

Scott Aaronson

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Education

- **Cornell University (Ithaca, NY), 1997-2000**
B.Sc. in Computer Science with Honors (Minor in Mathematics).
- **University of California, Berkeley (Berkeley, CA), 2000-2004**
PhD in Computer Science.
Thesis: *Limits on Efficient Computation in the Physical World*.
Adviser: Umesh Vazirani.

Fellowships and Other Positions

- **Postdoctoral Fellow, Institute for Advanced Study (Princeton, NJ), School of Mathematics, 2004-2005**
- **Postdoctoral Fellow, University of Waterloo (Waterloo, Ontario), Institute for Quantum Computing, 2005-2007**
- **Visiting Researcher, OpenAI (San Francisco), Alignment Team, 2022-2024**

Faculty Positions

- **Department of Electrical Engineering and Computer Science, MIT (Cambridge, MA), 2007-2016.** Began as Assistant Professor in Fall 2007; promoted to Associate Professor with Tenure in Spring 2013.
- **Department of Computer Science, University of Texas at Austin (Austin, TX), 2016-.** Began as Full Professor (David J. Bruton Centennial Chair) in Fall 2016.

Awards

- C. V. Ramamoorthy Distinguished Research Award for “Quantum Lower Bound for the Collision Problem,” UC Berkeley, 2002.
- Ronald V. Book Best Student Paper Award of IEEE Conference on Computational Complexity for “Quantum Certificate Complexity,” 2003.
- Ronald V. Book Best Student Paper Award of IEEE Conference on Computational Complexity for “Limitations of Quantum Advice and One-Way Communication,” 2004.
- Danny Lewin Best Student Paper Award of ACM Symposium on Theory of Computing for “Lower Bounds for Local Search by Quantum Arguments,” 2004.
- David J. Sakrison Memorial Prize for PhD thesis, UC Berkeley, 2005.
- Junior Bose Teaching Award, MIT, 2009.
- United States PECASE (Presidential Early Career Award for Scientists and Engineers), 2010.
- Best Paper Award of International Computer Science Symposium in Russia (CSR) for “The Equivalence of Sampling and Searching,” 2011.
- Alan T. Waterman Award of the National Science Foundation, 2012.
- Tomassoni-Chisesi Prize in Physics, under-40 category, awarded by Sapienza Università, Rome, Italy, 2018.
- ACM Prize in Computing, 2020.
- ACM STOC Test of Time Award for “The Computational Complexity of Linear Optics” (with Alex Arkhipov), 2021.
- Best Paper Award of Computational Complexity Conference (CCC) for “The Acrobatics of BQP” (with DeVon Ingram and William Kretschmer), 2022.
- Fellow of the American Association for the Advancement of Science (AAAS), 2023.
- Member of the United States National Academy of Sciences (NAS), 2026.
- Inaugural Luca Trevisan Award for Expository Work in Theoretical Computer Science, ACM SIGACT, 2026.

Grants and Fellowships

- National Science Foundation Graduate Fellowship, UC Berkeley, 2001-2004.
- NSF CAREER Award, 2009.
- Sloan Research Fellowship, 2009.
- TIBCO Career Development Chair, MIT, 2009.

- DARPA Young Faculty Award, 2009.
- NSF Alan T. Waterman Award, 2012-2017.
- It from Qubit: Simons Collaboration on Quantum Fields, Gravity, and Information, 2015-2023.
- Vannevar Bush Faculty Fellowship (previously National Security Science and Engineering Faculty Fellowship), US Department of Defense, 2016–.
- Simons Investigator Award, 2017–.
- NSF Challenge Institute for Quantum Computation (CIQC) via University of California, Berkeley, 2020–.

