

SEYED MOHAMMAD SADEGH MAHDAVI

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EDUCATION

University of British Columbia

Ph.D. in Electrical and Computer Engineering

2023 – 2027

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

PUBLICATIONS

1. **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
2. 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
3. **Sadegh Mahdavi**, Renjie Liao, and Christos Thrampoulidis. Memorization capacity of multi-head attention in transformers. *International Conference on Learning Representations (ICLR)*, 2024 (**Spotlight**)
4. **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
5. **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

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. *Under Review*, 2024

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

Borealis AI

Jan. 2024 – May 2024

Machine Learning Research Intern

- Worked on improving planning abilities of Large Language Models.

- Resulted in a publication at NeurIPS 2024 and a U.S. patent application (pending).

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

SKILLS

General	\LaTeX
Languages and Tools	C, Python, Docker, Kubernetes.
Web Development	Django web framework.
Machine Learning	PyTorch, JAX.

LANGUAGES

Persian	Native
English	Fluent (TOEFL: 104)
Arabic	Reading knowledge