

Evan Coleman

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OVERVIEW

Evan Coleman is a research scientist at MIT, where he works on applying machine learning to problems in the physical sciences. His research has spanned a wide range of application areas including using reinforcement learning to optimize NMR spectroscopy, training large-scale masked auto-encoders on geospatial data, and building AI agents for scientific research. Prior to MIT he was a theoretical physicist at Stanford and Brown. His work has been recognized at venues such as ICML, AAAI, and the Journal of High Energy Physics.

EDUCATION

Stanford University, Stanford, CA

Ph.D. in Theoretical Physics

- Thesis: Finite-Volume Holography and the Cosmological Constant
- Advisor: Eva Silverstein

2018 – 2022

Brown University, Providence, RI

Sc.B. (Honors) in Mathematical Physics

- Magna Cum Laude, Sigma Xi, Top of Class (Physics)
- Cumulative GPA: 4.00 / 4.00
- Physics GRE: 970 / 990

2014 – 2018

EXPERIENCE

Massachusetts Institute of Technology (MIT), Research Scientist

2022 – Present

Postdoctoral Fellow then Research Scientist within the MIT Climate Project. Research in building physics-aware AI systems. Focus on reinforcement learning and machine learning methods applied to problems in material identification, mapping, and characterization.

Stanford Institute for Theoretical Physics, NSF Graduate Research Fellow

2018 – 2022

Conducted doctoral research on quantum gravity and string theory, focusing on theoretical frameworks consistent with the universe's accelerated expansion and the construction of inflating cosmologies.

CERN, Undergraduate Researcher

2015 – 2018

PUBLICATIONS

MACHINE LEARNING

- [1] S. Nair*, E. Coleman*, S. Wang, and E. Olivetti, “Masked Mineral Modeling: Continent-scale mineral prospecting via geospatial infilling,” accepted to AAAI2026.
- [2] R. Shenoy*, E. Coleman*, H. Gaensbauer, and E. Olivetti, “Counting atoms faster: policy-based nuclear magnetic resonance pulse sequencing for atomic abundance measurement,” accepted to ICML2025.
- [3] R. Shenoy, H. Gaensbauer, E. Olivetti, and E. Coleman, “Optimizing NMR Spectroscopy Pulse Sequencing for Soil Atomic Abundance,” in *Proceedings of “Tackling Climate Change with Machine Learning” at NeurIPS2024*.
- [4] E. Coleman, S. Nair, X. Zeng, and E. Olivetti, “Structured spectral reconstruction for scalable soil organic carbon inference,” in *Proceedings of “Tackling Climate Change with Machine Learning” at ICLR2024*.

THEORETICAL PHYSICS

- [5] E. Coleman, R.M. Soni, and S. Yang. “On the spread of entanglement at finite cutoff.” *Journal of High Energy Physics*, 2023(5), 1-28.
- [6] E. Coleman, E. Mazenc, V. Shyam, E. Silverstein, R.M. Soni, G. Torroba, and S. Yang. “De Sitter microstates from $T\bar{T} + \Lambda_2$ and the Hawking-Page transition.” *Journal of High Energy Physics*, 2022(7), 1-32.
- [7] J. Aguilera-Damia, L.M. Anderson, and E. Coleman. “A substrate for brane shells from $T\bar{T}$.” *Journal of High Energy Physics*, 2021(5), 1-36.
- [8] E. Coleman and V. Shyam. “Conformal boundary conditions from cutoff AdS_3 .” *Journal of High Energy Physics*, 2021(9), 1-19.
- [9] E. Coleman, J. Aguilera-Damia, D.Z. Freedman, and R.M. Soni. “ $T\bar{T}$ -deformed actions and $(1,1)$ supersymmetry.” *Journal of High Energy Physics*, 2019(10), 1-16.

- [10] E. Coleman, M. Freytsis, A. Hinzmann, M. Narain, J. Thaler, N. Tran, N., and C. Vernieri. “The importance of calorimetry for highly-boosted jet substructure.” *Journal of Instrumentation*, 13(01), T01003.