Research Papers

- S. Aaronson. Optimal demand-oriented topology for hypertext systems, *Proceedings of ACM SIGIR Conference on Research and Development in Information Retrieval*, pp. 168–177, 1997.
- S. Aaronson. Quantum lower bound for the collision problem, *Proceedings of ACM STOC*, pp. 635–642, 2002. Extended version (joint with Y. Shi) appeared as “Quantum lower bounds for the collision and the element distinctness problems” in *Journal of the ACM*, 51(4):595–605, 2004.
- S. Aaronson. Algorithms for Boolean function query properties, *SIAM Journal on Computing* 32(5):1140–1157, 2003.
- S. Aaronson. Quantum lower bound for recursive Fourier sampling, *Quantum Information and Computation (QIC)*, March 2003.
- S. Aaronson. Multilinear formulas and skepticism of quantum computing, *Proceedings of ACM STOC*, pp. 118–127, 2004.
- S. Aaronson. Is quantum mechanics an island in theoryspace?, *Proceedings of the Växjö Conference* (A. Khrennikov, ed.), 2004.
- S. Aaronson and D. Gottesman. Improved simulation of stabilizer circuits, *Physical Review A* 70:052328, 2004.
- S. Aaronson. Quantum computing, postselection, and probabilistic polynomial-time, *Proceedings of the Royal Society A*, 461(2063):3473–3482, 2005.
- S. Aaronson. Quantum computing and hidden variables, *Physical Review A* 71:032325, March 2005.
- S. Aaronson. The complexity of agreement, *Proceedings of ACM STOC*, pp. 634–643, 2005.
- S. Aaronson. Limitations of quantum advice and one-way communication, *Theory of Computing* 1:1–28, 2005. Conference version in *Proceedings of IEEE Conference on Computational Complexity*, pp. 320–332, 2004.
- S. Aaronson and A. Ambainis. Quantum search of spatial regions, *Theory of Computing* 1:47–79, 2005. Conference version in *Proceedings of IEEE FOCS*, pp. 200–209, 2003.

- S. Aaronson. Lower bounds for local search by quantum arguments, *SIAM Journal on Computing* 35(4):804–824, 2006. Conference version in *Proceedings of ACM STOC*, pp. 465–474, 2004.
- S. Aaronson. QMA/qpoly is contained in PSPACE/poly: de-Merlinizing quantum protocols, *Proceedings of IEEE Conference on Computational Complexity*, pp. 261–273, 2006.
- S. Aaronson. Oracles are subtle but not malicious, *Proceedings of IEEE Conference on Computational Complexity*, pp. 340–354, 2006.
- S. Aaronson. The learnability of quantum states, *Proceedings of the Royal Society A* 463(2088), 2007.
- S. Aaronson and G. Kuperberg. Quantum versus classical proofs and advice, *Theory of Computing* 3(7):129–157, 2007. Conference version in *Proceedings of IEEE Conference on Computational Complexity*, pp. 115–128, 2007.
- S. Aaronson. Quantum certificate complexity, *Journal of Computer and System Sciences* 74(3):313–322, 2008. Conference version in *Proceedings of IEEE Conference on Computational Complexity*, pp. 171–178, 2003.
- S. Aaronson, S. Beigi, A. Drucker, B. Fefferman, and P. Shor. The power of unentanglement, *Theory of Computing* 5(1):1–42, 2009. Conference version in *Proceedings of IEEE Conference on Computational Complexity*, pp. 223–236, 2008.
- N. Harrigan, T. Rudolph, and S. Aaronson. Representing probabilistic data via ontological models, submitted, 2009.
- S. Aaronson. On perfect completeness for QMA, *Quantum Information and Computation (QIC)* 9:81–89, 2009.
- S. Aaronson and J. Watrous. Closed timelike curves make classical and quantum computing equivalent, *Proceedings of the Royal Society A*, 465:631–647, 2009.
- S. Aaronson and A. Wigderson. Algebrization: A new barrier in complexity theory, *ACM Transactions on Computing Theory* (inaugural paper), 1(1):2, 2009. Conference version in *Proceedings of ACM STOC*, pp. 731–740, 2008.
- S. Aaronson. Quantum copy-protection and quantum money, *Proceedings of IEEE Conference on Computational Complexity*, pp. 229–242, 2009.
- A. Lutomirski, S. Aaronson, E. Farhi, D. Gosset, A. Hassidim, J. Kelner, and P. Shor. Breaking and making quantum money: toward a new quantum cryptographic protocol, *Proceedings of Innovations in Computer Science (ICS)*, pp. 20–31, 2010.
- S. Aaronson and A. Drucker. A full characterization of quantum advice, *SIAM Journal on Computing* 43(3):1131–1183, 2014. Conference version in *Proceedings of ACM STOC*, pp. 131–140, 2010.
- S. Aaronson. BQP and the polynomial hierarchy, *Proceedings of ACM STOC*, pp. 141–150, 2010.
- S. Aaronson, F. Le Gall, A. Russell, and S. Tani. The one-way communication complexity of group membership, *Chicago Journal of Theoretical Computer Science* Article 6, 2011.

