Mahsa Massoud

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Education

Bachelor of Science in Electrical Engineering (Major)   Sep. 2017 – February 2022
University of Tehran   *Tehran , Iran*

GPA of last year : 18.77/20 (4/4)
GPA of last two years : 18.44/20 (4/4)
Cumulative Grade Average: 17.42/20

Bachelor of Science in Computer Engineering (Minor)   January. 2020 – February 2022
University of Tehran   *Tehran, Iran*
Cumulative Grade Average: 19.8/20 (4/4)

Diploma In Physics and Mathematics Discipline   September 2013 - June 2017
National Organization for the Development of Exceptional Talents   *Tehran, Iran*
Cumulative Grade Average: 19.59/20

Research Interests

- Artificial Intelligence
- Machine Learning
- Computer Vision
- Medical Image processing
- Reinforcement Learning
- Signal Processing

Publications

Unlucky Explorer: A Complete non-Overlapping Map Exploration   September 2021
recently accepted

Professional Experience

B.Sc Thesis | *Computational Audio-Vision Lab*, University of Tehran   August 2021 – Present
Research Assistant   *University of Tehran*

- I'm working under supervision of Prof. Reshad Hosseini and Prof. Manouchehr MoradiSabzevar on a project about **Autism Detection Using Infants' Cry Voice** using deep neural networks and classical machine learning method.

Internship | *School of Computer Science*   July 2020 - November 2020
Research Assistant in Computer vision and games group   *Institute for Research in Fundamental Sciences (IPM)*

- Implementing Q-learning algorithms,Reinforcement Learning methods and modeling to solve Maze dash Game, Programmed in Python(Tensorflow and Keras)

Iran's National Elites Foundation Research Group   Octobor 2020 - February 2021
Research Assistant   *University of Tehran*

- Conducting research on new methods for designing interface and Paper reviewing for converting images to videos

Honors and Awards

- **Full Scholarship** from the University of Tehran (Tuition Fee)
- Ranked in **top 0.8%** among 148,000 participants in Iranian National University Entrance Exam in 2017
- **2nd Place in World Champion** in RoboCup Junior Soccer Competitions in 2015 | *Hefei,China*
- **1st Place in Best Superteam Integration** of RoboCup Junior Soccer Competitions in 2015 | *Hefei,China*
- **3rd Place in best Individual Robots** of IranOpen's Junior Soccer Competitions in 2015
- Faculty of Engineering **excellent student for 3 years**, as a result of obtaining a GPA of over 17/20.
- Member of **Iran's National Elites Foundation**
- Among **top 20** percent of 120 Electrical engineering students overall in University of Tehran | *Tehran,Iran*

Relevant Courses (Graduate courses are indicated by *)

- Machine Learning* (20/20)
- Data Structures (19.4/20)
- Artificial Intelligence (20/20)
- Algorithm Design (20/20)
- Numerical Analysis (20/20)
- Neural Networks and Deep Learning* (19.25/20)
- Linear Algebra (17.3/20)
- Mechatronics (18.5/20)
- Operation Research (Ongoing)
- Network Security (Ongoing)

Projects

Neural Networks Course Projects   **Spring 2021**

- Designing Various CNN models on Cifar10,sonar,and MNIST datasets with data augmentation

- Implementing a VAE and applying it on MNIST dataset

- Implementing VGG model based on Transefer learning

- Predicting BitCoin price with RNN,LSTM,GRU and CNN-LSTM models

- Object detection and segmentation using Yolo and U-net models

- Implementing memory NNS methods like Hebbian, hopfield net and auto-associative network

- Exploring unsupervised methods like SOM,Mexican-Hat, MaxNet and HammingNet

- Implementing Feed Forward NN, Madaline and Adaline algorithms from scratch

Machine Learning Course Projects   **Fall 2020**

- Predicting Movie genres from their textual information using bag of words, CNN, Logistic regression, and ADAboost and Random Forest Classifiers

- Implementing Parametric and Non-parametric PDF Estimation Algorithm

- Implementing the Expectation-Maximization (EM) Algorithm for GMM.

