

FARHAD FALLAH

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RESEARCH INTERESTS

Computer Vision - Image & Video Processing - Artificial Intelligence - Medical Image Processing

EDUCATION

Sharif University of Technology	<i>2018 - 2023</i>
Bachelor of Science in Electrical Engineering - Digital Systems	GPA: 16.13/20
Allameh Helli 4 High school	<i>2014 - 2018</i>
Diploma degree in Mathematics and Physics	GPA: 19.77/20

SELECTED PROJECTS

• Research Projects

- **Developing a Tracker for Crowded and Semi-crowded Scenes**, Deep Learning Lab, SUT, EE Dep *ongoing(since Feb 2022)*
This is my bachelor thesis project with three main steps:
First, fine tuning YOLO for CCTV videos in order to have a more accurate detection of people presence in videos. Second, developing the tracker's accuracy and speed using aspect-ratio and box-size joint distribution. Third, using the developed tracker for video synopsis. The results will soon be published as a paper.
- **Hand Tracking System**, SSEC Lab, SUT, EE Dep *ongoing(since Feb 2023)*
Designing a hand tracking SDK with the aim of enabling hand movement recognition in vehicles and other general purposes. More precisely, testing Mediapipe framework on a Raspberry Pi 4 with additional features to be used as a hand gesture recognition system in Python.
- **Medical Image Analysis in Orbital CT scan** *ongoing(since July 2023)*
I joined to a medical research group which published their dataset about detecting injury in eye's orbit CT scans to make some contributions related to deep learning and medical image processing.

• Course Projects

- **Deep Learning: Sentiment estimation**([Github](#)) *fall 2022*
Implementation of a Multi-Modal(text,image) network for sentiment estimation based on [MSCTD](#)-Dataset in 4 phase including data analysis in [phase0](#), sentiment estimation base on images in [phase1](#) using CNN and text with Bert models in [phase2](#). In [phase3](#) we use both text and images extracted features to improve our accuracy, we also train a weakly-supervised model.

PROJECTS

- **Deep Learning** ([Github](#)) *fall 2022*
 - Recommender System with concentrate on stochastic gradient descent, Regression, SVM, world cup games predictor using FIFA national games data, sign language detector,comparing classifiers based on MLP and CNN, implementing Distilling-Knowledge learning using a ResNet50 backbone.

- **Computer Vision** ([Github](#)) *spring 2022*
 - Augmented Reality: adding simple 3D cube to chess plane, panorama image making using 6 different views of a mountain, feature/interest point extraction for classical classifiers(Fisher LDA, SVM) on Cohn-Kanade video dataset for different tasks, calculating optical flow(Dense and Sparse) on videos and use them as inputs of SVM-based activity classification, PCA analysis.
- **Image Processing** ([Github](#)) *fall 2021*
 - Image Blending and Feathering, template matching for patch detection in images, Texture synthesis, SLIC algorithm for image segmentation, image enhancement techniques, homography and warping for image registration, creating morphing images, Prokudin-Gorskii Images reconstruction, Hybrid images.
- **Artificial Intelligence** ([Github](#)) *fall 2021*
 - implementing the A* heuristic algorithm as a local search approach for guiding a robot through mazes, function approximation with both MLP models and genetic programming, implementing decision tree for diabetes diagnosis.

SELECTED COURSES

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| <ul style="list-style-type: none"> • Computer Vision(Graduate course) • Machine Learning & Vision Lab • Principles of Image Processing • Artificial Intelligence • Digital Signal Processing • Linear Control Systems • Micro Processors Lab • Principles of Electronic | <ul style="list-style-type: none"> • Deep Learning(Graduate course) • Parallel Programming & Architecture(Graduate course) • Data Structure & Algorithms • Signals & Systems • Basics of Programming • Communication Systems • Python Programming Lab • Logic circuit |
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SELECTED TEACHING EXPERIENCES

- **Teaching Assistant**, Sharif University of Technology, EE Department
 - Computer Vision (Graduate Course) *fall 2023(ongoing)*
 - Medical Image Analysis & Processing (Graduate Course) *spring 2023*

SKILLS

Programming skills: Python, Matlab, C/C++, Verilog, Git, L^AT_EX
Languages: Persian(native), English(Upper-intermediate)

HONORS AND AWARDS

Iranian University Entrance Exam (Konkur), Ranked 200th among 144000 participants. *2018*

EXTRA-CURRICULAR AND HOBBIES

Executive team of SUT EE97 graduation ceremony, Reading about sports, Watching movie