- S. Aaronson and D. van Melkebeek. On circuit lower bounds from derandomization, *Theory of Computing* 7(1):177–184, 2011.
- S. Aaronson and A. Ambainis. The need for structure in quantum speedups, *Theory of Computing* 10:133–166, 2014. Conference version in *Proceedings of Innovations in Computer Science (ICS)*, pp. 338–352, 2011.
- S. Aaronson and A. Arkhipov. The computational complexity of linear optics, *Theory of Computing* 4:143–252, 2013. Conference version in *Proceedings of ACM STOC*, pp. 333–342, 2011.
- S. Aaronson. The equivalence of sampling and searching, *Theory of Computing Systems* 55(2):281–298, 2014. Conference version in *Proceedings of Computer Science in Russia (CSR)*, pp. 1–14, 2011.
- S. Aaronson and A. Drucker. Advice coins for classical and quantum computation, *Proceedings of ICALP*, pp. 61–72, 2011.
- S. Aaronson. A linear-optical proof that the permanent is $\#P$ -hard, *Proceedings of the Royal Society A*, 467:3393–3405, 2011.
- S. Aaronson. Impossibility of succinct quantum proofs for collision-freeness, *Quantum Information and Computation (QIC)* 12:21–28, 2012.
- S. Aaronson and P. Christiano. Quantum money from hidden subspaces, *Theory of Computing* 9(9):349–401, 2013. Conference version in *Proceedings of ACM STOC*, pp. 41–60, 2012.
- M. A. Broome, A. Fedrizzi, S. Rahimi-Keshari, J. Dove, S. Aaronson, T. Ralph, and A. G. White. Photonic boson sampling in a tunable circuit, *Science* 339(6121):794–798, February 2013.
- S. Aaronson, A. Bouland, L. Chua, and G. Lowther. Psi-epistemic theories: The role of symmetry, *Physical Review A* 88:032111, 2013.
- S. Aaronson and T. Hance. Generalizing and derandomizing Gurvits’s approximation algorithm for the permanent, *Quantum Information and Computation*, 14(7-8):541–559, 2014.
- A. Bouland and S. Aaronson. Generation of universal linear optics by any beam splitter, *Physical Review A* 89:062316, 2014.
- S. Aaronson, R. Impagliazzo, and D. Moshkovitz. AM with multiple Merlins, *Proceedings of IEEE Conference on Computational Complexity*, pp. 44–55, 2014.
- S. Aaronson, A. Ambainis, K. Balodis, and M. Bavarian. Weak parity, *Proceedings of ICALP*, pp. 26–38, 2014.
- S. Aaronson and A. Arkhipov. BosonSampling is far from uniform, *Quantum Information and Computation*, 14(15-16):1383–1423, 2014.
- J. Barry, D. Barry, and S. Aaronson. Quantum POMDPs, *Physical Review A* 90:032311, 2014.
- S. Aaronson and H. Nguyen. Near invariance of the hypercube, *Israel Journal of Mathematics* 212(1):385–417, 2016.

