Vishnu Iyer

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Education

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

University of California at Berkeley *August 2016 - May 2020*
B.S. in Electrical Engineering and Computer Science with Highest Honors ($\sim$ top 3%).

Experience

Invited Student Researcher, Simons Institute *Spring 2024*
Summer Research Intern, Sandia National Labs Quantum Group *Summer 2023*
Research Assistant to Prof. Scott Aaronson (UT Austin) *August 2021 - present*
Research Assistant to Prof. Avishay Tal (UC Berkeley) *April 2020 - August 2021*
Research Assistant to Prof. Prasad Raghavendra (UC Berkeley) *March 2019 - March 2020*

Papers [1]

8. *Agnostic Tomography of Stabilizer Product States* April 2024
Sabee Grewal, **Vishnu Iyer**, William Kretschmer, Daniel Liang

7. *Pseudoentanglement Ain't Cheap* TQC 2024
Sabee Grewal, **Vishnu Iyer**, William Kretschmer, Daniel Liang

6. *QMA with Hidden Variables and Non-Collapsing Measurements* March 2024
Scott Aaronson, Sabee Grewal, **Vishnu Iyer**, Simon C. Marshall, Ronak Ramachandran

5. *Bounds on the Rational Degree of Boolean Functions with Applications* October 2023
Vishnu Iyer, Siddhartha Jain, Matt Kovacs-Deak, Vinayak Kumar, Luke Schaeffer, Daochen Wang, Michael Whitmeyer

4. *Efficient Learning of Quantum States Prepared With Few Non-Clifford Gates* QIP 2024
Sabee Grewal, **Vishnu Iyer**, William Kretschmer, Daniel Liang

3. *Improved Stabilizer Estimation via Bell Difference Sampling* QIP 2024, STOC 2024
Sabee Grewal, **Vishnu Iyer**, William Kretschmer, Daniel Liang

2. *Low-Stabilizer-Complexity Quantum States are not Pseudorandom* ITCS 2023
Sabee Grewal, **Vishnu Iyer**, William Kretschmer, Daniel Liang
ITCS 2023 Best Student Paper Award

1. *Junta Distance Approximation with Sub-Exponential Queries* CCC 2021
Vishnu Iyer, Avishay Tal, Michael Whitmeyer

[1] all authors listed in alphabetical order by last name, as is customary in theoretical computer science and quantum computing.

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

Awards and Honors

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*
USA Biology Olympiad Semifinalist *2015, 2016*

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

Volunteering and Leadership

Instructor, Texas Prison Education Initiative *Fall 2022, Fall 2024*
President, Eta Kappa Nu, Mu Chapter *May 2019 - December 2019*
Department Relations, Eta Kappa Nu, Mu Chapter *May 2018 - May 2019*
Co-Founder, Undergraduate Group for Theoretical CS *May 2018 - May 2020*

Talks

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

Learning Beyond Stabilizer States *August 2023*
University of Washington theory lunch.

Learning Beyond Stabilizer States *June 2023*
Sandia National Labs Quantum Algorithms and Applications Collaboratory seminar.

Low-Stabilizer-Complexity Quantum States are not Pseudorandom *January 2023*
Presented at Innovations in Theoretical Computer Science (ITCS) 2023.

Low-Stabilizer-Complexity Quantum States are not Pseudorandom *October 2022*
University of Chicago theory lunch.

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