

# Mahdi Ghaznavi

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## Education

- Sep 2022 **M.Sc.**, *Sharif University of Technology*, Tehran - Iran, *AI & Robotics*.  
–Jun 2024 Thesis Title: Robust Learning to Spurious Correlation without Access to Side Information of the Environment  
Under Supervision of Dr. Rohban & Dr. Soleymani Baghshah
- Feb 2020 **B.Sc.**, *Sharif University of Technology*, Tehran - Iran, *Mathematics and Applications*.  
–Sep 2022
- Sp 2017 –Sep 2022 **B.Sc.**, *Sharif University of Technology*, Tehran - Iran, *Computer Engineering*.  
Thesis Title: Domain Adaptation in Digital Mammography Image Processing  
Under Supervision of Prof. H. Rabiee, Prof. H. Asadi, R. Ghavami.

## Work Experience

- Jul 2022 **Research Assistant**, *Aalto University*, Espoo, Finland.  
–Sep 2022 I was a research assistant under the supervision of Dr. Vikas Garg. I was working interpretable molecular optimization by trying to disentangle the latent space of molecule graph generative models.
- Jul 2021 **ML Engineer & Researcher**, *AI-Med*, Tehran, Iran.  
–May 2022 I worked on developing a machine-learning-based system for diagnosing breast cancer and segmenting potential tumors in mammography images in early stages. The model which I contributed to its development is now used to assist some of the best radiologists in the Middle East. We used Pytorch as the basis of our framework.
- Sep 2018 **AI Researcher & Developer**, *Shenakht Pajouh*, Tehran, Iran.  
–Oct 2020 I have been involved in implementing various NLP models for the paragraph generation task of our mental health assistant agent by Tensorflow and Keras. I was also responsible for some study projects such as *perception in neuroscience* and *hardware requirements of modern AI paradigms*. My scientific supervisor at SP was Hosein Fooladi, a Ph.D. student at the University of Vienna.
- Jan 2017 **Olympiad in Informatics Teacher**, *National Organization for Development of Exceptional Talents (Sampad)*, Zahedan, Iran.  
I was a combinatorics, graph theory, and algorithm teacher of high school students that were participating in the first stage of the Iran National Olympiad in Informatics.

## Publications and Research Reports

- **Data-Driven Annotation-Free Group Robustness Across Extremely Unbalanced Group Sizes.** OOD-CV Workshop at ICCV 2023.
  - Arxiv as: Annotation-Free Group Robustness via Loss-Based Resampling

## Honors and Awards

- Oct 2021 **Gold Medal (First Place)**, *Iran's Computer Engineering Olympiad*.  
It is held by the national organization of educational testing, among top computer science and engineering students that introduced by all universities in the country.

Sep 2016 **Bronze medal**, *National Olympiad in Informatics*.

It is the national stage of IOI among the top 40 students who have been accepted in its past three stages of exams, and medalists join Iran's National Elites Foundation.

## Advanced Courses

AI/ML	RL, Security and Privacy in ML, LLM, ML Theory, Convex Optimization, Modern Information Retrieval
Bio/Medicine	Bioinformatics, Computational Drug Design
Statistics	Bayesian Methods in Statistics and Learning, Information Theory
Mathematics	Galois Theory, Algebraic Topology
Computer Science	Probabilistic Methods in Combinatorics, Complexity Theory Seminar, Algorithmic Game Theory, Combinatorial Optimization, Embedded Systems

## Volunteer Experience

Nov 2020 **Member of Central Council**, *Shenasa (Sharif Cognitive Science Community)*.

–Present I am a member of the central council in Shenasa, Sharif cognitive science student community for organizing events and research of cognitive science at Sharif University. We organize events in various fields related to cognitive science, mainly in **neuroscience** and **computer science (especially AI)**, but also in philosophy (especially philosophy of mind), psychology, social science, etc. Brain & Mind 2021 webinar with great lectures from Prof. M. Posner, Prof. Watzl, Dr. N. Nategh, etc. was our annual webinar at Shenasa.

## Teaching Assistant

Spring 2024	<b>Modern Information Retrieval</b> , <i>Undergraduate</i> , Dr. Soleymani Baghshah, Head TA.
Spring 2024	<b>Reinforcement Learning</b> , <i>Graduate</i> , Dr. Rohban.
Spring 2023	<b>Security &amp; Privacy in ML</b> , <i>Graduate</i> , Dr. Sadeghzadeh, Head TA.
Spring 2023	<b>Modern Information Retrieval</b> , <i>Undergraduate</i> , Dr. Soleymani Baghshah, Head TA.
Spring 2023	<b>Game Theory</b> , <i>Undergraduate</i> , M. Nilipour.
Fall 2022	<b>Deep Learning</b> , <i>Graduate</i> , Dr. Fatemizadeh.
Spring 2022	<b>Game Theory</b> , <i>B.Sc./M.Sc.</i> , Dr. Alishahi.
Spring 2022	<b>Machine Learning</b> , <i>Graduate</i> , Dr. Peyvandi.
Spring 2022	<b>Information Theory</b> , <i>B.Sc./M.Sc.</i> , Dr. Ebrahimi Broojeni.
Spring 2022	<b>Engineering Probability &amp; Statistics</b> , <i>Undergraduate</i> , Dr. Jafari-Siavoshani.
Fall 2021	<b>Information Theory and Coding</b> , <i>Graduate</i> , Dr. Jafari-Siavoshani.
Fall 2021	<b>Introduction to Bioinformatics</b> , <i>Undergraduate</i> , Dr. Sharifi-Zarchi & Dr. Koohi.
Fall 2021	<b>Design of Algorithms</b> , <i>Undergraduate</i> , Dr. Zarrabi-Zadeh.
Fall 2021	<b>Computer Networks</b> , <i>Undergraduate</i> , Dr. Jafari-Siavoshani.
Spring 2021	<b>AI</b> , <i>Undergraduate</i> , Dr. Rohban.
Spring 2021	<b>Computer Networks</b> , <i>Undergraduate</i> , Dr. Jafari-Siavoshani.
Spring 2021	<b>Linear Algebra</b> , <i>Undergraduate</i> , Dr. Motahari.
Fall 2020	<b>Engineering Probability &amp; Statistics</b> , <i>Undergraduate</i> , Dr. Sharifi-Zarchi.
Fall 2020	<b>Information Theory &amp; Coding</b> , <i>Graduate</i> , Dr. Jafari-Siavoshani.
Fall 2020	<b>Introduction to Bioinformatics</b> , <i>Undergraduate</i> , Dr. Sharifi-Zarchi & Dr. Koohi.

Fall 2019 **Engineering Probability & Statistics**, *Undergraduate*, Dr. Sharifi-Zarchi.

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## Programming Skills

Languages C/C++, Java, R, MATLAB, Python (Libraries: Pytorch, Tensorflow, Numpy, Gym, Transformers).