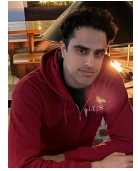


Aram Ebtekar

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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. Wichers, 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.









- 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




Nat. Languages	 Fluent in English, French, Persian. Beginner in Spanish, Mandarin, Japanese.
Prog. Languages	 Rust, C++17, \LaTeX , 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

- 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

- 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.