Jordan Cotler

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Academic Positions

- **Harvard University, Cambridge, Massachusetts** (2020-present)

  Assistant Professor (2024-present)

  Junior Fellow at the Society of Fellows (2020-2024)

  Fellow at the Black Hole Initiative (2021-2022)

Education

- **Stanford University, Stanford, California** (2015-2020)

  PhD in Physics

  Fannie and John Hertz Fellowship

  Stanford Graduate Fellowship

- **Massachusetts Institute of Technology, Cambridge, Massachusetts** (2012-2015)

  Bachelor of Science in Physics and Mathematics

  GPA: 5.0/5.0

Grant Funding

- **Co-Principal Investigator for Simons Collaboration on Celestial Holography** (2023-present)

  Member of Executive Committee for $8 million dollar multi-institution, 5-year grant on quantum gravity research

Publications

Publications can also be found on **arXiv** and **Google Scholar**.

1. Arindam Bhattacharya, Jordan Cotler, Aurélien Dersy, and Matthew D. Schwartz. "The Collective Coordinate Fix." arXiv:2402.18633

2. Rahul Sahay, Mikhail D. Lukin, and Jordan Cotler. "Emergent forces in holographic tensor networks." arXiv:2401.13595

3. Jordan Cotler and Kristan Jensen. "Non-perturbative de Sitter Jackiw-Teitelboim gravity." arXiv:2401.01925

4. Julian Chaidez, Jordan Cotler, and Shawn X. Cui. "Combed Trisections Diagrams and Non-Semisimple 4-Manifold Invariants." arXiv:2309.08461

5. Jordan Cotler and Semon Rezchikov. "Renormalizing Diffusion Models." arXiv:2308.12355

6. Jordan Cotler, Kai-Sheng Tai, Felipe Hernandez, Blake Elias, David Sussillo. "Analyzing Populations of Neural Networks via Dynamical Model Embedding." arXiv:2302.14078

7. Jordan Cotler and Kristan Jensen. "Isometric evolution in de Sitter quantum gravity," *Physical Review Letters* 131, 211601. arXiv:2302.06603

8. Jordan Cotler, Noah Miller, Andrew Strominger. "An Integer Basis for Celestial Amplitudes." *Journal of High Energy Physics* 2023.192 (2023). arXiv:2302.04905

9. Jordan Cotler and Andrew Strominger. "Cosmic ER = EPR in dS/CFT." arXiv:2302.00632

10. Katherine Van Kirk, Jordan Cotler, Hsin-Yuan Huang, Mikhail D. Lukin. "Hardware-efficient learning of quantum many-body states." arXiv:2212.06084

11. Jordan Cotler and Annie Y. Wei. "Quantum Scars in Quantum Field Theory," *Physical Review D* 107, 125005. arXiv:2212.01637

12. Sitan Chen, Jordan Cotler, Hsin-Yuan Huang, and Jerry Li. "The Complexity of NISQ," *Nature Communications* 14, 6001. arXiv:2210.07234

13. Jordan Cotler, Thomas Schuster, and Masoud Mohseni. "Information-theoretic Hardness of Out-of-time-order Correlators." *Physical Review A* 108, 062608. arXiv:2208.02256

14. Thomas Schuster, Murphy Niu, Jordan Cotler, et al. "Learning quantum systems via out-of-time-order correlators." *Physical Review Research* 5, 043284. arXiv:2208.02254

15. Jordan Cotler. "Steps Toward Quantum Gravity in a Realistic Cosmos." *Physics* 15 (2022): 107. (Online July 18, 2022).

16. Jordan Cotler and Kristan Jensen. "A precision test of averaging in AdS/CFT," *Journal of High Energy Physics* 2022.11 (2022). arXiv:2205.12968

17. Jordan Cotler and Semon Rezchikov. "Renormalization Group Flow as Optimal Transport," *Physical Review D* 108, 025003 (2023) (*Editor's suggestion*). arXiv:2202.11737

18. Jordan Cotler and Andrew Strominger. "The Universe as a Quantum Encoder." arXiv:2201.11658

19. Jordan Cotler, Hsin-Yuan Huang, and Jarrod McClean. "Revisiting dequantization and quantum advantage in learning tasks." arXiv:2112.00811

20. Hsin-Yuan Huang, Michael Broughton, Jordan Cotler et al. "Quantum advantage in learning from experiments." *Science* 376.6598 (2022): 1182-1186. arXiv:2112.00778

21. Sitan Chen, Jordan Cotler, Hsin-Yuan Huang, and Jerry Li. "A Hierarchy for Replica Quantum Advantage." arXiv:2111.05874

22. Sitan Chen, Jordan Cotler, Hsin-Yuan Huang, and Jerry Li. "Exponential Separations Between Learning With and Without Quantum Memory." Accepted to *SIAM Journal of Computing Special Issue on FOCS 2021*. arXiv:2111.05881

23. Jordan Cotler. "What the World Looks Like Upside Down." Invited article for *Frank Wilczek: 50 Years of Theoretical Physics*, World Scientific (2022).

