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AmirHossein Najafi

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Summary

Master's student specializing in Artificial Intelligence, Deep Learning, and Computer Vision. Experienced in developing and deploying advanced machine learning models and working on a variety of computer vision and image processing tasks, including cross-sectional analysis. Proficient in Python and deep learning architectures. Passionate about advancing AI research and contributing to innovative projects.

> Education

M.Sc: Computer Engineering

[K. N. Toosi University of Technology](#), Tehran, Iran **From** Sep 2022 **To** present

- ❖ Thesis: Diagnosing Diabetic Retinopathy using Fundus image translation to OCT images
- ❖ Supervisor: Dr. Ali Ahmadi
- ❖ Important graduate courses with excellent grades
 - ◇ **Digital Image Processing** (Jul 2024) 4 / 4
 - ◇ **Advanced Data Mining** (Jul 2024)..... 4 / 4
 - ◇ **Internet of Things: Principles and Applications** (Jul 2024)..... 4 / 4
 - ◇ **Advance Algorithm Design** (Dec 2023)4 / 4
 - ◇ **Seminar Course** (Dec 2023)4 / 4

B.SC: Computer Engineering

[University of Zanjan](#), Zanjan, Iran **From** Sep 2017 **To** Aug 2022

- ❖ Thesis: Smart Door Security By Facial Recognition
- ❖ Supervisor: Dr.Ali Amiri
- ❖ GPA: 3.2/4
- ❖ Important undergraduate courses with excellent grades
 - ◇ **Machine Vision** (Dec 2022).....4 / 4
 - ◇ **Artificial Intelligence** (Dec 2020).....4 / 4
 - ◇ **Data Mining** (May 2020).....4 / 4
 - ◇ **Algorithm Design** (May 2019) 4 / 4
 - ◇ **Advance Programming** (May 2019) 4 / 4

Diploma: **Mathematics and Physics**, National Organization **FOR DEVELOPMENT EXCEPTIONAL TALENTS**([SAMPAD](#)),
From Sep 2013 **To** Aug 2017

- ❖ GPA: 4/4

> Professional Experience

Deep Learning Specialist, ChashmYar, Tehran, Iran

From Dec 2023 To Present

- ❖ Researched deep learning techniques for Generative Adversarial Networks (GANs) and explored diffusion models for generative tasks.
- ❖ Built models for translating fundus images to OCT images, focusing on ophthalmology and medical imaging.
- ❖ Designed a deep learning model for diagnosing diabetic retinopathy.

GANs - Diffusion Models - Image to Image Translation - Neural Network - PyTorch - Tensorflow

Reserach Assistant - Deep Learning - Data Scientist, Dr. Ahmadi's Lab, K.N.Toosi University, Tehran, Iran

From Dec 2022 To Present

- ❖ Researched deep learning and computer vision methods for medical applications.
- ❖ Deployed and trained deep model architectures, including U-Net and SA-Unet, for medical image analysis.
- ❖ Implemented deep learning methods for diagnostic purposes.

Deep Learning - Computer Vision - Image Processing - Medical Image Analyzing

Team Lead and Machine Learning Researcher | Smart Door Security, University of Zanjan, Zanjan Iran

From Aug 2021 To May 2022

- ❖ Designed a facial recognition device for security using Raspberry Pi.
- ❖ Utilized TOF Camera and OpenCV cascade model for depth analysis and real vs. fake face detection.
- ❖ A demonstration video of the project is available at This is the [Link](#)

Python - OpenCV - TOF - Cascade - Neural Network - Raspberry Pi - IOT - DepthMap - 3D Scanning

Software and DevOps Engineer, Database Designer, Data Engineer | Kian-Irapardaz, Tehran, Iran

From Dec 2022 To Aug 2023

- ❖ Worked on a crowdsourcing platform providing various data services..
- ❖ Designed and implemented pipelines for micro and macro tasks.
- ❖ Analyzed business data to gain insights.
- ❖ Link of Project: irapardaz.ir & irapishe.ir

PHP - Laravel - MySQL - Redis - Linux - Metabase

Team Lead and Software Engineer | Kojaii, Zanjan, Iran

From Jun 2021 To Aug 2022

- ❖ Designed relational databases (PostgreSQL) and NoSQL databases (Redis).
- ❖ Developed backend using PHP and Laravel.

PHP - Laravel MVC - Team Manager - NoSQL - Redis

> Skills

Deep Learning Architectures: ResNet, AlexNet, InceptionV3,

YOLO, U-Net, VGG, GoogleNet

Programming: Python, PHP, C++

Libraries: Tensorflow, Keras, Pytorch, OpenCV, PyQt

Technology: Git, Hadoop, ApacheHive, Kafka

Database System: MySQL, Oracle, Redis, MongoDB

Operating System: Linux (Ubuntu, Mint, Raspberry Pi)

Others: Strong communication, logical thinking, playing guitar

> Research Interests

Deep Learning, Generative Models, GAN, Difusion Models

Computer Vision, Image Processing

Artificial Intelligence for Health and Treatment

Data Science, Data Engineering, Big Data

> Publications

- ❖ **Automated SEM Image Segmentation with U-Net for Enhanced Evaluation of Polyamide 6/Nano-Zeolite Nanocomposites**, Journal of [\(Unknown yet\)](#), (In Progresss)
 - ❖ **Deep learning-assisted morphological segmentation for effective particle area estimation and prediction of interfacial properties in polymer nanocomposites**, Journal of [Nanoscale](#) (Q1, Impact Factor: 6.7), (Under Review)
 - ❖ **Morphology-Driven Nanofiller Size Measurement Integrated with Micromechanical Finite Element Analysis for Quantifying Interphase in Polymer Nanocomposites**, Journal of [ACS Applied Materials & Interfaces](#) (Q1, Impact Factor: 9.5), [Click on this Link to visit the article](#)
 - ❖ **Analysis of interfacial characteristics in polymer nanocomposites via visual particle recognition methodology and micromechanical predictive models**, Journal of [Composite Science and Technology](#) (Q1, Impact Factor: 9.1), [Click on this Link to visit the article](#)
 - ❖ **How to use Face Authentication for Security Issues**, [Medium](#), [Click on this Link to visit the article](#)
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> Honors And Awards

