Evan Coleman

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EDUCATION

Stanford University, Stanford, CA

Ph.D. in Theoretical Physics — 2018 – 2022

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

Brown University, Providence, RI

Sc.B. (Honors) in Mathematical Physics — 2014 – 2018

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

EXPERIENCE

MIT Climate Project, Research Scientist II — 2024 – Present
MIT Climate & Sustainability Consortium, Postdoctoral Fellow — 2022 – 2024
Stanford Institute for Theoretical Physics, NSF Graduate Research Fellow — 2018 – 2022
CERN, Undergraduate Researcher — 2015 – 2018

- Research on Applied ML for industrial decarbonization, *in situ* material characterization, and LLM-guided climate research planning.
- 3 ML conference publications applying VAEs, physics-informed models, and RL to structured prediction and measurement of soil organic carbon content. Recent ICML publication applying RL to NMR pulse sequence optimization for low-field atomic abundance measurement, and AAAI2026 submission applying generative models to geospatial infilling of subsurface resource maps.
- Experience handling high-dimensional features and datasets (hyperspectral remote sensing, continent-scale geospatial analysis), training policies and models, developing OpenAI gymnasium environments applying parallelized physical simulations, and incorporating LLM evaluation into training and evaluation pipelines.
- Current projects on scalable direct soil carbon inference down to 45cm depth via fusion of hyperspectral satellite and ground-based imaging data, and agentic interfaces for scientific databases. Recipient of Cohere for AI Research Grant, applying LLMs to these tasks.
- Managed students (1 Ph.D., 3 M.S., 2 B.S.) to execute $600K industry-backed research program. Collaborated with scientists at Apple, Cargill, and PepsiCo to scale environmental data collection using ML, for analysis of local conditions driving soil carbon sequestration.

PUBLICATIONS

UNDER REVIEW

[1] S. Nair*, E. Coleman*, S. Wang, and E. Olivetti, "[Anonymized during review process]," submitted to AAAI 2026.

PUBLISHED

[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 (poster) 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*.

[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 $T\overline{T} + \Lambda_2$ 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 $T\overline{T}$." *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. "$T\overline{T}$-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.

WHITEPAPERS

[11] K. Daehn, E. Coleman, and F. Allroggen, "Global Bioenergy Availability," published on *MIT DSpace*. In collaboration with Maersk. January 2025.

[12] 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.

[13] 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.

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 Deparment — 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

CONFERENCE ORGANIZATION

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

REVIEWING

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

COMMUNITY SERVICE

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

TEACHING

Head Teaching Assistant, Stanford University — 2020
PHYSICS121: Advanced Electricity and Magnetism

Head Teaching Assistant, Stanford University — 2019
PHYSICS70: Introduction to Special Relativity and Quantum Mechanics

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: Native language.
- Spanish: Fluent (speaking, reading, writing).
- Portuguese: Intermediate (reading); basic (speaking, writing).

[*CV compiled on 2025-08-19*]