24. Jordan Cotler and Kristan Jensen. "Wormholes and black hole microstates in AdS/CFT," *Journal of High Energy Physics* 2021.9. arXiv:2104.00601

25. Jordan S. Cotler, Daniel K. Mark, Hsin-Yuan Huang, et al. "Emergent quantum state designs from individual many-body wavefunctions," *Physical Review X Quantum* 4.1 (2023): 010311. arXiv:2103.03536

26. Joonhee Choi, Adam L. Shaw, Ivaylo S. Madjarov, Xin Xie, Jacob P. Covey, Jordan S. Cotler, et al. "Preparing random states and benchmarking with many-body quantum chaos," *Nature* 613.7944 (2023): 468-473. arXiv:2103.03535

27. Lu-Chuan Liu, Luo-Yuan Qu, Cheng Wu, Jordan S. Cotler, et al. "Improved Spatial Resolution Achieved by Chromatic Intensity Interferometry," *Physical Review Letters* 127, 103601. arXiv:2102.02060

28. Dorit Aharonov, Jordan S. Cotler, Xiao-Liang Qi. "Quantum Algorithmic Measurement," *Nature Communications* 13, 887. arXiv:2101.04634

29. Jordan S. Cotler, Nicholas Hunter-Jones, and Daniel Ranard. "Fluctuations of subsystem entropies at late times," *Physical Review A* 105, 022416. arXiv:2010.11922

30. Jordan S. Cotler and Kristan Jensen. "Gravitational Constrained Instantons," *Physical Review D* 104, L081501 (*Editor's suggestion*). arXiv:2010.02241

31. Luo-Yuan Qu, Lu-Chuan Liu, Jordan S. Cotler, et al. "Chromatic interferometry with small frequency differences," *Optics Express* 28 (22). arXiv:2009.08217

32. Jordan S. Cotler and Kristan Jensen. "AdS_3 wormholes from a modular bootstrap," *Journal of High Energy Physics* 2020:58. arXiv:2007.15653

33. Jordan S. Cotler and Kristan Jensen. "AdS_3 gravity and random CFT," *Journal of High Energy Physics* 2021.4. arXiv:2006.08648

34. Jordan S. Cotler and Kristan Jensen. "Emergent unitarity in de Sitter from matrix integrals," *Journal of High Energy Physics* 12(2021)089. arXiv:1911.12358

35. Jordan S. Cotler and Nicholas Hunter-Jones. "Spectral Decoupling and Quantum Many-body Chaos," *Journal of High Energy Physics* 2020.12. arXiv:1911.02026

36. Julian C. Chaidez, Jordan S. Cotler, and Shawn X. Cui. "Invariants of 4-manifolds from Hopf Algebras," *Algebraic & Geometric Topology* 22.8 (2023). arXiv:1910.14662

37. Jordan S. Cotler and Frank A. Wilczek. "Quantum Overlapping Tomography," *Physical Review Letters* 124, 100401. arXiv:1908.02754

38. Jordan S. Cotler, Kristan Jensen, Alexander Maloney. "Low-dimensional de Sitter quantum gravity," *Journal of High Energy Physics* 2020:48. arXiv:1905.03780

39. Luo-Yuan Qu, Jordan S. Cotler, et al. "Color Erasure Detectors Enable Chromatic Interferometry," *Physical Review Letters* 123, 243601. arXiv:1905.01823

40. Jordan S. Cotler, et al. "Quantum Virtual Cooling," *Physical Review X* 9, 03101. arXiv:1812.02175

41. Jordan S. Cotler, et al. "Quantum Causal Influence," *Journal of High Energy Physics* 2019:42. arXiv:1811.05485

42. Jordan S. Cotler and Kristan Jensen. "A Theory of Reparameterizations in AdS_3," *Journal of High Energy Physics* 2019:79. arXiv:1808.03263