- S. Aaronson, S. Carroll, V. Mohan, L. Ouellette, and B. Werness. Quantifying the rise and fall of complexity in closed systems: the coffee automaton, under revision.
- S. Aaronson and A. Ambainis. Forrelation: A problem that optimally separates quantum from classical computing, *SIAM Journal on Computing* 47(3):982–1038, 2018. Conference version in *Proceedings of ACM STOC*, pp. 307–316, 2015.
- R. Gross and S. Aaronson. Bounding the seed length of Miller and Shi’s unbounded randomness expansion protocol, arXiv:1410.8019.
- S. Aaronson, A. Bouland, J. Fitzsimons, and M. Lee. The space “just above” BQP, *Proceedings of Conference on Innovations in Theoretical Computer Science (ITCS)*, pp. 271–280, 2016.
- S. Aaronson, D. Grier, and L. Schaefer. The classification of reversible bit operations, *Proceedings of Conference on Innovations in Theoretical Computer Science (ITCS)*, 2017.
- A. Nayebi, S. Aaronson, A. Belovs, and L. Trevisan. Quantum lower bound for inverting a permutation with advice, *Quantum Information & Computation* 15(11–12):901–913, 2015.
- Z. Liu, C. Perry, Y. Zhu, D. Koh, and S. Aaronson. Doubly infinite separation of quantum information and communication, *Phys. Rev. A* 93:012347, 2016.
- S. Aaronson and D. J. Brod. BosonSampling with lost photons, *Phys. Rev. A* 93:012335, 2016.
- S. Aaronson, S. Ben-David, and R. Kothari. Separations in query complexity using cheat sheets, *Proceedings of ACM STOC*, 2016.
- S. Aaronson, A. Ambainis, J. Iraids, M. Kokainis, and J. Smotrovs. Polynomials, quantum query complexity, and Grothendieck’s inequality, *Proceedings of Conference on Computational Complexity*, 2016.
- S. Aaronson and S. Ben-David. Sculpting quantum speedups, *Proceedings of Conference on Computational Complexity*, 2016.
- A. Yedidia and S. Aaronson. A relatively small Turing machine whose behavior is independent of set theory, *Complex Systems* 25(4), 2016.
- E. Demaine, F. Ma, A. Schvartzman, E. Waingarten, and S. Aaronson. The fewest clues problem, *Proceedings of International Conference on Fun with Algorithms (FUN)*, 2016.
- N. Roquet, A. P. Soleimany, A. C. Ferris, S. Aaronson, and T. K. Lu. Synthetic recombinase-based state machines in living cells, *Science* 353(6297), 2016.
- S. Aaronson, A. Bouland, G. Kuperberg, and S. Mehraban. The computational complexity of ball permutations, *Proceedings of ACM STOC*, 2017.
- S. Aaronson and L. Chen. Complexity-theoretic foundations of quantum supremacy experiments, *Proceedings of Conference on Computational Complexity*, 2017.
- S. Aaronson. Shadow tomography of quantum states, *Proceedings of ACM STOC*, pp. 325–338, 2018.
- S. Aaronson. PDQP/qpoly=ALL, *Quantum Information & Computation* 18(11&12):901–909, 2018.

- S. Aaronson, X. Chen, E. Hazan, S. Kale, and A. Nayak. Online learning of quantum states, *NIPS* 2018.
- A. Rocchetto, S. Aaronson, S. Severini, G. Carvacho, D. Poderini, I. Agresti, M. Bentivegna, and F. Sciarrino. Experimental learning of quantum states, CoRR abs/1712.00127.
- S. Aaronson, A. Cojocaru, A. Gheorghiu, and E. Kashefi. On the implausibility of classical client blind quantum computing, arXiv:1704.08482.
- S. Aaronson. Quantum lower bound for approximate counting via Laurent polynomials, arXiv:1808.02420.
- S. Aaronson, R. Kothari, W. Kretschmer, and J. Thaler. Quantum lower bounds for approximate counting via Laurent polynomials, *Proceedings of Conference on Computational Complexity (CCC)*, pp. 7:1-7:47, 2020.
- S. Aaronson, D. Grier, and L. Schaeffer. A quantum query complexity trichotomy for regular languages, *Proceedings of IEEE FOCS*, pp. 942-965, 2019.
- S. Aaronson and G. N. Rothblum. Gentle measurement of quantum states and differential privacy, *Proceedings of ACM STOC*, pp. 322-333, 2019.
- S. Aaronson and P. Rall. Quantum approximate counting, simplified, *Proceedings of SOSA@SODA2020*, pp. 24-32, 2020.
- S. Aaronson and S. Gunn. On the classical hardness of spoofing linear cross-entropy benchmarking, *Theory of Computing* 16(11):1–8, 2020.
- S. Aaronson, N.-H. Chia, H.-H. Lin, C. Wang, and R. Zhang. On the quantum complexity of closest pair and related problems, *Proceedings of Conference on Computational Complexity (CCC)*, pp. 16:1-16:43, 2020.
- S. Aaronson, J. Liu, Q. Liu, M. Zhandry, and R. Zhang. New approaches for quantum copy-protection, *Proceedings of CRYPTO*, pp. 526-555, 2021.
- S. Aaronson, S. Ben-David, R. Kothari, S. Rao, and A. Tal. Degree vs. approximate degree and quantum implications of Huang’s sensitivity theorem, *Proceedings of ACM STOC*, pp. 863-876, 2021.
- E. Yolcu, S. Aaronson, and M. Heule. An automated approach to the Collatz conjecture, *Proceedings of 28th International Conference on Automated Deduction (CADE)*, pp. 468-484, 2021.
- S. Aaronson, D. Ingram, and W. Kretschmer. The acrobatics of BQP, *Proceedings of Computational Complexity Conference (CCC)*, pp. 1-17, 2022.
- S. Aaronson and S. Grewal. Efficient tomography of non-interacting fermion states, *Proceedings of 18th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC)*, 2023.
- S. Aaronson and S. Hung. Certified randomness from quantum supremacy, *Proceedings of ACM STOC*, pp. 933-944, 2023.
- W. Gong and S. Aaronson. Learning distributions over quantum measurement outcomes, *Proceedings of International Conference on Machine Learning (ICML)*, pp. 11598-11613, 2023.