- Implementing Dimensionality Reduction Algorithms(PCA,LDA)

- Implementing Classifiers such as Bayes' Optimal Classifier, SVM

Artificial Intelligence Course Projects   **Spring 2020**

- Implementing supervised and unsupervised search algorithms(A^*, BFS, IDS)

- Solving a scheduling problem with genetic algorithm

- Sorting textbooks with Naive bayes classifiers

- Car price estimation with KNN,Decision Tree,Random Forest and Linear Regression models

Other Projects   **2017-2021**

- Epuck Robots : simulating and working on Wifi-based connection using Webots

- Implementing TwitterApplication Website using C++,HTML and CSS

- Data Analysis with statistical approach :Working on probabilities features of a dataset using R

- Designing a database of songs: Making a database of different songs with hash-table and their energies using MATLAB

- Investigating linear algebra's impact on cryptography

- Implementing ARM and MIPS Processors using Verilog

- Modeling and simulation of Inverted Pendulum using MATLAB

Teaching Experience

Neural Networks and Deep Learning   **Course Teaching Assistant**
Prof. A. Kalhor   *Fall 2021*

Engineering Probability and Statistics   **Course Teaching Assistant and Supervisor**
Prof. M.R. Abolghasemi Dehaqani , Prof. B. Bahrak   *Fall 2019,2020,2021 and Spring 2020,2021*

Intelligent Systems   **Course Teaching Assistant**
Prof. R. Hosseini   *Fall 2021*

Artificial Intelligence   **Course Teaching Assistant**
Prof. M. MoradiSabzevar, Dr. H. Fadaei, Prof. Y. Yaghoobzadeh   *Fall 2021*

Engineering Mathematics   **Course Teaching Assistant**
Prof. M. Tale Masouleh   *Spring and Fall 2020*

Introduction to Computer and Programming
Prof. M. MoradiSabzevar, Prof. M.R. Hashemi

Course Teaching Assistant
Fall 2019,2020

Mechatronics
Prof. M. Tale Masouleh

Course Teaching Assistant
Fall 2021

Robotics
Prof. M. Tale Masouleh

Course Teaching Assistant
Fall 2021

Linear Control Systems
Prof. F. Bahrami BoodeLalou

Course Teaching Assistant
Fall 2020

Electromagnetic
Prof. L. Yousefi

Course Teaching Assistant
Fall 2021

Instrumentation
Dr. M. Nayeri

Course Teaching Assistant
Spring 2021

Technical Skills

Programming:
* Python(Advanced)
* Matlab(Advanced)
* Git(Intermediate)
* C, C++(Advanced)
* HTML(Intermediate)
* LaTeX(Advanced)
* R(Intermediate)
* CSS(Intermediate)

Hardware Design:
* Verilog(Advanced)
* Modelsim(Advanced)
* Pspice(Familiar)
* ARM(Intermediate)
* QuartusII(Advanced)
* Proteus(Intermediate)
* AVR(Intermediate)
* Multisim(Intermediate)
* Altium(Familiar)

Frameworks,Libraries and Operational Systems:
* Pytorch(Intermediate)
* NumPy(Advanced)
* scikit-learn(Advanced)
* Tensorflow(Intermediate)
* Pandas(Advanced)
* Linux(Intermediate)
* Keras(Intermediate)
* OpenCV(Intermediate)

Conferences

Summer School 2021
Current and future applications of network and control sciences for Psychiatry

Sep 29 – Oct 1, 2021
Tübingen, Germany

DAGM GCPR 2021
DAGM German Conference on Pattern Recognition

Sep. 28 – Oct. 1, 2021
Bonn, Germany

CAIP 2021
The 19th Int. Conference on Computer Analysis of Images and Patterns

Sep. 28 – Oct. 1, 2021
Nicosia, Cyprus

CLEF 2021
Info. Access Eval. meets Multilinguality,Multimodality,and Visualization

Sep. 23 – Sep. 24, 2021
Bucharest, Romania

ASOC 2021
Fifth IPM Advanced School on Computing: Artificial Intelligence

Sep. 5 – Sep. 8, 2021
Tehran, Iran

References

Prof. Reshad Hosseini
Assistant Professor
Email : reshad.hosseini@ut.ac.ir

Prof. Mohammadreza Abolghasemi Dehaqani
Assistant Professor
Email : dehaqani@ut.ac.ir

Language

English
TBA