Seyed Mohammad Hoseyni

Graduated Engineer , AI & Image processing, Tehran, IRAN
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EDUCATION

- **Bachelor's Degree: Electrical and Control Engineering** 2019–2024
  K. N. Toosi University of Technology *Tehran-IRAN*
  - Thesis: Developing AI-assisted Software for the Classification and Segmentation of intracerebral hemorrhage.
  - Advisor & Supervisor: Dr. Amirhossein Nikoofard & Dr. Mahdi Aliyari-Shoorehdeli
    Grade: 18.33/20
    Ranked 6th among 135 electrical engineering students in the Entrance
    Ranked 2nd among 35 control engineering students in the Entrance

- **Minor's Degree: Computer Engineering** 2019–2024
  K. N. Toosi University of Technology *Tehran-IRAN*

RESEARCH INTERESTS

- Artificial Intelligence
- Computer Vision
- Data Science
- Robotics
- Embedded Systems
- Biomedical Engineering

EXPERIENCES

- **SmarTeeth Startup** | **Smartory Startup** 2023–Present
  Research and Development Manager (AI, Computer Vision & Software Development)
  - Managed a team of three Engineers to develop an AI-based assistant for dentists. The software processes various types of radiographic images for classification, detection, and segmentation tasks, identifying specific characteristics and abnormalities. Integrated a Large Language Model (LLM) to generate detailed reports based on the analysis.

- **APAC AI & Control** | **Hazrat Rasul Akram Hospital** | **Amir-Alam Hospital** 2022–Present
  Technical Manager & Computer Vision Engineer
  - **Interacerbal Hemorrhage:** Led the development of AI-assisted software for classifying, segmenting, and quantifying hemorrhagic lesions in medical images. Responsibilities included data collection, overseeing the medical team for accurate annotation, and managing a team of five members throughout the project.
  - **Otorhinolaryngology:** Responsible for conceptualization, feasible study, and data gathering.

- **Mechatronics and Biomechatronics Lab** Apr2022–Oct2022
  - Internship in the mechatronics lab at K.N.Toosi.

More information on My Personal Website (click here).

SELECTED PUBLICATIONS

Advanced Deep Learning-Based Approach for Tooth Detection, and Dental Cavity and Restoration Segmentation in X-Ray Images , 2023.
AugmenTory: A Fast and Flexible Polygon Augmentation Library, 2024.
Comprehensive Hyperparameter Tuning to Enhance Deep Learning Performance for Intracranial Hemorrhage Classification in Head CT Scans, under review.
Two-Stage Deep Learning Approach with Novel Dataset and Advanced Post-Processing for Enhanced Intracranial Hemorrhage Segmentation, In Preparation.
A Comprehensive Review on Kolmogorov-Arnold Networks through Implementation on Various Datasets (Pre-print).

More information on My Personal Website (click here).

SELECTED PROJECTS

- Annual competition of artificial intelligence for classification of abnormal brain in MRI radiography
- programming Kolmogorov-Arnold Networks (KAN) and perform a comprehensive grid search on Mnist, Cifar10 and Physionet-ICH datasets
- Programming an Arduino and max-30100 pulse-oximeter module to measure blood oxygen and heart rate
- Simulation of a suspension system and control it with a PID
- Program a communication protocol to perform synchronized data transmission between two micro-controller
- Designing an analog small signal amplifier

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ACADEMIC EXPERIENCES

Teaching Assistant:

- Head TA of Advanced Programming with Python, Dr. Hossein Yektamoghadam — Sept - 2024
- Instrumentation Lab, Dr. Hossein Yektamoghadam — Sept - 2024
- Design and Analyse Digital Systems 1, Dr. Mehdi Delrobaei — July - 2023
- Numerical Calculations, Dr. Amirhossein Nikoofard — July - 2023

Workshop:

- AI-Driven Vision Transforming Telecoms and Autonomous Systems, 11th International Symposium on Telecommunication — Oct - 2024

SKILLS

Programming/Scripting

- Python/OpenCV
  - PyTorch/CUDA
  - Tensorflow
  - Sklearn
  - Pandas
  - NumPy
  - Seaborn
- C/C++
- Java/MATLAB
- SQL
- LaTeX

Domain Knowledge

- AI & Computer Vision
- Deep Learning
- Machine Learning
- Data Science
- Natural Language Processing (NLP)
- Mechatronics
- Instrumentation
- Control Engineering

More information on My LinkedIn Page (click here).

Certificates

- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization
- Neural Networks and Deep Learning
- SQL Intermediate

SELECTED COURSE

Graduate

- Machine Learning
- Biomechatronic Systems

Undergraduate

- Artificial Intelligence
- Fundamental of Mechatronics
- Advance Computer Programming
- Linear Algebra
- Numerical Methods
- Data Structure
- Algorithm Design
- Linear Control Systems
- Signal and Systems
- Engineering Probability
- Instrumentation
- Modern Control
- Industrial Control

References

- Dr. Amirhossein Nikoofard
  Google Scholar | LinkedIn | Email | Gmail | Personal Webpage
- Dr. Mahdi Aliyari-Shoorehdeli
  Google Scholar | LinkedIn | Email | Gmail | Personal Webpage
- Dr. Mehdi Delrobaei
  Google Scholar | LinkedIn | Email | Gmail | Personal Webpage

- Dr. Mohammad Javad Ahmadi
  Google Scholar | LinkedIn | Email | Gmail | Personal Webpage

References, Further information, and Proofs are available upon Request.