Curriculum Vitae

Zahra Khodagholi

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LinkedIn page - Github page

Education

September 2022— Present
Degree: Masters in Computer Science
Where: University of Central Florida, Orlando, USA
GPA: 3.75 out of 4
Research Interests: Computer Vision, Machine Learning, Medical Imaging

September 2016— August 2020
Degree: Bachelor of Science in Computer Engineering
Where: Al-Zahra (Azzahra) University, Iran, Tehran
GPA: 16.18 out of 20.0 (The Last 60 credits of study: 17.17 out of 20.0)
Thesis: Object Detection using ResNet

Papers

May 2024— July 2024
Project: ULTRA-AIR: Ultrasound Landmark Tracking for Real-time Anatomical Airway Identification and Reliability Check
Where: 2024 IEEE International Conference on Body Sensor Networks(Accepted)
Advisor: Laura Brattain
Contributions: This project integrates uncertainty estimation into the YOLOv9 architecture for object detection. By modifying core functions like `detect.py` and `utils/general.py`, the model not only detects objects and predicts bounding boxes but also calculates the epistemic uncertainty associated with each detection. This allows for more informed decision-making, as predictions now include confidence intervals, uncertainty measures, and standard detection outputs.

August 2024— present
Project: Federated learning framework for Autism classification in video data
Where: In preparation
Advisor: Chen Chen
Contributions: Currently, we are trying to generate a new framework to preserve the data privacy for autism video dataset and enhance the accuracy of classification.

Research experience

March 2024— May 2024
Project: Breast Cancer Segmentation
Where: University of Central Florida
Advisor: Chen Chen
Contributions: The ongoing research is about breast cancer detection and segmentation on the TIGER dataset. We are setting up a baseline based on UNET architecture and MONAI.

October 2022— December 2022
Project: Improvement of the paper Sapage2Vec
Where: University of Central Florida
Advisor: Haiyan Hu
Contributions: In this project, I tried to enhance the accuracy of the paper Spage2vec: Unsupervised detection of spatial gene expression constellations. The spatial gene expression detection enhanced slightly after the changing of hyperparameters.

February 2023— April 2023
Project: Branch Prediction Using CNNs(Final project of CDA5106)
Where: University of Central Florida

Advisor: Jongouk Choi
Contributions: In this project, we designed a branch predictor using CNNs, which somewhat enhanced the prediction accuracy. We also implemented the Gshare and bimodal, Smith N-Bit counter, and Hybrid predictor on the given traces.

July 2021— December 2021
Project: COVID-19 Diagnosis in children
Where: Boston University(Remote)
Advisor: Reza Rawassizadeh
Contributions: Using computer vision techniques on medical images in order to diagnose COVID-19 in children's lungs. My role in this project was completing the image segmentation part which was completed. I also edited some chapters of his book about algorithms.

March 2019— June 2019
Project: Using VR/AR and Artificial Intelligence in Judicial System
Where: Alzahra University
Advisor: Masoud Sagharichian
Contributions: In this project which was part of my Research Methodology course,we purported that using wearable utilities like energy transferring machines and VR/AR glasses can help judges and juries pass a much more accurate verdict.

Professional experience

August 2019— July 2020
Position: Machine Learning intern
Where: ToobaTech company

I worked as a machine learning intern in Toobatech company. The algorithms I worked with and applied consist of Linear Regression, Logistic Regression, K-means clustering, K-nearest neighbour and Random forest.

Selected Projects

September 2019— July 2020
Project: Object Detection using Retinanet
Where: Toobatech Company, Alzahra University
Advisor: Reza Azmi
Contributions: This project was my bachelor's Thesis, in which I trained the COCO data set on ResNet Architecture using the ResNet pre-trained model.

May 2019— July 2019
Project: Web browser from scratch
Where: Alzahra University
Advisor: Abolfazl Toroghi Haghighat
Contributions: For this project we implemented TCP-IP process from scratch without using any built-in libraries in python. I received the grade 18.0 out of 20.0 for this course.

May 2019— July 2019
Project: Implementation Of AI Algorithms
Where: Alzahra University
Advisor: Reza Azmi
Contributions: The implementation of AI algorithms in python language such as A*, CSP, Best-first search and hill climbing took place as part of the course of Artificial intelligence.

Software Skills

- Programming languages : Python / C++

- Others : Pytorch / TensorFlow /Keras /OpenCV /Numpy /Matplotlib /Selenium /ML algorithms /Pandas /LaTeX/ Sparx Enterprise Architect

Languages and Test Scores

- Farsi: Native
- English: Proficient
  (TOEFL-IBT score: 109 = Reading: 23 Listening: 29 Speaking: 29 Writing: 28)
  (GRE = Verbal percentile: 63% Quantitative percentile: 76% AWA percentile: 54%)

Honors and Awards

- Ranked among the top 1.5% in bachelor's university entrance exam in Iran(konkour) among more than 200000 students
- Eligible for the full tuition-fee waiver for the B.Sc degree

References
Available upon request