

# Matin Aghaei

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HomePage | Linkdin | GitHub | Google Scholar

## RESEARCH INTERESTS

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Reinforcement Learning | Optimization | Quantitative Trading | Robotics | Multi-Agent Systems

## EDUCATION

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### 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*

## RESEARCH EXPERIENCE

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### Graduate Research Assistant

*Supervisor: Sharan Vaswani*

- Proved convergence guarantees for Policy Gradient algorithms
- Designed entropy-regularized RL algorithms
- Experimented multi-armed bandits and RL algorithms

Jan. 2023 – Present

*Simon Fraser University*

### Undergraduate Research Assistant

*Supervisor: Mehdi Ebadzadeh*

- Implemented state-of-the-art Deep RL algorithms
- Compared Deep RL algorithms for portfolio management [code]

Mar. 2021 – Apr. 2022

*Amirkabir University of Technology*

## PUBLICATIONS

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- “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**).

## SELECTED PROJECTS

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### 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 implemented in ROS, which constructs an obstacle map using VFH algorithm and avoids the obstacles in a Gazebo environment using a polar histogram [code]

### Information Retrieval

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

## HONORS & AWARDS

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- Paper accepted for an oral presentation (**top-5% contribution**) in NeurIPS OPT Workshop, 2023
- Ranked **top 2%** among more than 150,000 students in the Iranian 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

## SKILLS

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

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