

## ABOUT

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I am studying Computer Science at the University of Alberta, working under the supervision of Prof. James Wright. Before that I got my bachelor in Electrical Engineering and Mathematics at the Sharif University of Technology, Tehran, Iran. As educational interests, I am interested in:

Game Theory   Sequential Decision Making (RL, Bandit)   Statistical Learning

## EDUCATION

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<b>University of Alberta</b> M.Sc in <b>Computing Science</b>	Edmonton, Canada Jan 2023–Now
<b>Sharif University of Technology</b> B.Sc. in <b>Electrical Engineering</b> and <b>Mathematics</b> as a minor field	Tehran, Iran 2017–2022

## RESEARCH EXPERIENCES

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### Online Opponent Monitoring

*University of Alberta*

May 2023 - Now

- In the context of repeated games, we try to estimate and model the opponent’s policy by using online learning and RL algorithms and then try to figure out the best response to the opponent’s strategy to maximize the player’s utility.

### University of Tübingen Remote Internship

*University of Tübingen (Remotely)*

Jun 2021 - Sep 2021

- I worked on a multi-armed bandit problem, under the supervision of Prof. Maghsudi. The problem was about a **non-stationary contextual bandit with costly features**. We worked on multiple related ideas and algorithms of this area such as EXP-4, e.t.c.

### Member of Prof. Yassaee’s Research Group

*Sharif University of Technology*

Sep 2020 - July 2021

- We worked on a problem at the intersection of **Distributed Estimation** and **Sequential Decision-Making**. We modeled the setting of the Distributed Estimation as a Multi-Armed Bandits problem. First we defined a meaningful notion of regret with some statistical interpretations. The aim was finding the underlying fundamental limit of this novel setting and state an achieving algorithm. The result of the project was an article that is mentioned in the publication section.

### Member of Prof. Aminzadeh Gohari’s Reading/Research Group

*Tehran Institute of Advanced Studies (Teias)*

Jul - Sep 2019 / Feb 2020 - Feb 2021

- Topics of this group, at first was ML and Generalization Error with an information-theoretic view point and after that about High Dimensional Probability/Statistics. We read some articles and books on these topics and presented them to the other members under the supervision of Dr. Aminzadeh Gohari and Dr. Yassaee. In addition, we had some free discussion and presentations by invited speakers.

### Investigating Inter-Sensory Synchronization and Its Application

*Computational Neuroscience project, AirLab, Sharif University of Technology*

Sep 2018 - Sep 2019

- To perceive the auditory and visual aspects of an event simultaneously brain must adjust for differences in physical transmission time and sensory processing time. The project was based on some stochastic stimuli and analyzing their corresponding responses. We worked in Airlab, a neuroscience laboratory under the supervision of Prof. Hamid Karbalai Aghajan at Sharif University.

## HONORS AND AWARDS

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**Silver Medal in National Mathematics Olympiad** 2016  
 Ranked second place in the national mathematics Olympiad. Exams include problems in Number Theory, Elementary Algebra, Geometry and Combinatorics.

## PUBLICATIONS AND PREPRINTS

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1. [A. Masoumian](#), S. Kiyani, and M.H. Yassaee, “**Sequential Estimation under Multiple Resources: a Bandit Point of View**”, *arXiv: 2109.14703*

## TEACHING ASSISTANT

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- **Introduction to AI (CMPUT 261)** Winter 2023  
*Under-Grad Course / Prof. James Wright*
- **High Dimensional Probability** Spring 2021  
*Graduate Course / Prof. Mohammad Hossein Yassaee*
- **Information Theory, Statistics, and Learning** Fall 2021  
*Graduate Course / Prof. Mohammad Hossein Yassaee*

## SELECTED COURSES

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- RL Theory
- Human in Loop RL
- Bayesian Statistics and Learning
- Coding for Networked Systems
- Distributed Systems
- ML Theory
- Bandit Theory
- Blockchain
- Algorithmic Game Theory
- Information Theory

## PROGRAMMING SKILLS

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- Python
- Matlab

## LANGUAGES

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- **Farsi:** Native
- **English:** Proficient

## OTHER EXPERIENCES

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**Hesabet Money Management Application** Summer 2021  
*Asre Danesh Afzar Company*

- We work on this project as a team in the Asre Danesh Afzar company. The aim was to improve the performance of a money management application. In more detail, the accuracy of classifying transactions to some major clusters was increased by some semi-supervised and transfer learning algorithms.

**Committee Member of The 6th Iranian Geometry Olympiad** May 2019 - Sep 2019  
*An event containing 55 countries*

- The Iranian Geometry Olympiad is an annual academic competition for high school students in geometry problem-solving. More than 6000 contestants participated in the 6th event from many 55 countries such as China, Russia, Romania, Brazil, etc..

### **Member of Prof. Salehkaleybar's Data Science Team**

*Sharif University of Technology*

Sep 2019 - Feb 2020

- The main concern was about challenges in working with big data. Some tricks and theoretical basis of data mining were discussed every session. Attending in International Data Analysis Olympiad (IDAO) was also in the plan.

### **Data Science and Machine Learning Summer School**

*Khatam University*

Aug 2019

- Compelling challenges, including distributed data analysis, AutoML, Submodularity in data science, etc have been discussed by mighty speakers.

### **Young Scholar Club Summer Mathematics Olympiad Camp**

*National Elite Foundation*

Summer 2016

- It's the final stage of Iran's national Olympiad. Each year about 40 students are chosen nationwide. These students take part in courses including Number Theory, Elementary Algebra, Geometry, and Combinatorics.

### **Allameh Helli High School Mathematics Olympiad**

*Allameh Helli High School*

Jun 2017 - May 2019

- The Allameh Helli High School is the school with the highest pride and awards in Iran. I taught General Combinatorics to students preparing for Mathematics Olympiad. Also I was a member of problem designer committee.