Haleh Damirchi

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Work Experience

Graduate Research Assistant — May 2021 – Present
Queen's University — *Aiim lab, RCV LAB*

Machine Vision with Deep Learning Teaching Assistant — Fall 2023, Fall 2024
Queen's University — *Undergraduate*

C Programming Teaching Assistant — Fall 2021, Fall 2022
Queen's University — *Undergraduate*

Artificial Intelligence Teaching Assistant — Winter 2022, Winter 2023
Queen's University — *Undergraduate*

Machine Learning Teaching Assistant — Fall 2019 – Fall 2020
Amirkabir University of Technology — *Graduate/Undergraduate*

Logic Circuits Teaching Assistant — Winter 2019, Winter 2020
Amirkabir University of Technology — *Undergraduate*

R&D Intern — Summer, Fall 2016
Aria Kavosh Industrial Corp.

Tech Blogger — Aug 2015 – June 2016
Graph Team - ZAMANA blog

R&D Intern — Summer 2014
Tabriz Peguh

Technical Skills

- C, Python, Tensorflow, Keras, Pytorch, Matlab, Latex, MySQL
- AVR, PCB Design, PLC Ladder

Publications

[1] **H. Damirchi**, A. Etemad and M. Greenspan, "Socially-informed Reconstruction for Pedestrian Trajectory Forecasting", IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2025)

[2] **H. Damirchi**, M. Greenspan and A. Etemad, "Context-Aware Pedestrian Trajectory Prediction with Multimodal Transformer", International Conference on Image Processing (ICIP 2023).

[3] M. Zand, **H. Damirchi** and A. Farley, M. Molahasani, "Multiscale Crowd Counting and Localization by Multitask Point Supervision ",IEEE International Conference on Acoustics (ICASSP 2022).

[4] **H. Damirchi**, S. Seyedin and S. M. Ahadi, "Speaker Extraction Using Stacked BLSTM Optimized with Frequency-domain Differentiated Spectrum Loss", Iranian Conference on Electrical Engineering (ICEE 2020).

[5] **H. Damirchi**, S. Seyedin, S. M. Ahadi, "Improving the Loss Function Efficiency for Speaker Extraction Using Psychoacoustic Effects", *Applied Acoustics*.

Education

Queen's University — Kingston, Canada
PhD. Electrical and Computer Engineering, GPA: 4.15/5 — *2021 – Present*
Thesis: Pedestrian Trajectory Prediction

Amirkabir University of Technology — Tehran, Iran
M.Sc. Electrical Engineering, GPA: 17.83/20 — *2017 – 2020*
Thesis: Single-channel Speaker Extraction based on Deep Learning

Tabriz University — Tabriz, Iran
B.Sc. Electrical Engineering, GPA: 16.07/20 — *2012 – 2016*

Projects

Trajectory Prediction | *Pytorch*
- Worked with CNNs, Transformers, and recurrent networks for pedestrian trajectory prediction.
- Conducted a survey on the previous methods in this area.

Crowd Counting | *Pytorch*
- Worked with Convolutional Neural Networks for crowd counting.
- Conducted a survey on the previous methods in this area.

Facial Recognition | *Pytorch*
- Worked on deep neural networks (CNN) for Facial Recognition using facial landmarks as an auxiliary.

Speaker Extraction | *Tensorflow, Pytorch, Matlab*
- Worked on deep neural networks (DNN, LSTM, CNN) for speaker extraction.
- Researched for and implemented different loss functions for DNN and LSTM models.

Speech Recognition | *Matlab*
- Used Hidden Markov Models (HMM) and Dynamic Time Warping (DTW) to recognize an utterance.

Speech Enhancement | *Matlab*
- Enhanced the input noisy speech signal using MMSE and Spectral Subtraction algorithm.

Voice Activity Detection | *Matlab*
- Used Ramirez04 algorithm to detect the activity of speech signals.

Packet Transmission in Wireless Sensor Networks | *Python*
- Optimized packet sending using Ant Colony Optimization algorithm.

Backpropagation using Evolutionary Algorithms| *Python*
- Implemented backpropagation in a deep neural network using Gray Wolf and Particle Swarm Optimization.

Path Planning through Obstacles | *Python*
- Implemented genetic algorithm to optimize path planning through obstacles.

Flight Trend Prediction | *Python, Tensorflow*
- Predicted number of flights based on trends and data given by Alibaba company.

Car Price Prediction | *Python*
- Extracted car data from Bama car dealership website using BeautifulSoup python library.
- Predicted the price of cars using machine learning algorithms in sklearn python library.

Service and Professional Activities

Reviewer:

- AISTATS 2025
- ICLR 2025
- NeurIPS 2024
- ICASSP 2024
- AAAI 2023 Workshop on Representation Learning for Responsible Human-Centric AI
- IEEE Transactions on Artificial Intelligence (Journal)
- Transactions on Affective Computing (Journal)

Organizing committee member:

- International Conference on Signal Processing and Intelligent Systems, Dec. 2018 at Amirkabir University of Technology, Tehran, Iran.

Languages

- Azeri, Persian: Native
- English: Fluent