna, V. Chandra, **W. Jiang**, Y. Shi, "Co-Exploration of Neural Architectures and Heterogeneous ASIC Accelerator Designs Targeting Multiple Tasks", *Proc. Design Automation Conference (DAC)*, San Francisco, July 19-23. (acceptance rate $228/992=23.0\%$)
- [42] S. Bian, **W. Jiang**, Q. Lu, Y. Shi, and T. Sato, "NASS: Optimizing Secure Inference via Neural Architecture Search", *24th European Conference on Artificial Intelligence (ECAI'20)* (acceptance rate $365/1363=26.8\%$)
- [43] L. Yang, **W. Jiang**, W. Liu, E. H.-M. Sha, Y. Shi, and J. Hu, "Co-Exploring Neural Architecture and Network-on-Chip Design for Real-Time Artificial Intelligence," *Proc. Asia and South Pacific Design Automation Conference (ASP-DAC)*, Beijing, Jan. 2020. (12 out of 263 submissions, **Best Paper Nomination**)
- [44] **W. Jiang**, X. Zhang, E. H.-M. Sha, L. Yang, Q. Zhuge, Y. Shi, and J. Hu, "Accuracy vs. Efficiency: Achieving Both through FPGA-Implementation Aware Neural Architecture Search," *Proc. Design Automation Conference (DAC)*, Las Vegas, NV, USA, June. 2019. (5 out of 815 submissions, **Best Paper Nomination**)
- [45] X. Zhang, **W. Jiang**, Y. Shi and J. Hu, "When Neural Architecture Search Meets Hardware Implementation: from Hardware Awareness to Co-Design," *Proc. IEEE Computer Society Annual Symposium on VLSI (ISVLSI)*, Miami, Florida, USA, Aug. 2019. (Invited Paper)
- [46] Q. Lu, **W. Jiang**, X. Xiao, J. Hu and Y. Shi, "On Neural Architecture Search for Resource-Constrained Hardware Platforms," *Proc. IEEE/ACM International Conference On Computer-Aided Design (ICCAD)*, Westminster, CO, 2019. (Invited paper)
- [47] **W. Jiang**, E. H.-M. Sha, Q. Zhuge and X. Chen, "Optimal Functional-Unit Assignment and Buffer Placement for Probabilistic Pipelines," *Proc. International Conference on Hardware/Software Co-design and System Synthesis (CODES+ISSS)*, Pittsburgh, PA, USA, Oct. 2016. (acceptance rate $21/80=26.3\%$)

- [48] **W. Jiang**, E. H.-M. Sha, Q. Zhuge, H. Dong, and X. Chen, "Optimal Functional Unit Assignment and Voltage Selection for Pipelined MPSoC with Guaranteed Probability on Time Performance," *Proc. Languages, Compilers, and Tools for Embedded Systems (LCTES)*, Barcelona, Spain, June 2017.
(acceptance rate 13/51=25.5%)
- [49] E. H.-M. Sha, **W. Jiang**, Q. Zhuge, L. Yang and X. Chen, "On the Design of High-Performance and Energy-Efficient Probabilistic Self-Timed Systems," *Proc. High Performance Computing and Communications (HPCC)*, NewYork, NY, USA, Aug. 2015.
- [50] E. H.-M. Sha, **W. Jiang**, Q. Zhuge, X. Chen and L. Yang, "Prevent Deadlock and Remove Blocking for Self-Timed Systems," *Proc. International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP)*, Zhangjiajie, China, Nov. 2015.
- [51] **W. Jiang**, E. H.-M. Sha, X. Chen, Q. Zhuge and L. Wu, "Optimal Functional Assignment and Communication Selection under Timing Constraint for Self-Timed Pipelines," *Proc. IEEE International Conference on Embedded Software and Systems (ICCESS)*, Chengdu, China, Aug. 2016.
- [52] **W. Jiang**, Q. Zhuge, J. Yi, L. Yang and E. H.-M. Sha, "On self-timed ring for consistent mapping and maximum throughput," *Proc. Embedded and Real-Time Computing Systems and Applications (RTCSA)*, Chongqing, China, Aug. 2014.
- [53] E. H.-M. Sha, H. Dong, **W. Jiang**, Q. Zhuge, X. Chen and L. Yang, "On the Design of Reliable Heterogeneous Systems via Checkpoint Placement and Core Assignment," *Proc. Great Lakes Symposium on VLSI (GLSVLSI)*, Chicago, IL, USA, May 2018.
- [54] X. Li, Q. Zhuge, **W. Jiang**, H. Dong, W. Lin, X. Chen and E. H.-M. Sha, "A Research of Reducing Write Activities in Multi-table Join for Non-Volatile Memories," *Proc. 15th CCF Annual Conference on Embedded Systems (ESTC)*, Shenyang, China, Nov. 2017. (**Best Student Paper Award**)
- [55] E. H.-M. Sha, Y. Liang, **W. Jiang**, X. Chen and Q. Zhuge, "Optimizing Data Placement of MapReduce on Ceph-Based Framework under Load-Balancing Constraint," *Proc. International Conference on Parallel and Distributed Systems (ICPADS)*, Wuhan, China, Dec. 2016.
- [56] L. Yang, W. Liu, **W. Jiang**, M. Li, J. Yi and E. H.-M. Sha, "FoToNoC: A hierarchical management strategy based on folded lorus-like Network-on-Chip for dark silicon many-core systems," *Proc. 2016 21st Asia and South Pacific Design Automation Conference (ASP-DAC)*, Macao, Jan. 2016. (**Best Paper Nomination**)
- [57] E. H.-M. Sha, X. Chen, Q. Zhuge, L. Shi and **W. Jiang**, "Designing an Efficient Persistent In-Memory File System," *Proc. the 4th IEEE Non-Volatile Memory System and Applications Symposium (NVMSA)*, Hongkong, Aug. 2015. (**Best Paper Award**)

