

Mahdiyar Ali Akbar Alavi

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🌐 [Personal Website](#)

🐙 [GitHub Page](#)

Education

University of Tehran

Tehran, Iran

Bachelor of Science in Electrical Engineering

September 2017 - July 2022

- Overall GPA: **16.75/20 (3.52/4)**
- GPA of Last 2 Years: **17.75/20 (3.79/4)**

Minor in Computer Engineering

September 2019 - February 2022

- Overall GPA: **18.29/20 (3.8/4)**

National Organization for Development of Exceptional Talents

Tehran, Iran

Diploma in Mathematics and Physics Discipline

September 2013 - June 2017

- Overall GPA: **4/4**

Research Interests

- Machine Learning
- Natural Language Processing
- Optimization
- Deep Learning
- Computer Vision
- Human-Robot Interaction

Relevant Courses (Graduate courses are indicated by †)

- Artificial Intelligence | **Score:** 19.75/20
- Operational Research | **Score:** 18/20
- Discrete Mathematics | **Score:** 17.2/20
- Modern Control Systems | **Score:** 19.1/20
- Fundamentals of Mechatronics Engineering | **Score:** 16.5/20
- Neural Networks[†] | **Score:** 16/20
- Advanced Programming | **Score:** 19/20
- Operating Systems | **Score:** 17.1/20
- Advanced Algorithms | *Auditing*
- Linear Algebra | **Score:** 18.7/20
- Data Structures | **Score:** 20/20
- Computer Architecture | **Score:** 19.3/20
- Distributed Systems | *Auditing*

Research Experience and Notable Projects

- **B.Sc. Thesis:** *Robustifying Deep NLP Models against Bias using Dataset Cartography* **February 2022 - July 2022**
Supervisor: [Dr. Yadollah Yaghoobzadeh](#)
Through Dataset Cartography, I fine-tuned RoBERTa-base and Bert-base-uncased models using various datasets in different ways; for example, first with the whole dataset and then with the most ambiguous samples of it; next, evaluated the models using prestigious evaluation sets, such as HANS and SuperGLUE Diagnostic Dataset. Currently, I am working on a paper regarding this research.
- **Gesture-controlled Robot using Arduino and Python (MediaPipe)** **October 2022**
Supervisor: [Dr. Mehdi Tale Masouleh](#)
I built a 4-wheel drive gesture-controlled mobile robot during the Arduino Instruction work experience at Robotech Academy. You can control this robot with simple hand gestures through Arduino Uno and Python MediaPipe Machine Vision library. This project was designed to assess students of the introductory robotics tutorial course.
- **Solving a Linear Programming Problem (Optimal Vehicle Routing) using Python (PuLP)** **February 2022**
Course Title: Operational Research
First, a dataset was collected through Google Maps, which included ten famous sites in Tehran. Then, inspired by the Network Flow Problem, I coded a Python script using Linear Programming to find the shortest path between two arbitrary given places in the dataset.
- **An Instagram Bot (InstaCrawler) for Automatic Data Collection using Python (Selenium)** **September 2021**
Supervisor: [Dr. Reshad Hosseini](#)
During my internship at HARA AI, I developed a Python module using the Selenium library, which was able to log into the Instagram website, like new posts, visit unseen stories, and download pictures. Collected pictures could then be used to train deep learning models in the field of Machine Vision. This project's most challenging part was making the bot behave like ordinary users, as the Instagram website can easily detect unusual behaviors and ban automatic data collectors.
- **Race Recognition using Artificial Neural Networks in Python (Keras)** **June 2021**
Course Title: Artificial Intelligence
In the first phase of this project, I analyzed the UTKFace dataset through the Pandas, Seaborn, and PyPlot libraries. Then, I prepared the data for the training process and trained an artificial neural network with the processed data using the Keras API. This model could predict each person's ethnicity by having their face image. Afterward, I tried to enhance the accuracy of predictions by changing different training parameters, such as the optimizer function or the

