

# Matin Aghaei

+1 (236) 514-2170 | Vancouver, BC, Canada  
[m.jaffaraghaei@gmail.com](mailto:m.jaffaraghaei@gmail.com) | [HomePage](#) | [Linkdin](#) | [GitHub](#)

## 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**).

## 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 [\[code\]](#)

## Computational Intelligence

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

## 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

Lecturer: Sharan Vaswani

January 2024 – Present

Simon Fraser University

- Helped students to understand the concepts of Combinatorics

### Teaching Assistant, Data Structures and Algorithms

Lecturer: Mohammad Jahanara

January 2023 – April 2023

Simon Fraser University

- Taught students how to analyze the computational complexity of algorithms

### Teaching Assistant, Introduction to Artificial Intelligence

Lecturer: Hazra Imran

September 2022 – December 2022

Simon Fraser University

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

### Head Teaching Assistant, Artificial Intelligence

Lecturer: Mahdi Javanmardi

September 2021 – July 2022

Amirkabir University of Technology

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

### Head Teaching Assistant, Computational Intelligence

Lecturer: Mehdi Ebadzadeh

September 2020 – January 2022

Amirkabir University of Technology

- Supervised 7 teaching assistants, and designed assignments and quizzes

### Head Teaching Assistant, Data Mining

Lecturer: Ehsan Nazerfard

February 2021 – June 2021

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 3<sup>rd</sup> 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