

Zahra Khodagholi

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LinkedIn page - Github page - Personal Website - Google Scholar

Education

- September 2022—
Present* **Degree:** Master in Computer Science
 Where: University of Central Florida, Orlando, USA
 GPA: 3.77 out of 4
 Research Interests: Computer Vision, Machine Learning, Medical Imaging, computational psychiatry
- 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—* **Project:** ULTRA-AIR: Ultrasound Landmark Tracking for Real-time Anatomical Airway Identification and Reliability Check
July 2024 **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 Spage2Vec
 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 was enhanced slightly after the change in 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.

*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 2023—
Present*

Position: Graduate Teaching Assistant

Where: University of Central Florida

I worked as a TA for the Computer Science 2 and System Administration course. My responsibilities included holding Java programming sessions and grading the exams and assignments.

*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.

*July 2021—
December 2021*

Position: Computer vision intern

Where: Boston University

I Used computer vision techniques on medical images in order to diagnose COVID-19 in children's lungs. My role in this project was utilizing the computer vision techniques for the image segmentation part. I also edited some chapters of the advisor's book on Machine Learning algorithms.

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 a grade of 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 /L^AT_EX/ 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