

# AmirHossein Najafi

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[Linkedin](#), [GitHub](#), [Google Scholar](#) | [Personal Website](#)

## Summary

*Master's student in Computer Engineering specializing in Artificial Intelligence and Deep Learning, with expertise in computer vision and generative AIs. Skilled in Python and deep learning frameworks, with research focused on advancing innovations in AI. Passionate about driving impactful developments in machine learning through academic research.*

## > Education

### M.Sc: Computer Engineering

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

- ❖ Thesis: Leveraging **Generative Models for Image-to-Image Translation in Eye Disease Diagnosis**
- ❖ Relevant Courses: Digital Image Processing, Advanced Data Mining, Advance Algorithm Design (4/4)
- ❖ GPA: 3.7/4

### B.Sc: Computer Engineering

[University of Zanjan](#), Zanjan, Iran ( Sep 2017 - Aug 2022)

- ❖ Thesis: **Smart Door Security By Facial Recognition**
- ❖ Relevant Courses: Computer Vision, Artificial Intelligenc, Data Mining, Algorithm Design, Advance Programming (4/4)
- ❖ GPA: 3/4

## > Professional Experience

**Reserach Assistant - Deep Learning**, Dr. Ahmadi's Lab, K.N.Toosi University, Tehran, Iran ( Dec 2022 - Present)

- ❖ Explored various generative AI and computer vision concepts, focusing on their applications and advancements.

**Team Lead and Machine Learning Researcher** | Dr. Amiri's Lab, University of Zanjan, Zanjan Iran ( Aug 2021 - May 2022)

- ❖ Developed a facial recognition security device using Raspberry Pi and TOF Camera, incorporating 3D face scanning, OpenCV cascade model for depth analysis, and deep learning methods to detect real faces and prevent identity spoofing.

**Software and DevOps Engineer, Data Engineer** | **Kian-Irapardaz**, Tehran, Iran ( Dec 2022 - Aug 2023)

- ❖ Developed data pipelines and conducted business data analysis for a crowdsourcing platform.

**Team Lead and Software Engineer** | **Kojaii**, Zanjan, Iran ( Jun 2021 - Aug 2022)

- ❖ Designed and managed relational (PostgreSQL) and NoSQL (Redis) databases; developed backend solutions using PHP and Laravel

## > Skills

**Deep Learning Architectures and Models:** GANs, Diffusion,

YOLO, ResNet, U-net, Transformer

**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, Team work, Logical thinking

## > Research Interests

Machine Learning, Deep Learning, Generative AI

Computer Vision, Image Processing

Artificial Intelligence for Health and Treatment

## > Publications

- ❖ 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), <https://doi.org/10.1039/D4NR01018C>
  - ❖ 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), <https://doi.org/10.1021/acsami.4c02797>
  - ❖ 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), <https://doi.org/10.1016/j.compscitech.2023.110360>
  - ❖ A visual-probabilistic framework for analyzing nanoparticle size distribution characteristics in polymer nanocomposites containing two reinforcements **Journal of Composite Science and Technology** (Under Review)
  - ❖ Quantitative Analysis of Nanoparticle Redistribution and Macroscale De-clustering in Polyacetal Carbon Black Ternary Nanocomposites Incorporating Advanced Computational Approaches for Secondary Rigid Nanophase Inclusion, **Journal of Composites Communications**(Q1, Impact Factor: 6.5), (Under Review)
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## > Honors And Awards

- ❖ **Achieved a master's average score higher** than the overall average of all master's students in the same major at K.N. Toosi University.
  - ❖ **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

- ❖ **DiagnoGan: Medical Image to Image Translation using Diagnostician Unit** (2024)
- ❖ **Fundus2OCTA Vascular Mapping with GAN** (2024)
- ❖ **Laundry-Reserve-IoT: Smart Laundry Reservation System** (2024)
- ❖ **Automatic Door Lock System by Face Recognition** (2022)
- ❖ **Measuring Sunlight Intensity for Atmospheric Analysis** (2022)
- ❖ **Microhardness measurement by image processing** (2022)
- ❖ **Page Rank Algorithm using Hadoop** (2023)
- ❖ **Connect 4 Game with AI** (2020)

Project details available on [GitHub](#)

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## > Talks

- ❖ **Advancement of AI in Ophthalmology and Image-to-Image Translation for Eye Disease Diagnosis**, Farabi Hospital Seminar, February 2024
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## > Volunteering Experience

- ❖ **Deep Learning Specialist**, ChashmYar, Tehran, Iran ( Dec 2023 - Present)
    - ◇ Contributed to ophthalmology projects by implementing advanced computer vision techniques to improve ophthalmic imaging and diagnosis.
    - ◇ Developed and applied GANs and diffusion models for fundus-to-OCT image translation, enhancing diagnostic accuracy.
  - ❖ **Python Programming and AI Instructor Elementary Schools**, Gouya Elementary School (Oct 2023- Jun 2024)
    - ◇ Introduced elementary students to Python programming and foundational concepts in machine learning and artificial intelligence through interactive, age-appropriate lessons.
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## > Certificates

**Graduate Record Examinations (Gre General Test)**, ETS (Jun 2024) [Link of Certificate](#)

**Generative Adversarial Networks Specialization**, DeepLearning.AI (Apr 2024) [Link of Certificate](#)

**Tools For Data Science**, IBM (Mar 2024) [Link of Certificate](#)

**Google Data Analytics**, Google (Dec 2023) [Link of Certificate](#)

**Neural Networks and Deep Learning**, DeepLearning.AI (Sep 2022) [Link of Certificate](#)

**Machine Learning Specialization**, DeepLearning.AI (Apr 2022) [Link of Certificate](#)

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## > Teaching and Mentoring

**Graduate Teaching Assistant, Digital Image Processing** K. N. Toosi University Supervisor: Dr. Abrishami

**Graduate Teaching Assistant, Artificial Intelligence** K. N. Toosi University Supervisor: Dr. Kalantari

**Undergraduate Teaching Assistant, Computer Vision** University of Zanjan Supervisor: Dr. Ali Amiri

**Undergraduate Teaching Assistant, Artificial Intelligence** University of Zanjan Supervisor: Dr. Ali Amiri

**Undergraduate Teaching Assistant, Advanced Programming** University of Zanjan Supervisor: Dr. Saied Rahmani

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## > References

**Dr.Ali Ahamdi**, Associate Professor, K. N. Toosi University  
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**Dr.Ali Amiri**, Associate Professor, University Of Zanjan  
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