Evan Coleman

ecol@mit.edu • eacoleman.github.io

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 and *in situ* material characterization.
- 3 ML conference publications applying VAEs, physics-informed models, and RL to structured prediction and measurement of soil organic carbon content. Forthcoming ICML publication applying RL to NMR pulse sequence optimization for low-field atomic abundance measurement, and NeurIPS submission applying generative models to geospatial infilling of mineral resource maps.
- Experience handling high-dimensional data (hyperspectral remote sensing), training policies and models, developing OpenAI gymnasium environments, writing parallelized physical simulations, and incorporating LLM evaluation into training pipelines.
- Current projects on soil carbon inference via hyperspectral satellite data, and agentic interfaces for scientific databases. Recipient of Cohere for AI Research Grant.
- Managed students (1 Ph.D., 2 M.S., 2 B.S.) to execute $600K industry-backed research program. Consulted with Apple, Cargill, and PepsiCo to scale environmental data collection using modern ML approaches, 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 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

Rohan Shenoy — B.S. (UC Berkeley EECS) '26

Sujay Nair — B.S. (Georgia Tech EECS) '26

Hans Gaensbauer — Ph.D (MIT EECS) ’27

Jenny Moralejo — M.Eng. (MIT EECS) ’24
Thesis supervisor. Now at Palantir.

Xinyi Zeng — M.Eng. (MIT CEE) ’23
Thesis supervisor. Now at Coho Climate Advisors.

LANGUAGES

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

[*CV compiled on 2025-08-05*]