Amir Mohammad Babaei

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Education __

Sharif University of Technology (SUT)

Tehran, Iran

MSc in Computer Engineering, Artificial Intelligence and Robotics

Sep. 2023 - Present

- GPA: **18.33/20.00** (**4.00/4.00**)
- member of Sharif Image Processing Laboratory (Sharif IPL)
- Supervisor: Prof. Shohreh Kasaei

Thesis: Blind Image Super-Resolution Using Deep Generative Neural Network Architectures

Amirkabir University of Technology (AUT)

Tehran, Iran

Sep. 2019 - Sep. 2023

BSC IN COMPUTER ENGINEERING

- GPA: 19.09/20.00 (3.96/4.00)
- · Ranked 4th among 149 students.
- Supervisor: Dr. Maryam AmirMazlaghani

Thesis: Graph-based Convolutional Multivariate Time Series Forecasting Approach for Urban Traffic Forecasting

Research Interests _

- Image Super-Resolution
- Deep Generative Models
- Deep Learning

- · Image Restoration
- Natural Language Processing

• Computer Vision

• Graph Neural Networks

Publications_

In Review

Esmaeilzehi, A., Babaei, A.M., Nooshi, F., Zaredar, H., Ahmad, M.O., "CLBSR: A Deep Curriculum Learning-based Blind Image Super Resolution Network using Geometrical Prior," *Image and Vision Computing Journal*, Submitted in July 2024

IN PREP

Babaei, A.M., Nabati, S., Dehghanian, Z., AmirMazlaghani, M., "GSCINet: Graph-based Convolutional Multivariate Time Series Forecasting Approach for Urban Traffic Forecasting", Ongoing

Languages_

- English (TOEFL Mock: **101** (R:**29**, L:**25**, S:**22**, W:**25**))
- Persian (Native)

TOEFL exam is scheduled for Nov 2, 2024

Skills and Expertise _____

Programming	Python, Java, C/C++, MATLAB (GNU Octave)
Languages	, , , . , . , . ,

Tools Git, Linux, Bash, GDAL, LangChain, Ollama

Libraries & PyTorch, BasicSR, KAIR, PyTorch Geometric, Hugging Face Transformers, JAX, Keras,

Frameworks TensorFlow, Numpy, OpenCV, Pandas, Scikit-learn, Matplotlib

Honors and Awards

2023	Admitted to the Master of Science program at Sharif University of Technology based on exceptional academic performance , without the need for an entrance exam.	SUT
2023	Ranked 4th Highest GPA among 149 Undergraduate Computer Engineering Students	AUT
2019	Among the top 2% of the Iranian University Entrance Exam and Recognized as an Outstanding Student	AUT

Teaching Experience Deep Learning Teaching Assistant, Computer Engineering Dept., under the supervision of Dr. Fall 2024 SUT Beigy Advanced 3D Computer Vision Teaching Assistant, Computer Engineering Dept., under the SUT supervision of Dr. Kasaei Fundamental of 3D Computer Vision Teaching Assistant, Computer Engineering Dept., under Spring 2024 SUT the supervision of Dr. Naderi Head of Data Mining Teaching Assistance, Computer Engineering Dept., under the supervision of Spring 2023 AUT Dr. Nazerfard Applied Linear Algebra Teaching Assistant, Computer Engineering Dept., under the supervision AUT of Dr. AmirMazlaghani

Head of Applied Linear Algebra Teaching Assistance, Computer Engineering Dept., under the

Selected Projects_

Fall 2021

See full list of projects on github.com/AmirMohamadBabaee

Deep Learning Homework

This repo covers deep learning tasks like dimensionality reduction, autoencoders, graph embeddings, and reinforcement learning, using methods like PCA, t-SNE, DeepWalk, and VAE on FashionMNIST. (Link)

supervision of Dr. Nazerfard

Digital Image Processing Homework

This repo has solutions to six Digital Image Processing homework assignments, featuring techniques like filtering, transformations, compression, and segmentation, all implemented in Python using Jupyter notebooks. (Link)

Deep Generative Models Homework

This repository features implementations of various deep generative models, including VAEs, GANs, NFs, DDPMs, and EBMs, using datasets like MNIST and CIFAR-10. (Link)

• SVM Optimization using Pyomo

This repository contains the implementation of Support Vector Machines (SVM) using Pyomo framework. (Link)

Research Experience

Sharif University of Technology - Image Processing Laboratory (IPL)

Tehran, Iran

AUT

ADVISORS: PROF. SHOHREH KASAEI

Nov 2023 - Present

- Working on Efficient Super-Resolution, proposing a new approach by integrating image processing concepts into the network.
- My thesis focuses on improving the efficiency of deep generative models for Image Super-Resolution, especially diffusion models.

University of Toronto - Dept of Electrical and Computer Engineering

Full Remote

ADVISORS: DR. ALIREZA ESMAEILZEHI

Nov 2022 - Aug 2024

• Collaborated with Dr. Alireza Esmaeilzehi, Postdoctoral Fellow at the University of Toronto, on advanced deep learning and computer vision research since Fall 2022. Co-authored and submitted a paper in Computer Vision to a top-tier journal.

Professional Experience _

Computer Vision Engineer, Refined both airborne and spaceborne imagery through advanced Feb 2024 - May 2024

processing techniques, ensuring they were primed for seamless integration into the subsequent

stages of the image processing pipeline

Data Scientist, Collaborated with Omid Mirabzadeh at Bale to develop data-driven solutions for various challenges. Contributed to the development of a channel classifier, channel recommender

system, and intelligent advertisement projects as part of the data science team at Bale.

Bale Messenger

Nazru

Certificates_

May 2023 - Feb 2024

Machine Learning (Certificate) CS224n: NLP with Deep Learning (Audited) Coursera Stanford

Deep Learning (Certificates: 1, 2, 3, 4, 5) CS224W: Machine Learning with Graphs (Audited) Stanford Coursera

Coursera Mathematics for Machine Learning (Certificate) Stanford CS236: Deep Generative Models (Audited)