43. Jordan S. Cotler, et al. "Entanglement Renormalization for Weakly Interacting Fields," *Physical Review D* 99, (2019). arXiv:1806.02835

44. Jordan S. Cotler, et al. "Renormalization Group Circuits for Weakly Interacting Continuum Field Theories," *Fortschritte der Physik* 2019, 1900038. arXiv:1806.02831

45. Jordan S. Cotler, et al. "Superdensity Operators for Spacetime Quantum Mechanics," *Journal of High Energy Physics* 2018.9: 93. arXiv:1711.03119

46. Jutho Haegeman, Brian Swingle, Michael Walter, Jordan Cotler, Glen Evenbly and Volkher Scholz. "Rigorous free fermion entanglement renormalization from wavelet theory," *Physical Review X* 8.1, (2017). arXiv:1707.06243

47. Jordan S. Cotler, et al., "Chaos, Complexity and Random Matrices," *Journal of High Energy Physics* 2017:11: 48. arXiv:1706.05400

48. Jordan S. Cotler, et al., "Entanglement Wedge Reconstruction via Universal Recovery Channels," *Physical Review X* 9, (2019). arXiv:1704.05839

49. Jordan S. Cotler, Geoffrey R. Penington and Daniel H. Ranard, "Locality from the Spectrum," Communications in Mathematical Physics 368.3 (2019). arXiv:1702.06142

50. Jordan S. Cotler, Geoffrey R. Penington and David Ding, "Out-of-time-order Operators and the Butterfly Effect," *Annals of Physics* Vol. 396, pp. 318-333. arXiv:1704.02979

51. Jordan S. Cotler and Frank A. Wilczek, "Temporal Observables and Entangled Histories," arXiv:1702.05838

52. Jordan S. Cotler, Javier Molina-Vilaplana, and Mark T. Mueller, "A Gaussian Variational Approach to cMERA for Interacting Fields." arXiv:1612.02427

53. Jordan S. Cotler, et al., "Black Holes and Random Matrices," *Journal of High Energy Physics* 2017.5: 118. arXiv:1611.04650

54. Jordan S. Cotler, et al., "Entanglement Growth after a Global Quench in Free Scalar Field Theory," *Journal of High Energy Physics* 2016.11: 166. arXiv:1609.00872

55. Jordan S. Cotler, Frank A. Wilczek, and Victoria Borish, "Entanglement Enabled Intensity Interferometry with Different Wavelengths of Light," *Annals of Physics* 168346, 2020. arXiv:1607.02943

56. Jordan S. Cotler, et al., "Experimental Test of Entangled Histories," *Annals of Physics* Vol. 387, pp. 334-347. arXiv:1601.02943

57. Jordan S. Cotler and Mark T. Mueller, "Entanglement Entropy of the Gross-Neveu Model." arXiv:1512.00023

58. Jordan S. Cotler and Mark T. Mueller, "Entanglement Entropy and Variational Methods: Interacting Scalar Fields," *Annals of Physics* Vol. 365, pp. 91-117. arXiv:1509.05685

59. Jordan S. Cotler and Frank A. Wilczek, "Bell Tests for Histories." arXiv:1503.06458

60. Jordan S. Cotler and Frank A. Wilczek, "Entanglement Enabled Intensity Interferometry." arXiv:1502.02477

61. Jordan S. Cotler and Frank A. Wilczek, "Entangled Histories," *Proceedings of Nobel Symposium* 156. arXiv:1502.02480

62. Jordan S. Cotler and Peter W. Shor, "A New Relativistic Orthogonal States Quantum Key Distribution Protocol," *Journal of Quantum Information and Computation*, Vol. 14, No. 13 & 14, pp. 1081-88. arXiv:1401.5493

63. Jordan S. Cotler and Felipe B. Hernandez, "Resolution of a Conjecture in Nonlocal Strain-gradient Plasticity." arXiv:1310.3426

