Mohammad Javad Hezareh

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EDUCATION

Sharif University of Technology — Tehran, Iran
B.Sc. in Computer Engineering; **Major GPA: 19.19/20** — Sep 2019 − Expected Jun 2024
Minor Degree in Mathematics; **Total GPA: 19.07/20** — Oct 2022 − Expected Jun 2024

Shahid Beheshti High School — Kashmar, Iran
Affiliated with the National Organization for the Development of Exceptional Talents (SAMPAD)
High School Diploma in Mathematics and Physics; **GPA: 19.76/20** — Sep 2016 − Jun 2019

PRINCIPAL INTERESTS

- Trustworthy Machine Learning
- Adversarial Machine Learning
- Federated Learning
- Generative Models
- Generalization
- Deep Learning Theory

RESEARCH EXPERIENCE

Ruhr University Bochum — Bochum, Germany
Research Intern, under supervision of Prof. Ghassan Karame — *Aug 2023 − present*

- Working on adversarial robustness. The focus is on the effect of data distribution over different ensemble models on the adversarial robustness of the overall method. I implemented and tested the effectiveness of the proposed method. Our experiments show that data distribution significantly affects robustness, resulting in a 10% to 40% increase in the robust accuracy of the overall ensemble method.

Machine Learning Lab, Sharif University of Technology — Tehran, Iran
Undergraduate Research Assistant — *Jul 2023 − present*

- Working on the medical image segmentation project under the supervision of Prof. Mahdieh Soleymani. I am working with a graduate student to improve the performance of Few-Shot Segmentation (FSS) in medical imaging. I am designing and evaluating new inference techniques in volumetric data segmentation.

AI Med Startup, Sharif University of Technology — Tehran, Iran
Undergraduate Intern — *Jul 2022 − Oct 2022*

- This was my bachelor's internship. The problem we were trying to solve was doctors' inaccurate masks of tumors. My task was to train a GAN model to generate artificial tumor masks. Then, we could use these masks to improve the accuracy of the tumor segmentation problem.

HONORS & AWARDS

- **University Entrance Exam (Konkur):** Ranked 76th among 164 000+ participants — Jun 2019
- **Silver Medal** in the 31st Iran National Physics Olympiad — Sep 2018

TEACHING EXPERIENCE

Teaching Assistant, Sharif University of Technology

- **Machine Learning (graduate-level, ×2):** designed and graded practical and theoretical assignments
- **Artificial Intelligence (×3):** Designed and graded assignments and final project
- **Probability and Statistics:** Designed and graded assignments
- **Linear Algebra:** Designed and graded theoretical assignments
- **Advanced Programming, (×2):** Led and managed a group of +25 mentors, also designed and graded assignments

Olympiad Classes, Voluntary

- I held teaching classes on the physics and astronomy Olympiad for students in my hometown.

Relevant Coursework

Sharif University of Technology (*: Graduate course)

- **Major:** Security and Privacy in ML* (), Machine Learning* (), Artificial Intelligence (), Advanced Information Retrieval, Linear Algebra, Signals and Systems, Probability and Statistics, Design of Algorithms, Data Structures and Algorithms, Data and Network Security, Game Theory
- **Minor:** Mathematical Analysis, Operation Research, Stochastic Processes

Self study

- **Audited:** Deep Learning for Computer Vision (Stanford CS231n), Deep Unsupervised Learning (Berkeley CS294), Machine Learning (Stanford CS299)

Projects and Presentations

Security and Privacy in ML course presentation |
- In this presentation we summarized the "Increasing Confidence in Adversarial Robustness Evaluation" paper.

Poem Retrieval System | Python |
- This was the project of the Modern Information Retrieval course. We build a retrieval system using classic and deep-learning-based methods such as Boolean, TF-IDF, and Transformers. Our system also had clustering and link analysis features.

Click-Through-Rate Prediction | Python |
- This was the project of the Machine Learning course. We trained a deep learning model besides classic machine learning algorithms to predict the user's response to the product's advertisements.

Atari-Game Agent | Python |
- This was one of the assignments of the Artificial Intelligence course. I implemented and trained a Deep-Q-Network (DQN) to play the Breakout game.

Other Experience

Sharif AI Challenge   Tehran, Iran
Technical Staff   *Spring 2021*
- I was a member of the Server/Client team. We developed the game framework in Java. I was also the lecturer of one of the workshops about the fundamentals of the game and how to use game API.

CodeStar Academy | Tehran, Iran
Software Engineer Intern   *Summer 2020*
- Developed a simple graph-based data analysis platform. This platform had special tools for loading and analyzing data, finding the net flow from one node to another, and detecting fraud. We used ASP.NET, Angular, and Elasticsearch engine to develop this platform.

Skills

Programming: Python, Java, C/C++, C#, SQL, Git

Libraries: PyTorch, TensorFlow, FedML, DecentralizePy, Scikit-Learn, NumPy, Pandas

Typesetting: LaTeX

Languages

English (Professional)   **Persian** (Native)

- TOEFL iBT (R:23 | L:29 | S:23 | W:25)