

Ziqing Guo

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Education

Texas Tech University, PhD in Computer Science, Prof. Ziwen Pan's group, High Performance Computing Center Fellow	Present
Newcastle University, MSc, Advanced Computer Science, Merit	Aug 2023
University of Tennessee, Chengdu University of Information Technology, BE, Distinguished Graduate	Jul 2021

Publications

- Ziqing Guo, Jan Balewski, Ziwen Pan. (2025). ShardQ: Circuit Cutting and 3D Tensor Recomposition for Quantum Simulation on Superconducting Qubits. Submitted to the ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS).
- Ziqing Guo, Jan Balewski, Ziwen Pan. (2025). Vectorized similarity attention with learnable encoding for quantum transformer. Submitted to the 40th Annual AAAI Conference on Artificial Intelligence (AAAI).
- Ziqing Guo, Alex Khan, Victor S. Sheng, Shabnam Jabeen, Ziwen Pan. (2025). Quantum parallel information exchange (QPIE) hybrid network with transfer learning. In IOP Quantum Science and Technology.
- Ziqing Guo, Steven Rayan, Wenshuo Hu, Ziwen Pan. (2025). Direct entanglement ansatz learning (DEAL) with ZNE on error-prone superconducting qubits. In IEEE International Conference on Quantum Computing and Engineering (QCE).
- Ziqing Guo, Jan Balewski, Ziwen Pan. (2024). Q-GEAR: Improving quantum simulation framework. In 54th International Conference on Parallel Processing (ICPP).

Experience

Research Affiliate Intern, Lawrence Berkeley National Lab, NERSC	Jun 2024 – Present
Research Fellow, Texas Tech University	Sep 2023 – Present
Research Assistant, Newcastle University	Jun 2022 – Jun 2023
Cloud Engineering Intern, CISCO	Dec 2021 – Jun 2022

Grant & Awards

• IonQ Research Grant, \$350k	Jul 2025
• IBM LBNL QCAN Award, \$30k, NERSC, DoE(No. DE-AC02-05CH11231)	Mar 2025
• GenQ Quantum Hackathon, \$2.5k, Cat Qubit, First Prize, City of Calgary	Oct 2024
• Qiskit Quantum Summer School / Quantum Challenge, Full Achievement	Jun 2024
• AWS Braket Quantum Application Development, Certificate	Mar 2024
• AWS Braket Research Grant, \$2k, SV1, TN1	Feb 2024
• Pennylane Open Hackathon QHack / Code Camp, Top Completionist	Jan 2024
• Q-CTRL, Quantum Information Theory, Certificate	Jun 2023

Invited Talks

International Conference on Parallel Processing, Quantum Computing, Sep 2025
International Conference on Quantum Computing, QAI Workshop, Aug 2025
Monterey Data Conference, Aug 2025
Quantum parallel information exchange hybrid network for transfer learning, IJCNN, Jun 2025
IBM Quantum / AI, TTU, Apr 2025
Improving quantum computation model, WCOE, Apr 2025

HackTX, University of Austin, Jan 2025 (Mentor)
Wave Technology, City of Calgary, Nov 2024
Platform Calgary, University of Saskatchewan, QAI Venture, Oct 2024
Berkeley National Lab, National Energy Research Computing, Quantum Group, Jul 2024
QuEra, Jun 2024
NVIDIA CUDA Quantum, QCAN, Jun 2024

Professional Services

IOP Quantum Science and Technology
Springer Nature Quantum Machine Intelligence
IEEE International Conference on Quantum Computing and Engineering
IEEE International Joint Conference on Neural Networks
ACM Proceedings of the International Conference on Parallel Processing
Quantum and Beyond NEWSLETTER
Nature Machine Intelligence
ACM Transactions on Quantum Computing
Advanced Quantum Technology
Wolfram Research Student Ambassador
IEEE, ACM, APS member

Projects

Improve quantum circuit simulation tool github.com/gzquse/Q-Gear

- Support SLURM submission; PODMAN container; CUDA-kernel acceleration; PennyLane; image encoding.

Direct entanglement ansatz learning for quadratic unconstrained binary optimization (QUBO) github.com/gzquse/QUBO

- Distributed learning; efficient ansatz encoding; multiple QUBO problem solvers.

Automated text mining of biomedical literature [Huggingface/BioGPT](#)

- Transformer-based; auto-regressive mining; 95% accuracy for biomedical domain literature.

Skills

Quantum (Proficiency): QISKIT (Heron-2 type superconducting), CUDA-Q (cuTensorNet, cuStatevector, NVIDIA-GPU), IONQ (Trapped Ion Aria-2, Forte), PENNYLANE (software stack), AMAZON BRAKET (QaaS), QCI-DIRAC3 (Photonic QPU), FIRE OPAL (Q-CTRL), TENSORCIRCUIT (Tencent), CIRQ (Azure, Microsoft)

Engineering: Python, Mathematica, Fortran, CUDA/MPI, Bash, Julia, Matlab, Cray HPC, Slurm, Container, DevOps, Scrapy/Data Mining

Interests: Guitar fingerpicker, Table tennis (competitive, shakehand grip), Calisthenics, Rollerblading, Culinary enthusiast

Languages: English (proficient), Mandarin (native), Japanese (Elementary)