64. Jordan S. Cotler, "Einstein Can Rest Relatively Easy," *U.S News & World Report* (March 20, 2012 issue).

Invited Talks

- Stanford Institute for Theoretical Physics "It from Qubit" Seminar: "Renormalizing Diffusion Models." (May 2024)
- Seminar for InQubator for Quantum Simulation at the University of Washington: "Emergent Holographic Forces from Quantum Circuits and Criticality." (May 2024)
- Cambridge Cosmology Journal Club, Cambridge University: "Isometric Evolution in de Sitter quantum gravity." (April 2024)
- Colloquium in Applied Mathematics at the Fields Institute, Toronto: "Renormalization Group Flow, Optimal Transport, and Diffusion Models." (March 2024)
- Special seminar, Princeton University: "Quantum Spacetime from a Distance." (February 2024)
- Special seminar, Harvard University: "Exploring New Scientific Frontiers with Quantum Computation and Quantum Information." (January 2024)
- Physics Seminar, Crete Center for Theoretical Physics: "Renormalizing Diffusion Models." (November 2023)
- QMAP (Center for Quantum Mathematics and Physics) seminar, University of California, Davis: "Non-perturbative de Sitter Jackiw-Teitelboim gravity." (November 2023)
- Kickoff Workshop for Simons Collaboration on Celestial Holography, Harvard Universty: "Revisiting de Sitter holography." (October 2023)
- High Energy Theory Seminar, University of Michigan: "Non-perturbative de Sitter Jackiw-Teitelboim gravity." (October 2023)
- Cosmology, Quantum Gravity, and Holography: the Interplay of Fundamental Concepts; workshop at CERN: "Non-perturbative de Sitter Jackiw-Teitelboim gravity." (September 2023)

- High Energy Theory Group Meeting, McGill University: "Isometric evolution in de Sitter quantum gravity." (May 2023)
- Gauge Theories and Gravity Virtual Seminar, IIT Madras: "Isometric evolution in de Sitter quantum gravity." (April 2023)
- Guest lecture at Harvard for Physics 218 (Quantum Chaos and Localization): "Decoherence and Quantum Chaos." (April 2023)
- Cook's Branch Workshop, Houston, Texas: "Wormholes and Random Matrix Theory." (April 2023)
- High Energy Theory Seminar, University of Kentucky: "Isometric evolution in de Sitter quantum gravity." (March 2023)
- BCTP (Berkeley Center for Theoretical Physics) String Seminar, University of California, Berkeley: "Isometric evolution in de Sitter quantum gravity." (March 2023)
- Invited talk for APS March Meeting, Las Vegas: "The Complexity of NISQ." (March 2023)
- High Energy Theory Seminar, Institute for Advanced Study: "Isometric evolution in de Sitter quantum gravity." (February 2023)
- High Energy Theory Seminar, Columbia University: "Isometric evolution in de Sitter quantum gravity." (February 2023)
- Quantum Gravity Seminar, Perimeter Institute: "Isometric evolution in de Sitter quantum gravity." (February 2023)
- Quantum Seminar, Arnold Sommerfeld Center for Theoretical Physics at the Ludwig Maximilian University of Munich: "Quantum Scars in Quantum Field Theory." (February 2023)
- High Energy Group, Brookhaven National Lab: "Quantum Scars in Quantum Field Theory." (January 2023)
- Condensed Matter Theory Seminar, Harvard University: "Quantum Scars in Quantum Field Theory." (September 2022)
- Holography 2022, Asia Pacific Center for Theoretical Physics, South Korea: "Black Hole Microstate Statistics and Mesoscopic Quantum Gravity." (August 2022)
- Quantum Summer Symposium, Google Quantum AI: "Quantum Learning for Quantum Chaos." (July 2022)
- Black Hole Initiative Colloquium, Harvard University: "Black Hole Microstate Statistics and Mesoscopic Quantum Gravity." (April 2022)
- Tufts/MIT Cosmology Seminar: "Unitarity in Expanding Cosmologies." (April 2022)
- Kadanoff Seminar, University of Chicago: "Renormalization Group Flow as Optimal Transport." (April 2022)
- Guest lectures at Harvard for Physics 210 (General Relativity): "Black Holes, Part I and Part II" (April 2022)