PATENTS

- [11] E. Coleman. “High-Throughput Thermoacoustic Device for Separation of Fluid Dynamical Mixtures.” *U.S. Patent Application 18/211,479*. Allowed Jan. 2026, issuance pending.

WHITEPAPERS

- [12] K. Daehn, E. Coleman, and F. Allroggen, “Global Bioenergy Availability,” published on *MIT DSpace*. In collaboration with Maersk. January 2025.
- [13] M. MacFarlane, R. Jia, ..., E. Coleman, E. Olivetti, and C. Terrer, “Nature-Based Climate Solutions: Current Uncertainties and Data Gaps in the Assessment of Soil Carbon Sequestration Potentials,” published on *MIT DSpace*. In collaboration with Apple, Cargill, and PepsiCo. April 2024.
- [14] E. Coleman, A. Tripathy, S. Sroka, et al., “Carbon Credits and Credibility: A Collaborative Endeavour,” published on *MIT DSpace*. In collaboration with IBM and BBVA. September 2023.

IN PREPARATION

- [15] E. Coleman, E. Olivetti, et al. “Braintrust: social knowledgebases as scientific fiduciaries.”

AWARDS & SCHOLARSHIPS

- Cohere for AI Research Grant 2025
Awarded 1M Chat API calls for LLM research developing agentic workflows for scientific databases
- Impact Fellowship, MIT 2022
2-year grant to pursue independent postdoctoral research in industrial decarbonization
- Paul H. Kirkpatrick Award for Teaching, Stanford Physics Department 2022
Top 5 Stanford Physics TA of 2021
- Youth Philanthropist of the Year, National Philanthropy Day Committee 2018
Cycled 600 mi across Tibet for charity, from Lhasa to Everest base camp to Kathmandu in 10 days
- NSF Graduate Research Fellowship, National Science Foundation 2018
\$138K grant to pursue Ph.D.
- R. Bruce Lindsay Prize for Excellence in Physics 2018
Top student in Class of '18, Brown U. Physics Department
- Astronaut Scholar 2017
Merit-based scholarship
- Goldwater Scholar 2017
Merit-based scholarship

PROFESSIONAL ACTIVITIES

REVIEWING

- Reviewer, AAAI2026 2025
- Reviewer, Climate Change AI @ NeurIPS2024 2024
- Reviewer, NSF SBIR Phase I 2023

CONFERENCE ORGANIZATION

- Lead Organizer, Data for Circularity Workshop, MCSC Annual Symposium Oct 2023
- Lead Organizer, ML for Climate Workshop, MCSC Annual Symposium Oct 2022

COMMUNITY SERVICE

- Volunteer farmhand, Stanford Educational Farm 2020 – 2022
- Exam proctor for blind students, Stanford Physics Department 2022

TEACHING

Head Teaching Assistant, Stanford University

2020

PHYSICS121: Advanced Electricity and Magnetism

2019

Head Teaching Assistant, Stanford University

2019

PHYSICS70: Introduction to Special Relativity and Quantum Mechanics

2019

Teaching Assistant, Stanford University

2019

PHYSICS40: Introduction to Classical Mechanics

ADVISING & MENTORSHIP	Margaret Wang Thesis supervisor.	M.Eng. (MIT EECS) '25
	Rohan Shenoy	B.S. (UC Berkeley EECS) '26
	Sujay Nair	B.S. (Georgia Tech EECS) '26
	Hans Gaensbauer	Ph.D (MIT EECS) '26
	Jenny Moralejo Thesis supervisor. Now at Palantir.	M.Eng. (MIT EECS) '24
	Xinyi Zeng Thesis supervisor. Now at Coho Climate Advisors.	M.Eng. (MIT CEE) '23

- LANGUAGES**
- English: Fluent (speaking, reading, writing).
 - Spanish: Fluent (speaking, reading, writing).
 - Portuguese: Intermediate (reading); basic (speaking, writing).

[CV compiled on 2026-02-03]