- S. Aaronson and J. Pollack. Discrete bulk reconstruction, *Journal of High Energy Physics* 37, 2023.
- G. Marcus, E. Davis, and S. Aaronson. A very preliminary analysis of DALL-E 2, arXiv:2204.13807.
- S. Aaronson, Y. Atia, and L. Susskind. On the hardness of detecting macroscopic superpositions, arXiv:2009.07450.
- S. Aaronson, H. Buhrman, and W. Kretschmer. A qubit, a coin, and an advice string walk into a relational problem, *Innovations in Theoretical Computer Science (ITCS)*, ECCV TR23-015, 2024.
- S. Aaronson, A. Bouland, B. Fefferman, S. Ghosh, U. Vazirani, C. Zhang, and Z. Zhou. Quantum pseudoentanglement, *Innovations in Theoretical Computer Science (ITCS)*, arXiv:2211.00747, 2024.
- S. Aaronson and S. Grewal and V. Iyer and S. C. Marshall and R. Ramachandran. PDQMA = DQMA = NEXP: QMA with hidden variables and non-collapsing measurements, arXiv:2403.02543, 2024.
- S. Aaronson and Y. Zhang. On verifiable quantum advantage with peaked circuit sampling, arXiv:2404.14493, 2024.
- S. Aaronson, M. Bavarian, T. Cubitt, S. Grewal, G. Gueltrini, R. O'Donnell, and M. Raat. Computability theory of closed timelike curves, arXiv:1609.05507, 2024.
- S. C. Marshall, S. Aaronson, and V. Dunjko. Improved separation between quantum and classical computers for sampling and functional tasks, arXiv:2410.20935, 2024.
- M. Liu, R. Shaydulin, P. Niroula, M. DeCross, S.-H. Hung, W. Y. Kon, E. Cervero-Martín, K. Chakraborty, O. Amer, S. Aaronson, A. Acharya, Y. Alexeev, K. J. Berg, S. Chakrabarti, F. J. Curchod, J. M. Dreiling, N. Erickson, C. Foltz, M. Foss-Feig, D. Hayes, T. S. Humble, N. Kumar, J. Larson, D. Lykov, M. Mills, S. A. Moses, B. Neyenhuis, S. Eloul, P. Siegfried, J. Walker, C. Lim, and M. Pistoia. Certified randomness using a trapped-ion quantum processor, *Nature*, March 26, 2025. arXiv:2503.20498.
- W. Kretschmer, S. Grewal, M. DeCross, J. A. Gerber, K. Gilmore, D. Gresh, N. Hunter-Jones, K. Mayer, B. Neyenhuis, D. Hayes, and S. Aaronson. Demonstrating an unconditional separation between quantum and classical information resources, submitted, 2025. arXiv:2509.07255.
- S. Aaronson and F. Witteveen. Limits to black-box amplification in QMA, submitted, 2025. arXiv:2509.21131.
- S. Aaronson, A. Natarajan, A. Tal, and A. Villanyi. A relativizing MIP for BQP, submitted, 2026. arXiv:2604.11952.
- S. Aaronson, L.-L. Lee, and J. Li. Sparsity and Out-of-Distribution Generalization, submitted, 2026. arXiv:2603.07388.
- J. Dunbar and S. Aaronson. Wide Neural Networks as a Baseline for the Computational No-Coincidence Conjecture, submitted, 2025. arXiv:2510.06527.