- Team-Net Quantum Computing Colloquium, Poland: "Quantum Complexity of Experiments." (April 2022)
- Quantum Matter in Mathematics and Physics Seminar, Center of Mathematical Sciences and Applications, Harvard University: "Renormalization Group Flow as Optimal Transport." (March 2022)
- Guest lecture at Harvard for Physics 218 (Quantum Chaos and Localization): "Quantum Chaos and Quantum Gravity." (March 2022)
- Quantum Information Processing 2022, Caltech: "Exponential Separations Between Learning With and Without Quantum Memory." (March 2022)
- Quantum Information Seminar, University of Texas, Austin: "The Universe as a Quantum Encoder." (February 2022)
- QuantISED Virtual Seminar, hosted by Brandeis: "Renormalization Group Flow as Optimal Transport." (February 2022)
- High Energy Theory Seminar, University of Pennsylvania: "Renormalization Group Flow as Optimal Transport." (February 2022)
- High Energy Theory Seminar, University of Kentucky: "Unitarity in Expanding Cosmologies." (February 2022)
- Quantum and Photonics Research Seminar, Cisco Systems: "Exponential Quantum Complexity Separations for Learning from Experiments." (January 2022)
- Quantum Information Group Meeting, Massachusetts Institute of Technology: "Exponential Quantum Complexity Separations for Learning from Experiments." (December 2021)
- Workshop on Quantum Information and Spacetime, Institute for Advanced Study: "Quantum Complexity of Experiments." (December 2021)
- Quantum/Gravity Seminar, Brandeis University: "Black hole microstate statistics from Euclidean wormholes" (November 2021)
- Theory Seminar, University of Colorado Boulder: "Quantum complexity of experiments" (October 2021)
- High Energy Theory Seminar, Boston University: "Black hole microstate statistics from Euclidean wormholes" (October 2021)
- Mathematical Picture Language Seminar, Harvard University: "Quantum-enhanced Learning Using a Quantum Memory" (October 2021)
- MIT String/Gravity Seminar: "Black hole microstate statistics from Euclidean wormholes" (September 2021)
- Quantum Wave in Computing Reunion Workshop, Simons Institute for the Theory of Computing, Berkeley, California: "Exponential Separations Between Learning With and Without Quantum Memory" (July 2021)

- Quantum Connections Workshop, Stockholm, Sweden: "Time in Quantum Mechanics: from Particles to Spacetimes" (June 2021)
- Nordic High Energy Theory Seminar: "Black hole microstate statistics from Euclidean wormholes" (June 2021)
- String Theory Journal Club, University of Oxford:"Black hole microstate statistics from Euclidean wormholes" (May 2021)
- High Energy Theory Seminar, University of California, Santa Barbara: "Black hole microstate statistics from Euclidean wormholes" (May 2021)
- Informal Theory Seminar, Cornell: "Quantum Algorithmic Measurement" (April 2021)
- Neve-Shalom Joint Seminar, Israel: "Black hole microstate statistics from Euclidean wormholes" (April 2021)
- Quantum Information Seminar, MIT: "Quantum Algorithmic Measurement" (April 2021)
- High Energy Theory Seminar, Princeton University: "Black hole microstate statistics from Euclidean wormholes" (March 2021)
- WINQ–AlbaNova Colloquium, Stockholm, Sweden: "From chromatic interferometry to a new paradigm for experimental physics" (February 2021)
- Quantum Information Processing 2021, Munich, Germany: "Quantum algorithmic measurement" (February 2021)
- High Energy Theory Seminar, Caltech: "New non-perturbative effects in the gravitational path integral" (January 2021)
- Balseiro Institute High Energy Seminar, Bariloche, Argentina: "Euclidean Wormholes and Gravitational Constrained Instantons" (November 2020)
- BCTP (Berkeley Center for Theoretical Physics) String Seminar, University of California, Berkeley: "Euclidean Wormholes and Gravitational Constrained Instantons" (November 2020)
- QMAP (Center for Quantum Mathematics and Physics) seminar, University of California, Davis: "Euclidean Wormholes and Gravitational Constrained Instantons" (October 2020)
- Quantum Matter in Mathematics and Physics Seminar, Center of Mathematical Sciences and Applications, Harvard University: "Constrained Gravitational Instantons and Random Matrix Theory" (September 2020)
- CERN Strings Seminar: "Euclidean Wormholes and Random CFT" (September 2020)
- It from Qubit Virtual Seminar: "AdS_3 and Random CFT" (June 2020)
- Kadanoff Seminar, University of Chicago: "Emergent unitarity in de Sitter from matrix integrals" (March 2020)
- Gauge Theories and Black Holes Workshop, Weizmann Institute, Rehovot, Israel: "Emergent unitarity in de Sitter from matrix integrals" (December 2019)

