Farzam Ebrahimnejad

Symbolica AI
San Francisco, CA

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Education

- **Ph.D. Degree in Computer Science and Engineering** — Sept. 2017 – June 2024
  Paul G. Allen School of Computer Science & Engineering
  University of Washington
  Advisors: Shayan Oveis Gharan and James R. Lee
- **M.Sc. Degree in Computer Science and Engineering** — Sept. 2017 – June 2023
  Paul G. Allen School of Computer Science & Engineering
  University of Washington
  Advisors: Shayan Oveis Gharan and James R. Lee
- **B.Sc. Degree in Computer Engineering** — Sept. 2013 – July 2017
  Department of Computer Engineering
  Sharif University of Technology

Teaching and Working Experience

- **ML Research Scientist at Symbolica AI** — June 2024 - present
  Conducting research on innovative reasoning systems designed to prove mathematical theorems. Primarily focused on reinforcement learning and text diffusion models, with responsibilities including the design, implementation, training, and iterative development of novel transformer-based models and architectures.
- **Research Software Engineering Intern at Uber, San Francisco** — Fall 2022
  Conducted machine learning research to develop novel deep neural networks to optimize Uber's riding pricing strategy.
- **Teaching Special Topics in Mathematics and Computer Science** — 2013 – 2014
  Teaching topics such as combinatorics, graph theory, and algorithms to high school students preparing for the Olympiad in Informatics.
- **Software/ML Engineer at Torob** — 2014 – 2017
  Torob is an Iranian price comparison and shopping search engine. I was responsible for the design and implementation of efficient machine learning algorithms for Torob's query analyzer and suggestion service.

Publications

- **On approximability of the permanent of PSD matrices**
  Farzam Ebrahimnejad, Ansh Nagda, Shayan Oveis Gharan
  Under Review, 2024
- **Non-existence of annular separators in geometric graphs**
  Farzam Ebrahimnejad, James R. Lee
  Discrete & Computational Geometry, 2023
- **Multiscale entropic regularization for MTS on general metric spaces**
  Farzam Ebrahimnejad, James R. Lee
  ITCS 2022
- **Counting and sampling perfect matchings in regular expanding non-bipartite graphs**
  Farzam Ebrahimnejad, Ansh Nagda, Shayan Oveis Gharan
  ITCS 2022
- **On planar graphs of uniform polynomial growth**
  Farzam Ebrahimnejad, James R. Lee
  Probability Theory and Related Fields, 2021

◇ **On the gap between separating words and separating their reversals**
Farzam Ebrahimnejad
Theoretical Computer Science, 2018

Presentations

◇ **On approximability of the permanent of PSD matrices** — May 2024
UW Theory Seminar, Seattle, WA

◇ **Multiscale entropic regularization for MTS on general metric spaces** — Feb 2022
ITCS 2022, Berkley, CA (online talk)

◇ **On planar graphs of uniform polynomial growth** — May 2021
Random Geometry and Statistical Physics Online Seminar

◇ **On planar graphs of uniform polynomial growth** — June 2019
UW Theory Seminar, Seattle, WA

◇ **On the gap between separating words and separating their reversals** — Dec. 2016
Combinatorics, Automata and Number Theory School, Marseille, France

Honors and Awards

◇ **2nd place** in the *17th* Asia Regional ACM-ICPC, Tehran, Iran — 2015

◇ **2nd place** in the *16th* Asia Regional ACM-ICPC, Tehran, Iran — 2014

Long-term Visits

◇ **Geometry of Polynomials Program** — Winter 2019
Simons Institute for the Theory of Computing, Berkeley, CA

Service

◇ Reviewer: FOCS, SODA, SIAM Journal on Computing (SICOMP).

Skills

◇ Programming Languages: Python, C/C++, Julia, Matlab.