

Aram Ebtekar

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Employment History

- 2025 – 2026 **University of California, Berkeley, Research Collaborator.** Proving safety and capability desiderata for pessimistic reinforcement learning agents, and online regret bounds for Solomonoff induction. Other activities: Nature reviewer, AGI-25 program committee, Stanford seminar presenter, Universal AI international reading group co-organizer.
- 2025 **Anthropic, AI Safety Research Fellow.** Co-developed the inoculation prompting technique to mitigate reward hacking in Large Language Models.
- 2022 – 2025 **Independent, Arrow of Time Researcher.** Published three theoretical papers on the causal arrow of time, algorithmic thermodynamics, and root cause analysis. I also took industry contracts, the main one being in autonomous driving for Caterpillar.
- 2018 – 2019 **Mythic, Senior AI Research Scientist.** Led two exploratory efforts: video super-resolution, covering the whole pipeline from realistic dataset collection to neural architecture design; and hardware co-design investigations on how efficiently convolutional layers map to hardware, and how long the resulting models retain their accuracy.
- 2016 – 2018 **Waymo, Behavior Prediction Research Engineer.** Framed driver behaviour as trajectory optimization problems, enabling autonomous cars to predict surrounding drivers' movements in real-time; visualized the predictions; and led a study+brainstorm group to explore long-term solutions, particularly with deep reinforcement learning.

Education

- 2019 – 2022 **Self-directed studies.** An eclectic mix of graduate-level math, physics, economics, information theory, and undergrad-level humanities, gathered from a combination of UBC courses, MIT OpenCourseWare, textbooks, papers, and so on. I developed and published the Elo-MMR skill estimation algorithm, now used by popular competition platforms such as CodeChef and DMOJ, and set the foundations for my later theoretical work.
- 2012 – 2015 **Carnegie Mellon University, M.S., Ph.D. candidate** in Computer Science.
- NSERC CGS M Scholarship
- Research projects in hybrid systems verification and search-based planning
- Teaching Assistant for 15-451/651 (Algorithms)
- Completed the 2012 Summer School in Algorithmic Economics
- Memberships: Graduate Student Assembly departmental representatives, Ballroom Dance Club, School of Computer Science musical performances
- 2008 – 2012 **University of British Columbia, B.Sc. Honours** in Computer Science & Mathematics.
- Research projects in evolutionary game theory and computational geometry
- GPA: 92% (A+)

Research Publications

- 1 N. Wickers, A. Ebtekar, A. Azarbal, *et al.*, “Inoculation prompting: Instructing LLMs to misbehave at train-time improves test-time alignment,” *ICLR submission*, 2026.
- 2 A. Ebtekar and M. Hutter, “Foundations of algorithmic thermodynamics,” *Physical Review E*, 2025.
DOI: [10.1103/PhysRevE.111.014118](https://doi.org/10.1103/PhysRevE.111.014118).

- 3 A. Ebtekar, Y. Wang, and D. Janzing, "Toward universal laws of outlier propagation," *41st Conference on Uncertainty In Artificial Intelligence*, 2025.  URL: <https://dl.acm.org/doi/10.5555/3762387.3762440>.
- 4 A. Ebtekar and M. Hutter, "Modeling the arrows of time with causal multibaker maps," *Entropy cover article*, vol. 26, no. 9, p. 776, 2024.  DOI: 10.3390/e26090776.
- 5 A. Ebtekar and P. Liu, "Elo-MMR: A rating system for massive multiplayer competitions," in *Proceedings of 30th The Web Conference*, 2021, pp. 1772–1784.  DOI: 10.1145/3442381.3450091.

Skills

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| Nat. Languages |  Fluent in English, French, Persian. Beginner in Spanish, Mandarin, Japanese. |
| Prog. Languages |  Rust, C++17, L ^A T _E X, Python, PyTorch, Keras, Java, C. |
| Academic |  Theoretical computer science, mathematics, statistics, physics, philosophy, economics, robotics, machine learning, software design, technical writing, teaching. |

Miscellaneous Experience

Contest Achievements

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| 2015 |  61st place among over 50,000 registrants in the Google Code Jam.
 57th place in the Topcoder Open Algorithm Competition.
 6th place in the North American Invitational Programming Contest's Open Division, as a solo contestant against teams of up to three.
 Achieved Codeforces Grandmaster title, peak rating 2400+ on both Codeforces and Topcoder
 ACM ICPC Pacific Northwest regional contest problem setter, author of problems J,L,N. |
| 2012 |  18th place in the ACM ICPC World Finals in Warsaw, Poland. |
| 2011 |  Top 250, Team Honorable Mention in the William Lowell Putnam Mathematical Competition.
 UBC Thunderbots, 9th place in the RoboCup SSL international robot soccer competition. |

Selected Projects

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| 2020 |  Technical Blogging. My most popular article on foundations of probability made the front page of Hacker News and received over 200 comments. |
| 2017 |  Rust Algorithms Cookbook. A collection of classic algorithms and data structures elegantly crafted in Rust, serving as a proof of concept of the language's compile-time safety discipline in contest programming. On 20/06/2017, it was the #1 trending GitHub repository globally. |
| 2012 |  U! Robot! Lead engineer in a team of 8 developers at a 48-hour Global Game Jam, completing a platformer game that was selected to showcase. |