

Matin Aghaei

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RESEARCH INTERESTS

- Deep Reinforcement Learning
- Optimization for Machine Learning
- Quantitative Trading
- Robotics
- Multi-Agent Systems

EDUCATION

Master's in Computer Science

Simon Fraser University

- GPA: 3.5 /4

Sep. 2022 – Present

Burnaby, BC, Canada

Bachelor's in Computer Engineering

Amirkabir University of Technology

- GPA: 18.33 /20

Sep. 2017 – Apr. 2022

Tehran, Iran

Mathematics and Physics High School Diploma

National Organization for Development of Exceptional Talents

Sep. 2014 – Jun. 2017

Karaj, Iran

RESEARCH EXPERIENCE

Graduate Research Assistant

Supervisor: Prof. Vaswani

- Proved Convergence Guarantees for Policy Gradient Algorithms
- Designed Entropy Regularized RL Algorithms
- Experimented Bandits and RL Algorithms

January 2023 – Present

Simon Fraser University

Undergraduate Research Assistant

Supervisor: Prof. Ebadzadeh

- Implemented Deep RL Algorithms
- Used Deep RL Algorithms for Portfolio Management [\[code\]](#)

March 2021 – April 2022

Amirkabir University of Technology

PUBLICATIONS

- “On the Convergence Rates of Log-Linear Policy Gradient Methods” [\[PDF\]](#), **Matin Aghaei**, Anderson de Andrade, Qiushi Lin, Sharan Vaswani. In preparation.
- “Practical Principled Policy Optimization for Finite MDPs” [\[PDF\]](#), Michael Lu, **Matin Aghaei**, Anant Raj, Sharan Vaswani. “Optimization for Machine Learning” workshop, NeurIPS, 2023 (**Oral Presentation**).

COURSE PROJECTS

Computer Vision

- Designed and trained CNN models to perform Object Detection, Semantic Segmentation, and Instance Segmentation on the iSAID dataset. [\[code\]](#)

Robotics

- A robot controller which follows oval and spiral paths [\[code\]](#)
- A robot controller which constructs an obstacle map using VFH algorithm and avoids the obstacles in a Gazebo environment using a polar histogram [\[code\]](#)

Data Mining

- An image compressor (Using K-Means algorithm to reduce the number of colors in an image by clustering them) [\[code\]](#)

Information Retrieval

- A search engine for Persian language using inverted index and TF-IDF [\[code\]](#)

Principles of Computational Intelligence

- A 2-layer Neural Network [\[code\]](#)
- Genetic Algorithm for solving Knapsack [\[code\]](#) and Traveling Salesman [\[code\]](#) problems
- Fuzzy C-means Clustering [\[code\]](#)

Principles and Applications of Artificial Intelligence

- Natural Language Processing using n-grams [\[code\]](#)
- Genetic Algorithm & Simulated Annealing Algorithm for solving Constraint Satisfaction Problem [\[code\]](#)
- A*, Bi-directional and IDS algorithms for solving Rubik's Cube [\[code\]](#)
- AC-3 algorithm for solving Constraint Satisfaction Problem [\[code\]](#)

TEACHING EXPERIENCE

Teaching Assistant, Probability and Computing

January 2024 – Present

Lecturer: Sharan Vaswani

Simon Fraser University

- Helped students to understand the concepts of Combinatorics

Teaching Assistant, Data Structures and Algorithms

January 2023 – April 2023

Lecturer: Mohammad Jahanara

Simon Fraser University

- Taught students how to analyze the computational complexity of algorithms

Teaching Assistant, Introduction to Artificial Intelligence

September 2022 – December 2022

Lecturer: Hazra Imran

Simon Fraser University

- Designed AI programming problems, and helped students with the assignments

Head Teaching Assistant, Artificial Intelligence

September 2021 – July 2022

Lecturer: Mahdi Javanmardi

Amirkabir University of Technology

- Supervised 8 teaching assistants, and gave additional lectures on RL and Bayes Nets

Head Teaching Assistant, Computational Intelligence

September 2020 – January 2022

Lecturer: Mehdi Ebadzadeh

Amirkabir University of Technology

- Supervised 7 teaching assistants, and designed assignments and quizzes

Head Teaching Assistant, Data Mining

February 2021 – June 2021

Lecturer: Ehsan Nazerfard

Amirkabir University of Technology

- Supervised 5 teaching assistants, and designed assignments and projects

HONORS & AWARDS

- Paper accepted for an oral presentation (**top-5% contribution**) in NeurIPS OPT Workshop, 2023
- Elected as the Educational Manager of Students' Scientific Chapter of Computer Engineering at Amirkabir University of Technology, 2019
- Ranked **top 2%** among more than 150,000 Iranian students in the National University Entrance exam in Engineering and Applied Mathematics, 2017
- Advanced to the 3rd stage of the Iranian National Olympiad in Informatics (**Only 80 students** reached this stage), 2015
- Qualified as a member of the National Organization for Development of Exceptional Talents, 2010

SKILLS

Programming Languages: Python, Java, C, C++, MATLAB, VHDL, SQL, JavaScript

Developer Tools: Git, Numpy, Scipy, TensorFlow, PyTorch, Pandas, Matplotlib

LANGUAGES

Persian: Native

English: Advanced