

Mohammad Amini

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Education

- **Master of Science in Telecommunication System Engineering** 2021-Present
Iran University of Science and Technology Tehran-Iran
 - Thesis Title: Dynamic Bandwidth Allocation in Distributed Multi-Agent Deep Reinforcement Learning Under Total Bandwidth constraints
 - Supervisor: Dr. Farahmand
 - GPA : 3.42
- **Bachelor of Science in Control Engineering** 2016-2021
Amirkabir University of Technology(AUT) – Tehran Polytechnic Tehran-Iran
 - Thesis Title: Reinforcement Learning in Atari Games
 - Supervisors: Dr. Menhaj, Dr. Suratgar

TOEFL score

- Reading: 26
- Overall: 99
- Speaking: 23
- Listening: 26
- Writing: 24

Reaserch intrests

- Machine Learning
- Reinforcement Learning
- Communication Systems
- Deep Learning
- Computer Vision

Notable courses

- Advanced Data Mining
 - Instructor: Dr. Minaei
- Special Topics in Communication-System 2 (Deep Learning)
 - Instructor: Dr. Hadadi
- Linear Algebra
 - Instructor: Dr. Atrianfar
- Introduction to Computational Intelligence
 - Instructor: Dr. Abdollahi
- Introduction to Computational Intelligent lab
 - Instructor: Mr. Jabarizadeh
- An Introduction to Machine Learning
 - Instructor: Dr. Seyedin
- Probability Statistics
 - Instructor: Dr. Seyedena
- Stochastic Process
 - Instructor: Dr. Farahmand
- Computer Netwrosk In Communication
 - Instructor: Dr. Beheshti
- Computer Programming
 - Instructor: Dr. Jahanshahi
- Advanced Programming
 - Instructor: Dr. Jahanshahi

Honors and Awards

- Ranked within the top 0.36 percent among approximately 165000 participants in the national entrance examination for Iranian universities. 2016
- Accepted to take part in "Physics Olympiad stage 2 " from top 5 percent of participants. 2015

Work Experience

- **Graduate Research Assistant** 2021 – Present
 - I am working on Multi-Agent Reinforcement Learning at *Dr. Farahmand's Lab*
- **Graduate Teacher Assistant** 2023 – 2024
 - I served as a teacher assistant for the Stochastic Processes course, where I assisted the professor in grading assignments, leading discussion sections, and providing additional support to students
- **Undergraduate Research Assistant** 2020 – 2021
 - I worked on (deep) Reinforcement Learning in Atari Games project at *Computer Intelligence and Large Scale System Research Lab*

Technical and Personal Skills

- **Programming/Scripting:** *Python (Pytorch, Tensorflow, OpenCV, Pandas, Numpy, Scikit-Learn, Matplotlib), RapidMiner, SQL (MySQL), C++, Matlab, HTML, CSS, Java script, Reactjs, Postman, Latex*
- **IDEs/Tools:** *Jupyter Notebook, Google Colab, Visual Studio, Pycharm, Word, Excel, Microsoft Office, PowerPoint, Git, Virtual machine, Linux*

Selected Project

- **Reinforcement Learning in Atari Games**

With the help of Reinforcement learning an agent for Atari games such as Breakout has been developed. Furthermore, I used both SARSA and DQN algorithms for training this agent and compared the results
- **Outlier Detection through Null Space Analysis of Neural Networks**

I have implemented the Outlier Detection through Null Space Analysis of Neural Networks paper. using TensorFlow, which involved training and fine-tuning deep neural networks to identify outliers in large datasets.
- **License Plate Detection for Iranian cars**

With the help of YOLO model, I developed a program that can detects license and each character.
- **Face mask detection**

By the help of transformers (ImageNet) and kaggle dataset, I trained a model that can detect whether a person has a mask or not.
- **ARIMA Model**

By the help of python and statsmodels , I trained an ARIMA model to predict the probable distance that a person is going to cover in the upcoming days.
- **Apriori Algorithm**

I used Apriori Algorithm in python to apply frequent pattern mining on a market transaction dataset.

References

- **Dr. Mohammad Bagher Menhaj**
menhaj@aut.ac.ir

Relation: Bachelor's Supervisor

- **Dr. Shahrokh Farahmand**
shahrokhf@iust.ac.ir

Relation: Master's Supervisor