

Poorya MohammadiNasab

M. Sc. student in Artificial Intelligence,
Iran University of Science and Technology

Contact

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Research Interests

Computer Vision Deep Learning	Medical Image Analysis Machine Learning	Image Processing Feature Selection
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Education

M. Sc. in Artificial Intelligence

Sep. 2021 – Jul. 2024 | Tehran, Iran

Iran University of Science and Technology (IUST) ^[QS ranking]

CGPA: 17.56 / 20 (3.75 / 4)

Selected Courses

Computer Vision (20 / 20)	Medical Image Analysis (18.2 / 20)	Deep Learning (18.48 / 20)
Machine Learning (17 / 20)	Image Processing (17.9 / 20)	Artificial Neural Networks (18.5 / 20)

Master's Thesis

A self-supervised method for tumor detection in 3D automated breast ultrasound (ABUS) images

Supervisor: Dr. Mohsen Soryani

B. Sc. in Computer engineering

Sep. 2017 – Sep. 2021 | Kashan, Iran

University of Kashan ^[U.S. News ranking]

CGPA: 17.33 / 20 (3.55 / 4)

Selected Courses

Artificial Intelligence (20 / 20)	Data Mining (20 / 20)	Computational Intelligence (20 / 20)
Signals and Systems (18.4 / 20)	Internet of Things (19.5 / 20)	Design of Algorithms (17.5 / 20)

Bachelor's Thesis

Medical image analysis: An overview of techniques and improvements in brain tumor segmentation using image processing algorithms - University of Kashan (2021) - [dx.doi.org/10.13140/RG.2.2.16553.52324](https://doi.org/10.13140/RG.2.2.16553.52324)

Supervisor: Dr. Hossein Ebrahimpour

Publications

1. B. Samieiyan, P. MohammadiNasab, M. A. Mollaei, F. Hajizadeh, and M. Kangavari, "Novel optimized crow search algorithm for feature selection," *Expert Systems with Applications*, vol. 204, p. 117486, Oct. 2022, doi.org/10.1016/j.eswa.2022.117486.
2. B. Samieiyan, P. MohammadiNasab, M. A. Mollaei, F. Hajizadeh, and M. Kangavari, "Solving dimension reduction problems for classification using Promoted Crow Search Algorithm (PCSA)," *Computing*, vol. 104, no.6, pp.1255–1284, Jan. 2022, doi.org/10.1007/s00607-021-01037-2
3. P. MohammadiNasab, A. Khakbaz, E. Kozegar, H. Behnam, M. Soryani, "A self-supervised approach for tumor detection in Automated Breast Ultrasound using Double Attention Recurrent Residual U-Net", *IEEE Transactions on Medical Imaging* (Under review)
4. T. Tan, C. Lu, L. Yu, T. Zhang, P. MohammadiNasab, H. Zhang, M. Soryani, R. Mann, E. Kozegar, L. Bao, "Charting the Path Forward: AI's Impact on Breast Imaging—An In-Depth Review of Reader Studies and Future Insights," *Artificial Intelligence Review* (Under review)
5. A. Khakbaz, P. MohammadiNasab, E. Kozegar, H. Behnam, M. Soryani, "Speckle noise reduction in Automated Breast Ultrasound (ABUS) using a Novel Auto-encoder model" (In Preparation)

Honors

1. Top 2%, Iranian university entrance exam for master's degree in Computer Engineering – Artificial Intelligence, Ranked 171th among nearly 10,000 participants, September 2021
2. Top 10%, Achieving one of the highest GPAs among all university Computer Engineering undergraduate students, Ranked 4th among 45 undergraduate students, February 2021

Languages

Persian: Native

English: Proficient (C1)

15 Jan. 2024 | Tehran, Iran

- IELTS Results (Overall: 7, Listening: 7.5, Reading: 7.5, Speaking: 6, Writing: 6)

Research Experience

Reviewer at Expert Systems with Applications journal (View Certificate)	May 2022 – Present United Kingdom
Reviewer at Medical Image Analysis journal (View Certificate)	May 2023 – Present Netherlands
Reviewer at Computer Methods and Programs in Biomedicine (View Certificate)	Mar. 2023 – Present Ireland
Reviewer at Pattern Recognition journal (View Certificate)	Nov. 2023 – Present United Kingdom
Reviewer at Applied Soft computing journal (View Certificate)	Aug. 2023 – Present Netherlands
Reviewer at Computers in Biology and Medicine journal (View Certificate)	Jan. 2024 – Present United Kingdom
Reviewer at Computational and Structural Biotechnology (View Certificate)	Mar. 2024 – Present Sweden

Work Experience

Research Assistant	Sep. 2021 – Jul. 2024 Tehran, Iran
Image Processing Lab (IPL), Iran University of Science and Technology (IUST)	
Supervisor: Dr. Mohsen Soryani	

Teaching Assistant	Sep. 2022 – Jan. 2023 Tehran, Iran
Iran University of Science and Technology (IUST)	
Courses	
1. Pattern Recognition (Dr. Mohammad Reza Daliri)	2. Computer Vision (Dr. Mohsen Soryani)
3. Artificial Neural Network (Dr. Nasser Mozayani)	

Teaching Assistant	Feb. 2018 – Jun. 2021 Kashan, Iran
University of Kashan	
Courses	
1. FPGA and ASIC (Dr. Hossein Karimiyan)	2. Artificial Intelligence (Dr. Hossein Ebrahimpour)
3. Microprocessors (Dr. Hosein Sabaghian)	4. Computer Architecture (Dr. Salman Goli)
5. Logic Circuits (Dr. Salman Goli)	6. Advanced programming (Dr. Mahsa Shamaee)

Skills

Concept and Technology

Computer Vision	Medical Image Analysis	Image Processing	Deep Learning
Machine Learning	PyTorch / Keras	OpenCV	Feature Selection
Git / GitHub	Linux	Data Mining	FPGA

Language and Software

Python	C/C++	MATLAB	R
LaTeX	Verilog	QT framework	Arduino

Projects

Pneumonia Detection Using Deep Convolutional Neural Networks (View Project)	Aug. 2023 – Sep. 2023
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In this study, a deep learning approach to pneumonia detection in chest X-rays was investigated. The ResNet18 architecture was employed, and training was conducted on the RSNA Pneumonia Detection dataset. An Artificial Intelligence interpretability technique was utilized to gain insights into the decision-making processes of the model.

Breast Tumor Segmentation and Shape Classification in Mammograms (View Project)	Feb 2022 - Jul. 2022
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In this project, a conditional Generative Adversarial Network (cGAN) was used for breast tumors segmentation in 2D mammograms, aiming to support radiologists. A CNN-based shape descriptor is proposed for classifying tumor shapes into four categories. INbreast and DDSM datasets were used to train and evaluate the model.

Brain Tumor Segmentation (View Project)	May 2021 - Sep. 2021
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In this project, fuzzy c-means algorithm and a classical threshold method were used to segment brain and tumor area in x-ray brain images, respectively. The output of these two methods were combined to generate the final binary mask of tumor.

Certificates

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| 1. Introduction to Machine learning (Duke University , Apr. 2021) | 2. Computer Vision Basics (University at Buffalo , Apr. 2021) |
| 3. Image and Video Processing (Duke University , May 2021) | |

References

Dr. Mohsen Soryani (soryani@iust.ac.ir)
Associate Professor in Artificial Intelligence group

Dr. Nasser Mozayani (mozayani@iust.ac.ir)
Associate Professor in Artificial Intelligence group