Invited Talks (not include job talk)

- Invited Talk at Case Western Reserve University, 2024
- Contributed Talk, Quantum Computing User Forum at ORNL, "QDA: Quantum Design Automation Toward Practical Quantum Computing", 2024
- Invited Talk at NSF Workshop on the Quantum System Software Stack, "QDA: Quantum Design Automation Toward Practical Quantum Computing", 2024

- Invited Talk at NSF FuSe Workshop on Quantum Computing and Systems, “QDA: Quantum Design Automation Toward Practical Quantum Computing”, 2024
- Invited Talk at Temple University “QDA: Quantum Design Automation Toward Practical Quantum Computing”, 2024
- Invited Talk at New York University “QDA: Quantum Design Automation Toward Practical Quantum Computing”, 2023
- Talk in StableQ workshop on “Reliable Quantum Learning via Quantum Error Adaptation”, 2023
- Talk in “Pathways to Quantum Immersion Program” (K-12), 2023
- Talk in ISCA Tutorial on “TorchQuantum: A Fast Library for Parameterized Quantum Circuits”, 2023
- University of Notre Dame, 2023 (host: Prof. Yiyu Shi)
- University of Texas at San Antonio, 2023 (host: Prof. Dakai Zhu)
- Invited Talk in Road4NN workshop at DAC’21
- Villanova University (host: Prof. Xun Jiao)
- ICCAD Special Session.
- Indiana University (host: Prof. Lei Jiang)
- IEEE QuantumWeek’21 for QuantumFlow Tutorial.
- ESWEEK’21 for QuantumFlow Tutorial.
- University of Delaware (host: Prof. Chenmo Yang), May. 12, 2021
- tinyML talks webcast, Dec. 8, 2020
- Southeastern University (host: Prof. Qi Zhu), Dec. 2020
- Rice University (host: Prof. Yingyan Lin), Nov. 2020
- University of New Mexico (host: Prof. Lei Yang), Nov. 2020
- tinyML Asia talk, Nov. 19, 2020
- Zhejiang University (host: Prof. Chen Zhuo), Oct. 2020
- University of Science and Technology of China (host: Prof. Yu-Chun Wu), Oct. 2020
- IBM Quantum Summit, Sept. 2020
- Workshop on Research Open Automatic Design for Neural Networks (ROAD4NN), July 2020
- Workshop on Hardware and Algorithms for Learning On-a-chip (HALO), Nov. 2019
- Northeastern University (host: Prof. Yanzhi Wang), Oct. 2019
- Technical Webinar of NSF IUCRC for ASIC, Aug. 2019

External Services

NSF Panelist:

- NSF 22-586: Faculty Early Career Development Program (CAREER), 2023

- NSF 23-552: Future of Semiconductors (FuSe), 2023
- DOE: Early Career Research Program, 2024
- NSF 24-509: Formal Methods in the Field (FMitF), 2024
- NSF 24-589: Foundations of Emerging Technologies (FET) Core Medium, 2025

Journal Editor:

- Guest Editor for IEEE Transactions on Circuits and Systems I: Regular Papers (TCAS-I) on Special Issue for ISICAS 2023
- Associate Editor for IEEE Transactions on Circuits and Systems II: Express Briefs
- Guest Editor for Electronics on Special Issue "Quantum Machine Learning: Theory, Methods and Applications"
- Guest Editor for IEEE Transactions on Circuits and Systems II: Express Briefs on ISICAS 2021 Special Session