- BQIC (Berkeley Quantum Information & Computing Center) seminar, University of California, Berkeley: "Quantum Overlapping Tomography" (October 2019)
- String seminar, University of British Columbia: "Low-dimensional de Sitter quantum gravity and emergent unitarity" (October 2019)
- Applications of Random Matrix Theory to Many-Body Physics, Simons Center for Geometry and Physics, Stony Brook, New York: "Low-dimensional de Sitter quantum gravity and random matrix theory" (September 2019)
- LINQS Group Meeting, Stanford, California: "Quantum Overlapping Tomography" (September 2019)
- Quantum Connections Summer School, Lidingö, Sweden: "Entangled Measurements and Quantum Information in Spacetime" (June 2019), 4 hours of lectures
- Quantum Connections Workshop, Stockholm, Sweden: "de Sitter quantum gravity in low dimensions" (June 2019)
- Stanford Quantum Gravity and Quantum Information Group Meeting: "Low-dimensional de Sitter Quantum Gravity" (May 2019)
- Q-FARM Colloquium, Stanford, California: "Quantum Virtual Cooling" (March 2019)
- ASU Beyond Center Workshop, Tempe, Arizona: "Coadjoint Orbits and Quantum Gravity" (February 2019)
- Machine Learning and Physics Workshop, CUNY: "A Universal Jeffreys Prior" (November 2018)
- World Laureates Forum, Shanghai, China: "Color Blind Detectors" (October 2018)
- Random Matrices, Integrability, and Complex Systems Workshop, Yad Hashmona, Israel: "k–invariance, Symmetry, and Late-time Chaos" (October 2018)
- Quantum Information Seminar, IQOQI Vienna, "An Approach to Quantum Information in Spacetime" (July 2018)
- Quantum Connections Workshop, Stockholm, Sweden: "Superdensity Operators for Spacetime Quantum Mechanics" (June 2018)
- Quantum Connections Workshop, Stockholm, Sweden: "Tensor Networks for Continuum Field Theories" (June 2018)
- Condensed Matter Seminar, University of California Santa Cruz, "Dynamical Quantum Chaos and Random Matrix Theory" (April 2018)
- High Energy Physics Seminar, Perimeter Institute, "Renormalization Group Circuits for Weakly Interacting Continuum Field Theories" (March 2018)
- Progress in quantum collective phenomena workshop, Simons Center for Geometry and Physics, "Late-time dynamics and random matrix theory" (November 2017)
- Simons Center for Geometry and Physics Seminar: "Toward Emergent Time and Causality" (November 2017)

- Denmark Technical University Photonics Seminar: "Entanglement Enabled Intensity Interferometry" (July 2017)
- Quantum Connections Workshop, Stockholm, Sweden: "A Cookbook for Reality" (July 2017)
- Stanford Quantum Gravity and Quantum Information Group Meeting: "cMERA for Interacting Fields" (November 2016)
- Quantum Connections Workshop, Stockholm, Sweden: "Entanglement Enabled Intensity Interferometry" (June 2016)
- Stanford Atomic, Molecular and Optical Physics Group Meeting: "Entanglement Enabled Intensity Interferometry"(September 2015)
- Quantum Information Science Group Meeting, MIT: "Entanglement Enabled Intensity Interferometry" (February 2015)
- Center for Biological and Computational Learning, MIT: "Distinguishability in Invariant Representations Learning Theory" (November 2014)
- Quantum Information Science Group Meeting, MIT: "A New Relativistic Orthogonal States Quantum Key Distribution Protocol" (February 2014)
- Theoretical Computer Science Seminar, Boston University: "New Directions in Relativistic Quantum Cryptography" (January 2014)
- Guest lecture at MIT for 18.100C (Real Analysis): "Non-standard Analysis" (April 2013)

Professional Activities

Conference organization

- Co-organizer for "Kickoff Workshop for Simons Collaboration on Celestial Holography" (2023)
- Co-organizer for 5th Annual Black Hole Initiative Conference "Beyond the Horizon" (2022)

Journal and Conference Referee

- Nature journals (2019-present)
- Physical Review journals (2019-present)
- Journal of High Energy Physics (2018-present)
- Quantum Information Processing (QIP) conference (2017-present)
- Conference on Theory of Quantum Computation, Communication, and Cryptography (TQC) (2022-present)
- IEEE Symposium on Foundations of Computer Science (FOCS) (2022-present)
- Symposium on Theory of Computing (STOC) (2023-present)
- IEEE Transactions on Information Theory (2022-present)
- Cell journals (2022-present)

Awards

- 2020-present Junior Fellowship at the Harvard Society of Fellows
- 2015-2020 Fannie and John Hertz Fellowship
- 2015 Philip Morse Memorial Award (MIT)
- Tenth Place Winner of the 2012 Intel Science Talent Search