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 Deep Distributed Multi-Agent Reinforcement Learning
  - 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
- Multi-Agent 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** 2024 – Present
  - I am currently serving as a teacher assistant for the Deep Learning in Communication course, where I assist the professor and the head Ta in grading assignments, leading discussion sections, and providing additional support to students
- **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
- **Simulation Tools and HardWares:** ARM(STM32), Arduino, Raspberry Pi, Proteus.
- **IDEs/Tools:** Jupyter Notebook, Google Colab, Visual Studio, Pycharm, Word, Exel, Microsoft Office, PowerPoint, Git, Virtual machine, Linux, Kali Linux

Selected Project

- **Reinforcement learning in Atari games** Instructor: Dr. Menhaj
  - 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
- **Speech detection (RNN) for Monty Hall game** Instructor: Dr. Abdolahi
  - With the help of python weights of implemented projects for Persian accent has been evaluated.
  - Furthermore, I used multiprocessing in Python to handle requests in real time.
- **Outlier Detection through Null Space Analysis of Neural Networks** Instructor: Dr. Minaei
  - 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 and classify outliers in large datasets.
- **License plate detection for iranian cars** Instructor: Dr. Hadadi
  - With the help of YOLO model, I developed a program that can detects license and each character.
- **Messenger application** Instructor: Dr. Jahanshahi
  - By the use of Django and ReactJs, a messenger like Telegram has been developed.
- **Ludo game** Instructor: Dr. Jahanshahi
  - With the help of C++, I developed Ludo game that 4 players can play the game.
- **Smart vehicle (Real time monitoring values of vehicle sensors)** Instructor: Dr. Sharifi
  - Used Arduino to monitor velocity, travelled distance, humidity, and temperature via Thingsboard.

- **Image compression** Instructor: Dr. Atrianfar
  - I implemented SVD algorithm in Matlab.

Personal Project

- **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.

- **Safty of the car prediction**

  Used decision tree algorithm in python to predict whether a car is safe or not .

- **Movie recommendation**

  By the use of item based collaborative filtering in python, I trained a model that can recommend new movies to users.

References

- **Dr. Mohammad Bagher Menhaj** Relation: Bachelor's Supervisor
  menhaj@aut.ac.ir
- **Dr. Shahrokh Farahmand** Relation: Master's Supervisor
  shahrokhf@iust.ac.ir