kernel regularizer. In the last phase, I used the test data (30% of the dataset) to evaluate the model, which indicated an accuracy of 71%.	
<ul style="list-style-type: none"> House Price Prediction using Multithreading in C++ (PThread) Course Title: Operating Systems 	June 2021
<ul style="list-style-type: none"> Multi-cycle Stack-based Processor Design in Verilog Course Title: Computer Architecture (Digital Systems II) 	May 2021
<ul style="list-style-type: none"> Classification of Persian (Farsi) Books using Naïve Bayes Classifier in Python Course Title: Artificial Intelligence 	May 2021
<ul style="list-style-type: none"> Image Restoration using Discrete Hopfield Network in Python Course Title: Neural Networks 	December 2020
<ul style="list-style-type: none"> A Two-Player Computer Game (Soccer Stars) using Object-Oriented Programming in C++ Course Title: Advanced Programming 	November 2020
<ul style="list-style-type: none"> Document Detection using MATLAB Course Title: Digital Signal Processing (DSP) 	August 2020
<ul style="list-style-type: none"> Red-Black Tree Implementation using Python Course Title: Data Structures and Algorithms 	July 2020

Teaching Assistant Experience

<ul style="list-style-type: none"> Fundamentals of Mechatronics Engineering Role: Teaching Assistant Instructor: Dr. Mehdi Tale Masouleh 	Spring 2022
<ul style="list-style-type: none"> Computer Architecture (Digital Systems II) Role: Teaching Assistant Instructor: Dr. Saeed Safari 	Spring 2022
<ul style="list-style-type: none"> Computer Architecture Laboratory Role: Laboratory Assistant Instructor Instructor: Dr. Saeed Safari 	Spring 2022
<ul style="list-style-type: none"> Modern Control Systems Role: Teaching Assistant Instructor: Dr. Hamed Kebriaei 	Fall 2021
<ul style="list-style-type: none"> Introduction to Computing Systems and Programming Role: Supervising Teaching Assistant Instructors: Dr. Hadi Moradi and Dr. Mostafa Tavassolipour 	Fall 2021
<ul style="list-style-type: none"> Electrical Measurement Laboratory I Role: Laboratory Assistant Instructor Instructor: Dr. Hossein Iman-Eini 	Fall 2018

Work Experience

<ul style="list-style-type: none"> Robotech Academy Role: Part-time Arduino Instructor Description: We are preparing an introductory robotics tutorial course, and I undertake the Arduino instruction part. 	June 2022 - Present
<ul style="list-style-type: none"> Karyar College Role: Volunteer Front-end Development Teaching Assistant Description: I used to hold weekly Q&A sessions for students who were learning front-end development. 	August 2021 - October 2021
<ul style="list-style-type: none"> HARA AI Role: Part-time Summer Intern Description: I created a Python module (InstaCrawler) to automatically collect data from Instagram. 	July 2021 - August 2021

Honors and Awards

<ul style="list-style-type: none"> Ranked 533rd among 148,000 contestants in National University Entrance Exam in the field of Mathematics and Physics 	July 2017
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Licenses and Certificates

<ul style="list-style-type: none"> <i>Natural Language Processing in Python Track</i> Presented by: DataCamp View Certificate 	March 2022
<ul style="list-style-type: none"> <i>Intro to Machine Learning</i> Presented by: Kaggle View Certificate 	September 2021

Programming Skills

<ul style="list-style-type: none"> Python (Selenium, PuLP, NumPy, Pandas, and Keras) C/C++ (Object-Oriented Programming) 	<ul style="list-style-type: none"> MATLAB Front-end Development (HTML/CSS/jQuery) 	<ul style="list-style-type: none"> Verilog HDL Arduino
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Languages

<ul style="list-style-type: none"> Persian (Farsi) Native English Advanced French Elementary 	
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References

Available upon request.