Books

- S. Aaronson. *Quantum Computing Since Democritus*, Cambridge University Press, 2013.

Expository Writing and Reviews

- S. Aaronson. Book review on *A New Kind of Science* by Stephen Wolfram, *Quantum Information and Computation (QIC)*, September 2002.
- S. Aaronson. Is P versus NP formally independent?, Computational Complexity Column, *Bulletin of the EATCS* 81, October 2003.
- S. Aaronson. NP-complete problems and physical reality, *ACM SIGACT News Complexity Theory Column*, March 2005.
- S. Aaronson. Review of *The Access Principle* by John Willinsky, *ACM SIGACT News* 38(4):19–23, 2007.
- S. Aaronson. The limits of quantum computers, *Scientific American*, March 2008.
- S. Aaronson. Why quantum chemistry is hard, *Nature Physics News & Views*, 5(10):707-708, 2009.
- S. Aaronson. QIP=PSPACE breakthrough (technical perspective), *Communications of the ACM*, 53(12):101, 2010.
- S. Aaronson. Quantum computing promises new insights, not just supermachines, *The New York Times*, December 5, 2011.
- S. Aaronson, E. Farhi, D. Gosset, A. Hassidim, J. Kelner, and A. Lutomirski. Quantum money, *Communications of the ACM* 55(8):84–92, August 2012.
- S. Aaronson. Why philosophers should care about computational complexity, in *Computability: Gödel, Turing, Church, and Beyond*, edited by B. J. Copeland, C. Posy, and O. Shagrir, MIT Press, 2013.
- S. Aaronson. The ghost in the quantum Turing machine, in *The Once and Future Turing*, edited by S. Barry Cooper and Andrew Hodges, Cambridge University Press, 2016.
- S. Aaronson. Read the fine print, *Nature Physics* 11:291–293, 2015.
- S. Aaronson. The complexity of quantum states and transformations: from quantum money to black holes, Barbados Lecture Notes, 2016.
- S. Aaronson. $P \stackrel{?}{=} NP$, in *Open Problems in Mathematics*, edited by John Nash and Michail Rassias, Springer, 2016.
- S. Aaronson. The Busy Beaver frontier, *SIGACT News* 51(3):31-55, 2020.
- S. Aaronson. Open problems related to quantum query complexity, *ACM Transactions on Quantum Computing* 2(4):1-9, 2021.
- S. Aaronson. How much structure is needed for huge quantum speedups?, *Proceedings of the 28th Solway Conference*, 2022.

Teaching

- “Physics, Philosophy, Pizza” (with Allison Coates), UC Berkeley, Spring 2002.
- “Quantum Computing Since Democritus,” University of Waterloo, Fall 2006.
- 6.080/6.089 Great Ideas in Theoretical Computer Science, MIT, Spring 2008.
- 6.896 Quantum Complexity Theory, MIT, Fall 2008.
- 6.045 Automata, Computability, and Complexity Theory (with Nancy Lynch), MIT, Spring 2009.
- 6.045 Automata, Computability, and Complexity Theory (with Nancy Lynch), MIT, Spring 2010.
- 6.845 Quantum Complexity Theory, MIT, Fall 2010.
- 6.045 Automata, Computability, and Complexity Theory, MIT, Spring 2011.
- 6.893 Philosophy and Theoretical Computer Science, MIT, Fall 2011.
- 6.045 Automata, Computability, and Complexity Theory, MIT, Spring 2012.
- 6.845 Quantum Complexity Theory, MIT, Fall 2012.
- 6.045 Automata, Computability, and Complexity Theory, MIT, Spring 2013.
- 6.845 Quantum Complexity Theory, MIT, Fall 2014.
- 6.045 Automata, Computability, and Complexity Theory, MIT, Spring 2015.
- 6.S899 Seminar on Computation and Physics, MIT, Fall 2015.
- 6.045 Automata, Computability, and Complexity Theory, MIT, Spring 2016.
- CS395T Quantum and Classical Complexity Theory, UT Austin, Fall 2016.
- CS378 Introduction to Quantum Information Science, UT Austin, Spring 2017.
- CS378 Introduction to Quantum Information Science, UT Austin, Fall 2018.
- CS395T Quantum Complexity Theory, UT Austin, Spring 2019.
- CS378 Introduction to Quantum Information Science, UT Austin, Fall 2019.
- CS358H Introduction to Quantum Information Science, UT Austin, Fall 2020.
- CS395T Quantum Complexity Theory, UT Austin, Spring 2021.
- CS358H Introduction to Quantum Information Science, UT Austin, Fall 2021.
- CS378 Introduction to Quantum Information Science II, UT Austin, Spring 2022.
- CS358H Introduction to Quantum Information Science, UT Austin, Fall 2024.
- CS395T Quantum Complexity Theory, UT Austin, Spring 2025.
- CS358H Introduction to Quantum Information Science, UT Austin, Fall 2025.
- CS378 Introduction to Quantum Information Science II, UT Austin, Spring 2026.

