

Mohammad Choupan

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Education

- 2020 – 2024 **Bachelor's Degree** *Amirkabir University of Technology, Tehran, Iran*, Computer Engineering
- GPA: 3.7/4
 - GPA Over the Last Two Years: 3.83/4
- 2016 – 2019 **Diploma** *Atomic Energy High School, Tehran, Iran*, Mathematics and Physics Discipline

BSc Thesis

- August 2023 – Present **Assessment of the Fusion of Graph Models and Point Net Model for Processing Graph and Point Cloud Data**
- Supervisor: Prof. Javanmardi.
 - Implementation and analysis of combining two common models in 3D Object classification, including SAG Pool and Point-Net, to gain the highest accuracy in point cloud classification.

Research Interests

- Computer Vision
- Panoptic Segmentation
- Point Cloud Classification

Research and Work Experience

- April 2023 – Present **Point Cloud Classification** *Tehran, Iran*
- Finding the best way to classify point cloud data with the highest accuracy.
- April 2023 – Present **Evaluation of positioning error in self-driving cars using map matching methods** *Tehran, Iran*
- Finding Object cause error in NDT matching algorithm. Use Neural Networks to find object can cause error and objects can reduce the error.
- February 2021 – January 2023 **Freelancing as a Full-stack Developer** *Tehran, Iran*
- **Designed and developed the Inventory Gap Analysis System** for World Help Organization (WHO).
 - Developed and validated analysis workflows for vaccine stocks in over 13 countries such as Ukraine, Azerbaijan, the Philippines, and more.
 - Implemented load balancing for all countries on one server.
 - **Designed and developed Cloud Drive.**
 - Designed a simple cloud drive for personal use by the company.
- March 2021 – November 2021 **Developer** *Puzzle Studio, Tehran, Iran*
- Designed websites using agile sprint methods and also performed load balancing and developed online streaming servers for online courses. Visit [website](#).

Teaching Assistant Experience

- Fall 2024 **Computer Networks** Prof. Babak Sadeghian
- Fall 2023 **Cloud Computing** Prof. Seyyed Ahmad Javadi
- Fall 2023 **Data Mining** Prof. Maryam Mazlaghani
- Spring 2023 **Fundamentals of Robotics** Prof. Mahdi Javanmardi
- Spring 2023 **Head TA Embedded and Real-time Systems** Prof. Hamed Farbeh
- Spring 2023 **Algorithm Design** Prof. Sajjad Shirali Shahreza
- Fall 2022 **Algorithm Design** Prof. Mahdi Javanmardi
- Fall 2022 **Head TA Microprocessor and Assembly Lab** Prof. Hamed Farbeh
- Spring 2022 **Head TA Algorithm Design** Prof. Alireza Bagheri & Prof. Sajjad Shirali Shahreza
- Spring 2022 **Microprocessor and Assembly** Prof. Hamed Farbeh
- Fall 2021 **Data Structures and Algorithms** Prof. Alireza Bagheri
- Fall 2021 **Fundamentals of Programming (C programming)** Prof. Hossein Zeinali

Publications

- July 2022 ○ M. Ebadpour, M. Javan, **M. Choupan**, M. Atyabi, "PointNet meets Self-Attention Graph Pooling: A Synergistic Approach to Point Cloud Classification," (*in progress*). Visit [link](#).

Achievements

- September 2019 - May 2024 **University Courses**
○ Completed Computer Engineering courses with an A+ score, totaling 143 credits, while working in reputable companies and conducting research alongside my studies.
- August 2018 **Ranked within the top 0.5% (900 among 164,278 students) in the Iranian University Entrance Exam**
○ The exam is highly competitive as it is the only way to gain admission to universities in Iran.
- September 2018 **National Chemistry Olympiad Bronze Medal**
○ Earning a medal in the Chemistry Olympiad is challenging, with only 30 people awarded medals in the entire country.

Notable Projects

- Spring 2023 **Data Mining Course Projects** [GitHub](#)
○ Preprocessed raw data and performed dimension reduction with PCA using a given dataset.
○ Implemented a TensorFlow Neural Network project, tuned hyperparameters, and analyzed results using visualization.
○ Applied association rules to a hypermarket dataset.
- Spring 2022 **Search Engine** [GitHub](#)
○ Built a news search engine that retrieves news articles by implementing tf-idf and k-means models and a k-nearest neighbors (KNN) classifier for categorizing unlabeled data in Python.
- Fall 2021 **Fuzzy Inverted Pendulum** [GitHub](#)
○ This project consists of an inverted pendulum simulator and a fuzzy controller. The main goal was to develop a simple yet useful simulator to model the environment, allowing for the creation of a fuzzy controller for the inverted pendulum problem. It was implemented using pygame and pyfuzzy in Python 2.7.
- Fall 2021 **Image Processing with ANN** [GitHub](#)
○ This is a simple example of image processing with ANN. The goal is to classify images of fruits using the Fruits-360 dataset. The project involved calculating the accuracy of the model.
- Fall 2021 **Snail Jumper** [GitHub](#)
○ This is a simple example of using neuroevolution in games. It uses neural networks and a genetic algorithm to control a snake.

Technical Skills

Programming Languages: *Python, Bash, JavaScript*

Tools/Frameworks: *PyTorch, Scikit-Learn, TensorFlow, Pandas, NumPy*

Other: *Git, React, LaTeX, DevOps*

Language Proficiency

- October 2023 **TOEFL IBT Test: 84**
○ Reading: 23
○ Listening: 23
○ Speaking: 18
○ Writing: 20

References, further information, and proofs are available upon request