Negar Honarvar Sedighian

Mashhad, Iran

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Education

Shahid Behehshti University   **Tehran, Iran**
Bachelor of Science in Computer Engineering   *Sep. 2020 to Feb. 2025*

○ **Cumulative GPA: 17.49/20 (3.68/4)**
○ **GPA of last two years: 18.32/20 (3.79/4)**

Relevant Courses: GPA: 4/4

- Fundamentals of Computer Vision	- Machine Learning	- Computer Simulation
- Fundamentals of Robotics	- Artificial Intelligence	- Statistics and Probability
- Deep Reinforcement Learning	- Algorithms Design	- Data Structures

Farzanegan 1 Secondary School   **Mashhad, Iran**
High School Diploma in Mathematics   *Sep. 2017 to Jun. 2020*

○ **Diploma GPA: 19.98/20 (4.0/4.0)**

Work Experience

Network Security Assistant   **Tehran, Iran**
Dotin   *Jun. 2023 to Oct. 2023*

○ Management of access levels for company members in various departments to available resources and information in each section by utilizing Windows Azure, as well as identifying and analyzing potential weakness and breaches in the network.

Network Security Intern   **Tehran, Iran**
Dotin School   *Jan. 2023 to Jun. 2023*

○ Internship at Dotin school bootcamp for network security.
○ Learned about different types of security vulnerabilities, how to identify risks, respond to incidents, and perform penetration testing.

Research Interests

- Applicaton of Deep Learning Methods in Health Care	- Graph Neural Networks Methods and Application
- Accelerated MRI Reconstruction	- Image Super Resolution and Denoising

Research Experience

B.Sc Thesis   **Shahid Beheshti University**
IMAGE PROCESSING AND DISTRIBUTED SYSTEMS LAB   *in preparation*

○ Proposing a Dynamic Attentive Graph Neural Network for Cardiac MRI Reconstruction in a cascading manner.
○ Under Supervision of Dr. Mohsen Ebrahimi Moghaddam.

Honors and Awards

○ **Ranked 2nd** among 90 in admission among accepted students in the Computer Engineering department, Shahid Beheshti University, 2023.
○ **Ranked 321st** in National entrance exam for B.Sc Studies among 160,000 students, 2020.
○ **Ranked 1st** in **National Organization for Development of Exceptional Talents** Secondary School Entrance Exam in Khorasan Razavi Province, 2017.

Projects

DAGMRNet: Dynamic Attentive Graph Learning for Cardiac MRI Reconstruction   **Feb. 2025**
Link to GitHub Repository

- A Dynamic Attentive GNN model for Reconstruction of highly under-sampled Cardiac MRI images of CMRxRecon Dataset is proposed.
- The proposed model reconstructs under-sampled cardiac MRI images by leveraging both spatial and temporal relationships in the data according to self-similarity image prior. The model utilizes a PromptUnet, a U-Net enhanced with prompt and attention blocks, introduced by PromptMR framework for sensitivity map estimation.

Automated Stock Trading Strategy with DRL   **Jun. 2024**
Link to GitHub Repository

- Designed a Cascading Long Short-Term Memory Proximal Policy Optimization (PPO) model which uses LSTM layers to capture temporal dependencies in stock data and a PPO algorithm to optimize trading decisions.
- The environment is from yfinance library with trading data from Jan. 2009 up to Jun. 2024.

Deep Reinforcement Learning Algorithms   **May. 2024**
Link to GitHub Repository

- A Complete Collection of Deep RL Famous Algorithms implemented in Gymnasium's most Popular environments.
- Implementation of SARSA and DQN with boltzman in CartPole.
- Implementation and comparison of DQN, D3QN, and Enhanced D3QN Agents in Lunar Lander environment.
- Implementation of Proximal Policy Optimization algorithm in Swimmer, with clipped objective PPO and adaptive kl PPO agents.

Enhanced Farsi News Classification   **Mar. 2024**
Link to GitHub Repository

- The goal of this project is to develop an enhanced neural network model to classify Farsi news articles into their respective categories.
- The dataset has been preprocessed with Tokenization and Feature Extraction.

Classic Computer Vision   **Feb. 2024**
Link to GitHub Repository

- Application of Classic Computer Vision Techniques such as Filtering, Transformation, and Feature Extraction for image interpretation.

Guidance of a Quadcopter for Object Detection   **Mar. 2024**
Link to GitHub Repository

- Designed a controller for a quadcopter to control its flight over boxes in an urban environment, automatically taking precise images of boxes and interpreting the images using Computer Vision Deep Learning-Based Approaches.
- After interpreting the image, the quadcopter determines whether the item matches the target item; if matched, the quadcopter lands beside the box and turns on its front LEDs.

Bug Algorithms   **Jan. 2024**
Link to GitHub Repository

- Implementation of Bug1, Bug2, and Wall-following algorithms for GCTronic's e-puck in the Webots environment.
- Each algorithm successfully guides the robot through a maze.
- Map of the maze is generated with Bug2 and split-and-merge algorithms.

Machine Learning Algorithms   **Jan. 2024**
Link to GitHub Repository

- This repository includes famous classification and regression algorithms, each applied to solve a related problem.
- Each problem includes Feature Engineering methods to prepare raw data by transforming it into relevant features.
- Algorithms include K-Nearest Neighbors, Support Vector Machine (SVM), Decision Tree, and Gradient Descent for supervised learning; DBSCAN is used as an unsupervised algorithm.

Tron Game Agent   **May. 2023**
Link to GitHub Repository

- The algorithm devised for this game is a combination of a Genetic Algorithm and Minmax, where Minmax is used as the fitness function for the Genetic Algorithm.
- This game consists of two real-time agents that try to create more walls than their opponent while avoiding collisions with each other and the boundary walls. The Unity framework used is based on Chillin's monitor games.