

YUHAO LIU

102 Moore Building
Philadelphia, PA 19104
Yuhao's homepage

Phone: 445-237-7334
Email: liuyuhao@seas.upenn.edu
Alt: yhliu2000@outlook.com

Education

2023 – Now	Ph.D. in Computer and Information Science University of Pennsylvania, USA. Advisor: Dr. Gushu Li
2019 – 2023	B.E. in Computer Science and Technology Tsinghua University, China. Advisor: Prof. Wei Xue

Research Interests

Quantum Programming Language; Quantum Information; Quantum Compiler
Programming Language; Formal Methods; Formal Verification
High-Performance Computing

Publications (* = equal contribution)

[HPCA'25]	Yuhao Liu , Kevin Yao, Jonathan Hong, Julien Froustey, Ermal Rrapaj, Costin Iancu, Gushu Li, Yunong Shi, “ <i>HATT: Hamiltonian Adaptive Ternary Tree for Optimizing Fermion-to-Qubit Mapping</i> ”, the IEEE International Symposium on High-Performance Computer Architecture (HPCA), 2025.
[ISCA'24]	Junyu Zhou, Yuhao Liu , Yunong Shi, Ali Javadi-Abhari, Gushu Li, “ <i>Bosehedral: Compiler Optimization for Bosonic Quantum Computing</i> ”, the IEEE/ACM International Symposium on Computer Architecture (ISCA), 2024.
[ASPLOS'24]	Yuhao Liu , Shize Che, Junyu Zhou, Yunong Shi, Gushu Li, “ <i>Fermihedral: On the Optimal Compilation for Fermion-to-Qubit Encoding</i> ”, the International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2024.
[DAC'24]	Shize Che, Seongwoo Oh, Haoyun Qin, Yuhao Liu , Anthony Sigillito, Gushu Li, “ <i>Fast Virtual Gate Extraction For Silicon Quantum Dot Devices</i> ”, the Design Automation Conference (DAC), 2024.

Conference Presentations

2024	“ <i>Fermihedral: On the Optimal Compilation for Fermion-to-Qubit Encoding</i> ”, the 29th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), San Diego, USA.
2022	“ <i>High-Performance Stencil Computation DSL Inside Python</i> ”, SOLVER 22, Chongqing, China.

Teaching Experience

Fall 2024 | Teaching Assistant, Introduction to Quantum Computing, CIS 3990, UPenn, PA