Students and Postdocs

- **PhD students:** Andrew Drucker (MIT, 2008–2012), Michael Forbes (MIT, 2009–2014, co-advised with Amir Shpilka), Aleksandr Arkhipov (MIT, 2010–2017), Adam Bouland (MIT, 2011–2017), Shalev Ben-David (MIT, 2012–2017), Luke Schaeffer (MIT, 2013–2019), Daniel Grier (MIT, 2013–2019), Saeed Mehraban (MIT, 2014–2019), Patrick Rall (UT, 2016–2021), Daniel Liang (UT, 2017–2023), Jiahui Liu (UT, 2018–2023), William Kretschmer (UT, 2018–2023), Yuxuan Zhang (UT, 2019–2023, co-advised with Andrew Potter), Justin Yirka (UT, 2019–2025), Niels Kornerup (UT, 2020–2025, co-advised with David Soloveichik).
- **Postdoctoral fellows:** Thomas Vidick (MIT, 2011–2013), Alexander Belov (MIT, 2014–2015), Thomas Wong (UT, 2016–2017), Zak Webb (UT, 2016–2017), Supartha Podder (UT, 2016–2017), Chunhao Wang (UT, 2018–2020), Nai-Hui Chia (UT, 2018–2020), Han-Hsuan Lin (UT, 2018–2020), Yosi Atia (UT, 2019–2021), Andrea Rocchetto (UT, 2019–2021), Jason Pollack (UT, 2020–2023), Shih-Han Hung (UT, 2021–2023), Minki Hhan (UT, 2024–2026).
- **Postdoctoral fellows jointly supervised with quantum information group:** Avinatan Hassidim (2008–2010), Xiaodi Wu (2013–2015), Lior Eldar (2014–2016), Robin Kothari (2014–2016).

Professional Service

- Creator of the Complexity Zoo (www.complexityzoo.com), an online encyclopedia of over 500 complexity classes.
- Program committee, IEEE Conference on Computational Complexity (CCC) 2005.
- Program committee, ACM Symposium on Theory of Computing (STOC) 2006.
- Program committee, Asian Conference on Quantum Information Science (AQIS) 2007.
- Program committee, Quantum Information Processing (QIP) 2007.
- Program committee, IEEE Conference on Foundations of Computer Science (FOCS) 2008.
- Conference committee (elected member), Conference on Computational Complexity (CCC), 2008–2011.
- Program committee, Quantum Information Processing (QIP) 2009.
- Program committee, IEEE Conference on Foundations of Computer Science (FOCS) 2010.
- Program committee, Innovations in Computer Science (ICS) 2011.
- Program committee, IEEE Conference on Foundations of Computer Science (FOCS) 2014.
- Program committee, Quantum Information Processing (QIP) 2016.
- Program committee, Innovations in Theoretical Computer Science (ITCS) 2017.
- Program committee, Innovations in Theoretical Computer Science (ITCS) 2019.
- Program committee, Conference on Computational Complexity (CCC) 2024.

- Program committee, Conference on Computational Complexity (CCC) 2026.
- Scientific advisory board, Quanta Magazine, 2022-present.