- ❖ **Admission to K.N. Toosi University** for a master's degree, one of the top 5 universities in Iran in the field of computer science.
 - ❖ **Ranked 360th (Top 0.9%)** among approximately 40,000 participants in the National Universities Entrance Exam for graduate level.
 - ❖ **Candidate for Best B.Sc. Thesis** at the Exhibition of Applied Theses, University of Zanjan.
 - ❖ **First Place** among university teams in the programming team competition at the ACM competition.
 - ❖ **Ranked Top 3%** among all Iranian students in the National Universities Entrance Exam for undergraduate level.
 - ❖ **Selected as a Qualified Candidate** at the first stage of the Iranian Mathematics Scientific Olympiad.
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> Projects

Fundus2OCTA Vascular Mapping with GAN (2023)

- ❖ Segmenting blood vessels in fundus images enables better comprehension of retinal diseases and facilitates the computation of image-based biomarkers. However, manual vessel segmentation is a labor-intensive task. This project aims to automate vessel segmentation using generative adversarial networks (GANs). ([Link](#))

[GAN](#) - [Generative Models](#) - [Deep Learning](#) - [Tensorflow](#) - [Pyhton](#)

Laundry-Reserve-IoT: Smart Laundry Reservation System (2024)

- ❖ This system allows students to reserve machines online, while an admin panel empowers staff to monitor usage, track data, and even control machines remotely. ([Link](#))

Python - IOT - MicroPython - ESP32 - Django - Data Analyze

Automatic Door Lock System by Face Recognition (2022)

- ❖ A smart device to open the door or control the entry and exit of companies or organizations, which does this by recognizing the face and checking the authenticity of the face ([GitHub](#))

Python - RaspberryPi - Deep Learning - Depth Map Camera - Yolo

Measuring Sunlight Intensity for Atmospheric Analysis (2022)

- ❖ Sunlight analysis informs air quality by measuring dust and pollutants. ([GitHub](#))

Python - Image Processing - OpenCV - Data Analyze

Microhardness measurement by image processing (2022)

- ❖ Microhardness testing uses Vickers methods with forces below one kilogram, analyzed via image processing. ([GitHub](#))

Python - Image Processing - OpenCV - Data Analyze

Page Rank Algorithm using Hadoop (2023)

- ❖ Implementing Page Rank Algorithm Using Hadoop ([GitHub](#))

Python - Page Rank - Hadoop - Big Data - Map Reduce

Connect 4 Game with AI (2020)

- ❖ A game programmed with Python GUI and using the minimax technique in Artificial intelligence ([GitHub](#))

Python - Min Max - AI Game - Alpha Beta Pruning - PyAutoGUI

> Certificates

Graduate Record Examinations (Gre General Test), ETS (Jun 2024)

- ❖ Overall Score: 300 (Quantitative Reasoning Score : 163)
- ❖ [Link of Certificate](#)

Generative Adversarial Networks Specialization, DeepLearning.AI (Apr 2024)

- ❖ GANs, Deep Learning , Python, Neural Network
- ❖ [Link of Certificate](#)

Tools For Data Science, IBM (Mar 2024)

- ❖ Data Science, Data Management, Big Data, Python Programming
- ❖ [Link of Certificate](#)

Google Data Analytics, Google (Dec 2023)

- ❖ Data Analysis, Data Visualization, Questioning, Decision-Making, Metadata, Data Collection, Data Ethics
- ❖ [Link of Certificate](#)

Neural Networks and Deep Learning, DeepLearning.AI (Sep 2022)

- ❖ Deep Learning, Neural Network, Forward Propagation, Back propagation, etc
- ❖ [Link of Certificate](#)

Machine Learning Specialization, DeepLearning.AI (Apr 2022)

- ❖ Logistic Regression, Polynomial Regression,, Supervised Learning, Unsupervised Learning
- ❖ [Link of Certificate](#)

> Teaching and Mentoring

Sep 2023 - **Graduate Teaching Assistant,**
Artificial Intelligence University of Zanjan
Dr . Kalantari

- Grading homework
- Practical lecturing

Sep 2020 - **Undergraduate Teaching Assistant,**
Artificial Intelligence, University of Zanjan
Dr. Ali Amiri

- Grading homework
- Practical lecturing

Sep 2018 - **Undergraduate Teaching Assistant,**
Advanced Programming, University of Zanjan
Dr . Saied Rahmani

- Grading homework
- Practical lecturing

> References

Dr.Ali Ahamdi, Associate Professor, K. N. Toosi University

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Home Page: [Link](#)

Dr.Ali Amiri, Associate Professor, University Of Zanjan

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Dr. R. Mohsenzadeh, Associate Professor, University of Tabriz

Email: r_mohsenzadeh@tvu.ac.ir

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Dr.Sajjad Haghad, Associate Professor, University Of Zanjan

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Dr.Saeid Rahmani, Associate Professor, University Of Zanjan

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