Vishnu Iyer

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Education

University of Texas at Austin *August 2021 - present*
PhD in Quantum Computing, advised by Scott Aaronson. NSF Graduate Research Fellow.

University of California at Berkeley *August 2016 - May 2020*
B.S. in Electrical Engineering and Computer Science with Highest Honors (summa cum laude).

Experience

Summer Research Intern, Sandia National Labs *Summer 2023*
Graduate Student Researcher (UT Austin) *August 2021 - present*
Undergraduate Student Researcher (UC Berkeley) *August 2018 - August 2021*

Publications[1]

1. *Efficient Quantum Hermite Transform.* S. Jain†, **V. Iyer**†, R. Somma, N. Bao, S. Jordan. Quantum Information Processing (QIP) 2026.
†co-first-authorship.

2. *Efficient Learning of Bosonic Gaussian Unitaries.* M. Fanizza, **V. Iyer**, J. Lee, A.A. Mele, F.A. Mele. Quantum Information Processing (QIP) 2026.

3. *Fermionic Insights into MBQC: Circle Graph States are Not Universal Resources.* B. Harrison, **V. Iyer**, O. Parekh, K. Thompson, A. Zhao. arXiv:2510.05557 [quant-ph].

4. *Mildly-Interacting Fermionic Unitaries are Efficiently Learnable.* **V. Iyer**. Quantum Information Processing (QIP) 2026, Quantum Techniques in Machine Learning (QTML) 2025.

5. *Tolerant Testing of Stabilizer States with Mixed State Inputs.* **V. Iyer**, D. Liang. Quantum Techniques in Machine Learning (QTML) 2025.

6. *Agnostic Tomography of Stabilizer Product States.* S. Grewal, **V. Iyer**, W. Kretschmer, D. Liang. arXiv:2404.03813 [quant-ph].

7. *Pseudoentanglement Ain't Cheap.* S. Grewal, **V. Iyer**, W. Kretschmer, D. Liang. Theory of Quantum Computation, Communication, and Cryptography (TQC 2024).

8. PDQMA = DQMA = NEXP*:* QMA *with Hidden Variables and Non-Collapsing Measurements.* S. Aaronson, S. Grewal, **V. Iyer**, S. Marshall, R. Ramachandran. Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2025).

9. *On the Rational Degree of Boolean Functions with Applications.* **V. Iyer**, S. Jain, R. Kothari, M. Kovacs-Deak, V. Kumar, L. Schaeffer, D. Wang, M. Whitmeyer. arXiv:2310.08004 [cs.CC].

[1]Authors listed in alphabetical order by last name for most listed papers, as is customary in my field. All exceptions are apparent.

10. *Efficient Learning of Quantum States Prepared with Few Non-Clifford Gates.* S. Grewal, **V. Iyer**, W. Kretschmer, D. Liang. Quantum Information Processing (QIP) 2024, Quantum 7.

11. *Improved Stabilizer Estimation via Bell-Difference-Sampling.* S. Grewal, **V. Iyer**, W. Kretschmer, D. Liang. Quantum Information Processing (QIP) 2024, Symposium on the Theory of Computation (STOC) 2024.

12. *Low-Stabilizer-Complexity Quantum States are not Pseudorandom.* S. Grewal, **V. Iyer**, W. Kretschmer, D. Liang. Innovations in Theoretical Computer Science (ITCS) 2023. **Best Student Paper Award**.

13. *Junta Distance Approximation with Sub-Exponential Queries.* **V. Iyer**, A. Tal, M. Whitmeyer. Conference on Computational Complexity (CCC) 2021.

Selected Talks

Invited

Improved Algorithms for Learning Bosonic and Fermionic Operators *October 2025*
AIMS Workshop on Quantum Learning Theory.

Efficient Quantum Hermite Transform *September 2025*
IBM Quantum Research Seminar.

Mildly-Interacting Fermionic Unitaries are Efficiently Learnable *May 2025*
Quantum Software Lab Research Seminar.

Contributed

Mildly-Interacting Fermionic Unitaries are Efficiently Learnable *November 2025*
Quantum Techniques in Machine Learning 2025.

Improved Stabilizer Estimation via Bell Difference Sampling *June 2024*
Symposium on the Theory of Computing (STOC) 2024.

Low-Stabilizer-Complexity Quantum States are not Pseudorandom *January 2023*
Innovations in Theoretical Computer Science (ITCS) 2023. Best Student Paper Award.

Junta Distance Approximation with Sub-Exponential Queries *July 2021*
Conference for Computational Complexity (CCC) 2021.

Awards and Honors

XPRIZE for Quantum Applications Semifinalist *October 2025*
Horizon Quantum Hackathon Winner *December 2023*
NSF Graduate Research Fellowship *March 2023*
ITCS Best Student Paper Award *January 2023*
University of Texas Chair's Strategic Fellowship *April 2021*
UC Berkeley University Medal Semifinalist *February 2020*
UC Berkeley Outstanding GSI Award *March 2019*

Service

Conference subreviewing: STOC 2026, QIP 2026, ITCS 2026, TQC 2025, FOCS 2025, QIP 2025, TQC 2024, STACS 2024, QIP 2024, TQC 2023, TQC 2022

Journal subreviewing: SICOMP, PRX Quantum

Teaching

Analysis of Boolean Functions, UT Austin	Spring 2023
Quantum Information Science, UT Austin	Spring 2022
Algorithms and CS Theory, UT Austin	Fall 2021
Algorithms and CS Theory, UC Berkeley	Spring 2020
Algorithms and CS Theory, UC Berkeley	Fall 2019
Discrete Mathematics and Probability Theory, UC Berkeley	Summer 2019
Algorithms and CS Theory, UC Berkeley	Spring 2019
Discrete Mathematics and Probability Theory, UC Berkeley	Summer 2018

Skills and Technical Experience

Programming Languages: Python (10+ years), Java (10+ years), C++ (10+ years), C (6 years), SQL (6 years)

Other Software: TensorFlow, Pytorch, IBM Qiskit, Mathematica, Matlab

Relevant Advanced Coursework: Machine Learning, Stochastic Processes, Optimization, Quantum Information Science (3 semesters), Complexity Theory, Advanced Algebra, Real and Complex Analysis, Quantum Mechanics (2 semesters), Electromagnetism and Optics, Distributed Computing