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Aryan Mikaeili

Education

2016–present (expected: June 2021) **B.Sc. in Computer Engineering**, *Sharif University of Technology*, Tehran, Iran.
cumulative GPA: 17.89 / 20
final two years GPA: 18.35 / 20

Research Interests

- Computer Vision
- Machine learning - Deep learning: Trustworthy machine learning (adversarial attacks and defenses, privacy in machine learning), Graph machine learning, Generative models, Deep learning theory
- Computational Biology - Bioinformatics

Relevant Coursework

Machine learning for Bioinformatics (graduate), Digital image processing (graduate), Advanced 3D computer vision (graduate), Machine learning (graduate, audited), Engineering probability and statistics, Statistics and its applications, Linear algebra, Algorithmic game theory, Foundations of neuroscience

Accomplishments and Honors

2016–present Iran National Elite Foundation fellowship and grant: received the yearly grant for four years

2016 Ranked 95th in Iranian University Entrance Exam (konkur) among approximately 170 thousand participants, Mathematics and physics group

2016 Ranked 8th in Iranian University Entrance Exam (konkur) among approximately 170 thousand participants, English language group

Experiences

Research experience

June 2020 - present **Image processing lab (IPL)**, *Sharif University of Technology*, Supervisor: Dr.Shohreh Kasaei.
Research subject: Adversarial attacks and defenses on 3D point clouds - Interpretability of deep point cloud models

January 2019 - April 2019 **Bioinformatics and Computational biology lab (BCB)**, *Sharif University of Technology*, Supervisor: Dr. Mohamad Hossein Rohban.
Research subject: Removing batch effect on single cell image data

Teaching experience

Fall 2020 **Teaching assistant**, *Machine learning (Graduate course)*, Lecturer: Dr. Abbas Hosseini.
Responsibilities:
- Created educational content, lecture notes and Jupyter notebooks for some parts of the course

Fall 2020 **Teaching assistant**, *Operating systems*, Lecturer: Dr. Hossein Asadi.

Fall 2020 **Teaching assistant**, *Scientific and Technical presentation*, course professor: Dr. Shohreh Kasaei.

Responsibilities:

- Designing and grading some of the course assignments

Spring 2020 **Teaching assistant**, *Computer Architecture*, Lecturer: Dr. Hossein Asadi.

Responsibilities:

- Designed and graded some of the course assignments
- Designed the course project: Designing a single purpose processor for sorting an array of numbers using bubble sort algorithm

Spring 2020 **Teaching assistant**, *Algorithm Design*, Lecturer: Dr. Ali Sharifi Zarchi.

Responsibilities:

- Designed and graded some of the course assignments
- Created educational content, lecture notes and Jupyter notebooks for some parts of the course

Spring 2020 **Teaching assistant**, *Database Design*, Lecturer: Dr. Abbas Heydarnoori.

Responsibilities:

- Designed and graded some of the course assignments

Fall 2019 **Teaching assistant**, *Computer Structure and Language*, Lecturer: Dr. Hossein Asadi.

Responsibilities:

- Designed and graded some of the course assignments
- Designed the course project: Making a game controlled by an IR proximity detector using Arduino
- Held a workshop on X86 assembly language

Fall 2019 **Teaching assistant**, *Introduction to Bioinformatics*, Lecturer: Dr. Ali Sharifi Zarchi and Dr. Somayeh Kouhi.

Responsibilities:

- Designing and grading some of the course assignments

Spring 2019 **Teaching assistant**, *Artificial Intelligence*, Lecturer: Dr. Mohammad Hossein Rohban.

Responsibilities:

- Designed and graded some of the course assignments
- Contributed to the course question bank

Fall 2018 **Teaching assistant**, *Computer Structure and Language*, Lecturer: Dr. Hossein Asadi.

Responsibilities:

- Designed and graded some of the course assignments
- Designed the course project: Implementing Tetris game using Arduino and matrix LED
- Held a workshop on MIPS assembly language

Selected academic projects

September 2020 **IPL**, *Subject: Adversarial attacks on 3D point cloud models.*

- Implemented the Deepfool attack method as a part of my research project
- Implemented the C&W attack as a part of my research project

Codes and resources for this project can be found here

August 2020 **IPL**, *subject: 3D point cloud classification models.*

- Implemented the PointNet model—a deep neural network for classification and segmentation of 3D point clouds—as a part of my research project

Codes and resources for this project can be found here

Spring 2020 **Machine learning for Bioinformatics course project**, *subject: Drug-Target affinity prediction using machine learning.*

phase 1:

- Implemented Simboost - A method based on Feature engineering and XGBoost model
- Got best results among 34 students. the results where sorted based on $F1$ score

phase 2:

- Implemented DeepDTA model - a model based on CNNs
- Extended the model to use RNNs in order to extract sequential features from target data
- Reduced MSE loss by 0.03 compared to the DeepDTA model

Codes and resources for this project can be found here

Spring 2020 **Embedded systems course project**, *subject: Smart House Lighting.*

- Implemented a voice recognition system using Raspberry Pi board for controlling lights using voice commands
- Developed a website for controlling lights remotely

Fall 2019 **Systems design and analysis course project**, *subject: Sharif students feedback system.*

- Developed a feedback website for students and professors in a team of 4 students

Fall 2017 **Engineering probability and statistics course project**, *subject: An R package for sampling and estimating continuous and discrete distributions.*

- Implemented mersenne twister, linear congruential, xorshift methods for pseudo random number generation
- implemented random number samplers for several distributions
- implemented a GUI for the project

Technical Skills

General

Advanced — Python (PyTorch, NumPy, SciPy, Scikit-learn, TensorFlow, etc), C, C++, R, Java

Intermediate — MATLAB, SQL, LaTeX

Microcontroller programming (Arduino, Raspberry Pi), Git

Web Development

Familiar — Django, CSS, HTML

Languages

Farsi **Native**.

Kurdish **Native**.

English **Fluent**.

- IELTS (exam date: June 18 2020): Total score: 8 (Speaking: 7.5, Writing: 6.5, Listening: 8.5, Reading: 9)
- GRE (exam date: October 29 2020): Quantitative: 170, Verbal: 157, Analytical writing: 3.5