

Sam Gunn | PhD Student

Theoretical Computer Science

cs.berkeley.edu/~gunn

✉ gunn@berkeley.edu

Education

The University of California at Berkeley Advised by **Umesh Vazirani**
Ph.D. in Computer Science (GPA: 3.95) *Fall 2020–*

The University of Texas at Austin
B.S. in Math (GPA: 3.9) *2016–2020*

Research Experience

UC Berkeley / Simons Institute for the Theory of Computing *Summer 2021–*
Quantum Computing

- Provided evidence that existing quantum advantage experiments certify entropy.
- Studying quantum commitments in upcoming work.

UT Austin Quantum Information Group Advised by **Scott Aaronson**
Quantum Complexity *2019–2020*

- Provided complexity-theoretic evidence for the hardness of classically spoofing Google's quantum advantage experiment. Professor Aaronson discusses this work on [his blog](#), and it is published in [Theory of Computing](#). Also see Talks, Scholarships, and Awards below.
- [Improved and commented on](#) a quantum algorithm for topological data analysis.

Los Alamos National Labs Advised by **Rolando Somma**
Quantum Computing *Summer 2020*

UCLA Computational Math REU *Summer 2019*

Work and Teaching Experience

Directed Reading Program Mentor for **UC Berkeley Mathematics** *Spring 2021*

Research Intern at **Integra Financial Consulting and Research** *Summer 2018*

Grader for Algebra in **UT Austin Mathematics** *Spring 2018*

Robotics Mentor for **UT Austin Building Wide Intelligence Lab** *Spring 2018*

Talks, Scholarships, Awards, Reviewing

2021: Reviewer for ITCS, FOCS, SODA

2020: Gave a talk at [SQulnT](#) about complexity theory and quantum advantage.

2018-2020: Unrestricted Endowed Presidential Scholarship

Publications

Certified Entropy from Random Circuit Sampling: With Roozbeh Bassirian, Adam Bouland, Bill Fefferman, and Avishay Tal. Accepted to QIP 2022, pre-print on [arXiv](#).

On the Classical Hardness of Spoofing Linear Cross-Entropy Benchmarking: With Scott Aaronson. 2020. Published in [Theory of Computing](#) and presented at SQulnT 2020 in a talk.

Review of a Quantum Algorithm for Betti Numbers: With Niels Kornerup. 2019. Publicly available pre-print on [arXiv](#).