






Pouya Karimian

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EDUCATION

2018-2021
Tehran, Iran

> **M.Sc | Healthcare Systems Engineering** **Amirkabir University of Technology**

Main focus: Machine learning and data science in healthcare
Thesis: Human pose estimation for elderly care
GPA: 19.03/20 - 4/4

2014-2018
Tehran, Iran

> **B.Sc | Industrial Engineering** **Amirkabir University of Technology**

Main focus: Data analysis and optimization
Final project: Simulation of dosage and frequency of Aspirin intake based on Markov chain
GPA: 17.66/20 - 3.75/4 (last two years)

EXPERIENCES

Sep. 2021 - Oct. 2022

Research Assistant

Iranian Research Institute for Information Science and Technology
Conducted research on segmentation of histology images using deep learning

Jan. 2020 - Jul. 2020

Teaching Assistant (Fuzzy sets in decision making and planning)

Industrial Engineering Department, Amirkabir University of Technology
Holding tutorials on Matlab basics and fuzzy library in Matlab

Jan. 2019 - Jul. 2020

Teaching Assistant (Introduction to simulation)

Industrial Engineering Department, Amirkabir University of Technology
Holding tutorials on Matlab basics and simulation examples coding in Matlab and Arena

Sep. 2018 - Sep. 2021

Research Assistant

Health Systems Laboratory, Amirkabir University of Technology
Conducted research in the area of computer vision in healthcare

Jul. 2018 - Sep. 2018

Intern

DSS Lab, Iranian Research Institute for Information Science and Technology
Programming a Matlab code for analyzing posture during static work by OWAS method and Kinect input

Mar. 2017 - Dec. 2018

Product Manager

Habiox(intelligent physiotherapy assistant)
Worked in a team and developed a software with Kinect for patients need physiotherapy exercises

SKILLS

</> Programming

Python: PyTorch, Tensorflow, Pandas, Scikit-learn, OpenCV, NumPy, Matplotlib
Matlab: Statistics and Machine Learning, Image processing, Fuzzy Logic and Optimization Toolbox
Other: R - C - GAMS - Kotlin - HTML - CSS - SQL

⚙️ Softwares

Git - ~~LaTeX~~ - Microsoft office[word,excel,powerpoint,visio]
Simulation tools: Netlogo - Arena

🌟 Test scores

TOEFL: 104 - Reading:29 Listening:28 Speaking:23 Writing:24(15th October 2022)

HONORS AND AWARDS

- Receiving grant as an **"Excepted Talent"** at Amirkabir University of Technology in Masters period
- **Ranked 5th** in the 2018 Iran Universities Olympiad on Industrial Engineering containing optimization, probability theory, and engineering statistics ([certificate in Persian](#))
- Ranked among **top 1 percentage** in both national graduate entrance exam in industrial engineering and national undergraduate entrance exam

» Deep learning-based method for segmenting epithelial layer of tubules in histopathological images of testicular tissue

A Fakhrzadeh*, **P Karimian***, M Meyari*, CL Luengo Hendriks, L Holm, C Sonne, R Dietz, E Spörndly-Nees
(* equal contribution)

Journal of Medical Imaging, 2023

 [Code](#)  [PDF](#)

[Deep learning](#) [Image segmentation](#) [CNN](#) [Histology image](#) [Seminiferous tubules](#)

» Human pose estimation for elderly care

M.Sc. Thesis

Industrial engineering department, Amirkabir university of technology, 2021

Proposed a new CNN for human pose estimation that is enable to capture multi-scale features and also deal with occlusion.

[Deep learning](#) [Computer vision](#) [Human pose estimation](#) [Elderly care](#)

» Simulation of dosage and frequency of Aspirin intake based on Markov chain

B.Sc. final project

Industrial engineering department, Amirkabir university of technology, 2018

Simulating different dosage and frequency of Aspirin intake in order to evaluate quality of life in patients with heart diseases. this Monte-Carlo simulation is based on Markov chain and transition probabilities.

[Markov chain](#) [Transition probabilities](#) [MC simulation](#)

» Nucleus detection in divergent images from 2018 Data Science Bowl dataset

Implementing the classic U-Net in TensorFlow and preprocessing and postprocessing the diverse cell images in order to segmenting nuclei

December 2019

[Python](#) [TensorFlow](#) [Machine learning](#) [Computer vision](#) [Image segmentation](#)

» Evaluating the impact of different policies on healthcare of countries around the world: a data-driven approach

Fit a fixed effect regression on WHO dataset in R. using the model for finding the most effective variables for finding the best policy for improving the overall healthcare in a country

November 2019

[R](#) [Fixed effect](#) [Regression](#) [Panel data](#) [Healthcare](#)

» Implementing fuzzy clustering algorithms in Matlab

Coding fuzzy clustering algorithms like fuzzy C-means and Gustafson-Kessel on Iris dataset, tuning the parameters, visualizing dataset and clusters

May 2019

[Matlab](#) [Clustering](#) [Fuzzy](#)

» An agent-based model for evaluating the effect of different policies on controlling hypertension in Tehran adult population

Propose a new agent-based model based on ODD protocol coded in Netlogo, evaluating different policies like public advertisements and screening

April 2019

[Netlogo](#) [Agent-based modeling](#) [Simulation](#) [Hypertension](#)

» A TSK fuzzy rule-based system for calculating diabetes risk

Making a TSK fuzzy rule-based system for calculating diabetes risk in Matlab fuzzy tool box, tuning the parameters of system with ANFIS (Adaptive Neuro Fuzzy Inference System)

March 2019

Matlab Fuzzy ANFIS Rule-based system

» Matlab code for classifying Diabete patients using Pima dataset

implementing models like KNN and minimum distance algorithms, drawing ROC curve and computing measures like sensitivity, specifity, precision, acuuracy

December 2018

Matlab Machine learning Classification Diabetes ROC

» Matlab code for facility location of emergency centers

Coding and solving set covering and maximal covering optimization models for a simple facility location problem

November 2018

Matlab Optimization Set covering Maximal covering

» Matlab code for resources allocation using dynamic programming and Q-learning

Calculating transition probabilities and rewards based on the Markov decision model, coding dynamic programming and Q-learning to solve a simple problem like human resource allocation in a medical center

November 2018

Matlab Dynamic programming Q-learning Optimization Resources allocation