

SEYED MOHAMMAD SADEGH MAHDAVI

ece.ubc.ca/~smahdavi ◊ smahdavi4@gmail.com

EDUCATION

University of British Columbia

Ph.D. in Electrical and Computer Engineering

2023 – Present

M.A.Sc. in Electrical and Computer Engineering

2021 – 2023

Supervisors: Prof. Renjie Liao and Prof. Christos Thrampoulidis

Sharif University of Technology

2017 – 2021

B.Sc. in Computer Engineering, GPA: 19.07/20.00 (top 10%)

PUBLICATIONS AND PREPRINTS

1. **Sadegh Mahdavi***, Muchen Li*, Kaiwen Liu, Christos Thrampoulidis, Leonid Sigal, and Renjie Liao. Aops dataset: Leveraging online olympiad-level math problems for llms training and contamination-resistant evaluation. *International Conference on Machine Learning (ICML)*, 2025
2. **Sadegh Mahdavi**, Raquel Aoki, Keyi Tang, and Yanshuai Cao. Leveraging environment interaction for automated pddl generation and planning with large language models. *Advances in Neural Information Processing Systems (NeurIPS)*, 2024
3. Jia Jun Cheng Xian, **Sadegh Mahdavi**, Renjie Liao, and Oliver Schulte. From graph diffusion to graph classification. In *ICML Workshop on Structured Probabilistic Inference & Generative Modeling*, 2024
4. **Sadegh Mahdavi**, Renjie Liao, and Christos Thrampoulidis. Memorization capacity of multi-head attention in transformers. *International Conference on Learning Representations (ICLR)*, 2024 (**Spotlight**)
5. **Sadegh Mahdavi**, Renjie Liao, and Christos Thrampoulidis. Revisiting the equivalence of in-context learning and gradient descent: The impact of data distribution. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2024
6. **Sadegh Mahdavi**, Kevin Swersky, Thomas Kipf, Milad Hashemi, Christos Thrampoulidis, and Renjie Liao. Towards better out-of-distribution generalization of neural algorithmic reasoning tasks. *Transactions on Machine Learning Research (TMLR)*, 2023

AWARDS AND HONORS

- UBC Four Year Doctoral Fellowship (4YF) 2023
- Silver Medal in 58th **International Mathematical Olympiad**, Rio de Janeiro, Brazil 2017
- Silver Award in XXIX Asian Pacific Mathematics Olympiad 2017
- Gold Medal at 28th Iran National Mathematics Olympiad, Tehran, Iran 2016

RESEARCH EXPERIENCE

University of British Columbia

Sept. 2021 – Present

Research Assistant, Supervised by Prof. Liao and Prof. Thrampoulidis

NVIDIA

May. 2025 – Present

Applied Research Intern (Remote)

- Working on improving the mathematical reasoning capabilities of large language models.

RBC Borealis

Jan. 2024 – May 2024

Machine Learning Research Intern

- Worked on improving planning abilities of Large Language Models.
- Resulted in a publication at NeurIPS 2024.

Sharif University of Technology

Mar. 2020 – Jul. 2020

Research Assistant, Machine Learning Lab

- Leveraged image registration techniques to enhance the few-shot medical image segmentation accuracy.
- Achieved a 2% improvement in Dice scores, demonstrating the effectiveness of the proposed approach.

TECHNICAL EXPERIENCE

CafeBazaar

Aug. 2018 – Oct. 2019

Software Engineer (Part-time)

Worked as a Back-End software engineer at Divar product, the leading classified ads service in Iran with more than 20 million users.

TEACHING EXPERIENCE

University of British Columbia

- CPEN355 (Machine Learning with Engineering Applications) Fall 2023
- CPEN400D (Deep Learning) Winter 2022
- ELEC400M (Machine Learning Fundamentals for Engineers) Winter 2021, Fall 2022

ACADEMIC SERVICE

Conference Reviewer

- NeurIPS 2024, AISTATS 2024, UAI 2024, ICLR (2025, 2026), ICML (2025, 2026)

SKILLS

General

L^AT_EX

Languages and Tools

C, Python, Docker, Kubernetes.

Web Development

Django web framework.

Machine Learning

PyTorch, JAX.