Workshop Chair/Co-Chair:

- StableQ: Quantum System Stability and Reproducibility Workshop at 57th IEEE/ACM International Symposium on Microarchitecture (MICRO 2024)
- StableQ: Quantum System Stability and Reproducibility Workshop at IEEE QuantumWeek 2023
- Low Power and Fair Embedded Computer Vision Competition at ACM/IEEE ESWEK 2023
- ACM SIGDA/IEEE CEDA Early Career Workshop at ACM/IEEE DAC 2022
- Workshop on Energy-Efficient Machine Learning (E2ML) at IEEE IGSC 2021

Tutorial Chair/Co-Chair:

- Tutorial on Novel Toolkits toward AI for Science on Resource-Constrained Computing Systems at IEEE/ACM ESWEK 2024
- Tutorial on Scalable Design-Program-Compilation Optimizations for Quantum Algorithms at IEEE/ACM DAC 2022
- Tutorial on QuantumFlow+VACSEN: A Visualization System for Quantum Neural Networks on Noisy Quantum Devices, IEEE/ACM ESWEK 2022
- Tutorial on QuantumFlow+VACSEN: A Visualization System for Quantum Neural Networks on Noisy Quantum Devices, IEEE Quantumweek 2022
- Tutorial on TorchQuantum: A Fast Library for Parameterized Quantum Circuits, IEEE Quantumweek 2022
- Tutorial: TorchQuantum Case Study for Robust Quantum Circuits, IEEE/ACM ICCAD 2022
- Tutorial on QuantumFlow: A Quantum Machine Learning Co-Design Framework towards Quantum Advantage at IEEE/ACM ICCAD 2021
- Tutorial on QuantumFlow: An End-to-End Quantum Neural Network Acceleration Framework at IEEE/ACM ESWEK 2022

- Tutorial on QuantumFlow: An End-to-End Quantum Neural Network Acceleration Framework at IEEE Quantumweek 2021

Competition Chair/Co-Chair:

- Co-Chair of Quantum Computing for Drug Discovery Challenge at ICCAD, IEEE/ACM ICCAD 2023
- Chair of Tiny and Fair ML Design Competition at IEEE/ACM ESWEK 2023

Conference Technical Program Track Chair:

- Track chair of Quantum Application (QAPP), 2024 IEEE International Conference on Quantum Computing and Engineering (Quantumweek)
- Track chair of Quantum System Software (QSYS), 2023 IEEE International Conference on Quantum Computing and Engineering (Quantumweek)
- Track co-chair for the Computer-Aided Design and Verification (CAD), 2022 IEEE Computer Society Annual Symposium on VLSI (ISVLSI)

Conference Technical Program Committee:

- Supercomputing (SC 2024)
- International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2024,2025)
- Design Automation Conference (DAC 2021, 2022, 2023)
- Design, Automation and Test in Europe Conference (DATE 2022)
- International Conference On Computer Aided Design (ICCAD 2021)
- Asia and South Pacific Design Automation Conference (ASP-DAC 2021, 2022)
- IEEE Computer Society Annual Symposium on VLSI (ISVLSI 2020)
- ACM Great Lakes Symposium on VLSI (GLSVLSI 2020,2021)
- ACM/SIGAPP Symposium On Applied Computing (SAC 2020,2021)
- IEEE International System-on-Chip Conference (IEEE SOCC 2020)
- Late Break Results in Design Automation Conference (LBR-DAC 2020)
- Student Research Forum at Asia and South Pacific Design Automation Conference (ASP-DAC 2020,2021)
- IEEE Real-Time Systems Symposium (RTSS 2019, Artifact Evaluation Committee)

Journal Reviewer

- IEEE Transactions on Computers (TC)
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
- IEEE Transactions on Very Large Scale Integration (TVLSI)
- IEEE Transactions on Emerging Topics in Computing (TETC)

- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Embedded System Letter (ELS)
- IEEE Access
- ACM Transactions on Embedded Computing Systems (TECS)
- ACM Transactions on Design Automation of Electronic Systems (TODAES)
- ACM Journal on Emerging Technologies in Computing (JETC)
- Journal of Parallel and Distributed Computing (JPDC)
- Journal of Computer Science and Technology (JCST)
- Communications in Statistics - Simulation and Computation
- Microprocessors and Microsystems (MICPRO)
- SPRINGER Journal of Signal Processing Systems (JSPS)
- HINDAWI Complexity (Complexity)
- Mathematics

Internal Services

- Organizer of weekly quantum computing seminar series at QSEC center, Fall 2022
- Member (Equity Champion) of Microelectronics Faculty Search Committee, Fall 2022
- Distinguish Speaker Committee, Fall 2021 - Now