Pouya Behzadifar

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Website

RESEARCH INTERESTS

Medical Image Analysis - Computer Vision - Machine Learning - Deep Learning

Education

Bachelor's in Computer Engineering 2020/09 – present | Isfahan, Iran
Isfahan University of Technology
GPA: 18.09/20 - 123 Credits(end of 7th semester)
Last 4 semester's GPA: 18.51/20

major-related courses:
- Machine Learning 20/20
- Artificial Intelligence: 20/20
- Computer Vision: 19.2/20
- Computational Intelligence: 19/20
- Computational Intelligence Lab: 20/20

Diploma in Mathematics and Physics Discipline 2016 – 2020 | Tehran, Iran
Allame Amini high school
GPA : 19.84/20

Research Experience

Segmentation of cell nuclei in histopathology images 2023/09 – present
Bachelor's thesis under the supervision of Dr. Nader Karimi
- Utilized the U-Net++ architecture integrated with a novel combined Dice-Cross-Entropy loss function.
- Employed preprocessing techniques including color normalization and advanced filtering to improve model accuracy and robustness against color variations and noise.
- Conducted experiments using the NuInsSeg dataset, achieving superior segmentation performance with a Dice score improvement by 7% over previous methods.
- Demonstrated the effectiveness of the model through evaluation, which highlighted its capability to accurately delineate nuclei even in densely clustered scenarios.
- Published findings in a peer-reviewed IEEE paper at AI-IOT 2024 in Seattle.

Socially-Aware Robot Navigation Based on FMP Algorithm 2023/08 – present
Under the supervision of Dr. Samaneh Hosseini Semnani
- Hyperparameter tuning of the base algorithm for optimized performance.
- Introduce differentiation between moving and still agents for more dynamic interaction.
- Apply a force to the right of an agent to enhance collision avoidance and movement smoothness.
- Implement a deadlock-free version using a random sleep method for blocked agents.

Detection of left ventricular wall motion abnormalities 2023/10 – present
Medical Image and Signal Processing Research Center
- Extract key points from EchoNet-Dynamic Dataset with the SIFT algorithm.
- Determine the affine transformation equation for each key point using GT_TSK.
- Creating a matrix of polynomial coefficients and then applying Principal Component Analysis.

Professional Experience

NLP Researcher 2023/06 – 2023/12

Payam Pardaz Company Under the supervision of Dr. Masoumeh Zare

- Review leading research papers in Log-based anomaly detection.
- Implement and test the code from these papers on public datasets for comparative analysis.
- Preprocess company data for models that demonstrate the highest accuracy.

Software Engineer Intern 2022/08 – 2022/11 | Tehran, Iran

TAPSI and Rahnema

My work involves contributing to the design, development, and testing of Android applications. Under the guidance of experienced professionals, I actively participate in coding, implementing new features, and resolving bugs to improve the overall user experience.

Teaching Assistantships

Isfahan University of Technology Isfahan, Iran

Giving lectures, Preparing the homeworks, projects, grading.

- Artificial Intelligence - fall 2023 - instructor: Dr. Hakim Davoudi
- Computer Architecture - fall 2023 - instructor: Dr. Amir Khorsandi
- Computer Architecture - spring 2023 - instructor: Dr. Amir Khorsandi
- Digital System Design - spring 2023 - instructor: Dr. Nader Karimi
- Data Structure - fall 2022 - instructor: Dr. Abdolreza Mirzaie
- Fundamental of Programming - fall 2022 - instructor: Dr. Samaneh Hosseini Semnani

Certificates

- Natural Language Processing with Classification and Vector Spaces
- Advanced Learning Algorithms
- Supervised Machine Learning: Regression and Classification
- Computer Vision Basics
- MATLAB Onramp
- Software Development Bootcamp

Awards

Ranked top 0.6% in the "National University Entrance Examination" among 130,000 students in Math and Physics Discipline 2020

Bronze Medal of World Mathematical Team Championship 2017

Bangkok, Thailand

Languages

- English - Fluent
- Persian - Native

Skills

Programming languages

Python - C++ - C - Matlab - Kotlin

Database

PostgreSQL - Windows SQL Server

Tools and Libraries

PyTorch - TensorFlow - Keras - NumPy - Pandas - Scikit-learn - Matplotlib - Docker - QT - Compose