ROHAM ZENDEHDEL NOBARI

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RESEARCH INTERESTS

Digital Twins, Intelligent Transport Systems, Computer Vision, Deep Learning, Generative Adversarial Networks, Natural Language Processing

EDUCATION

Amirkabir University of Technology — September 2018 - Present

- Bachelor of Science in Computer Engineering
- Overall cGPA[1]: 15.23/20 (3.25/4.0)
- Last Two Years Major GPA: 16.52/20 (3.51/4.0)

Allameh Helli 3 Highschool (NODET) — 2014 - 2018

- Diploma of Education in Mathematics and Physics
- cGPA: 19.32/20 (4/4)

WORK AND RESEARCH EXPERIENCE

Thesis: Digital Twin of a Traffic Scene Using RSU and AWSIM — March 2023 - Present

- Under the supervision of Prof. Mahdi Javanmardi
- Fields: Intelligent Transport Systems, Digital Twins, Computer Vision.
- Focuses on the Semi-Automatic Creation of a Traffic Scene Digital Twin near the Amirkabir University Campus.
- Involves 3D Modeling, Object Detection such as detecting pedestrians and moving vehicles using camera data, Object Movement Path Extraction using Lidar sensors, and finally feeding all the processed data to the AWSIM Simulator so we can have a real-time simulation.
- Libraries: ROS, AWSIM, Keras, Tensorflow, OpenCV
- Software: AutoCAD, Sketchup, Cloudcompare, Veloview

Student Researching Assistant, Microprocessors and Assembly Language — Spring 2023

- Under the supervision of Prof. Hamed Farbeh and Prof. Babak Sadeghiyan
- Serving as one of the heads of the research team currently researching Reverse Engineering Techniques with the X86 and ARM Assembly.
- Our findings will be presented as several lectures, multiple hands-on video lectures, and a course project in the upcoming Fall 2023 semester for the Microprocessor and Assembly Language course.

Data Scientist Intern - ParticleB — June 2022 - October 2022

- My first task was to gain knowledge about Natural Language Processing, NLTK, and Gensim.
- My second task was to develop a model capable of analyzing sentiment polarity in reviews of cryptocurrency trends trained from a Twitter Dataset.
- My final task was to implement a Google Chrome Extension to predict future cryptocurrency trends using the acquired reviews from tradingview.com.   🌐 particleb.ai

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[1]My Iran GPA was converted to Standard US GPA with this calculator.

Selected Course Projects

Robotics Final Project February 2023 - March 2023

- This project has three phases: Maze Solver and Object Avoiding Robot with the VFH Algorithm, City Lanes Following Robot, and Traffic Signs Detecting and Reacting Robot.
- Includes the VFH Algorithm, ROS (Noetic), Gazebo 3D Simulator, YOLOv8 Object Detection Model, SIFT Image Processing Algorithm, OpenCV, Numpy, Matplotlib ⭘ [Project Link]

Snail Jumper - Neuro Evolution May 2022 - June 2022

- A Neural Network with a Genetic Algorithm playing the Snail Jumper game.
- Includes K Fittest Selection, Roulette Wheel, SuS, Q-Tournament selection algorithms, Mutation, and Cross-Over. ⭘ [Project Link]

Health Evaluation Using Fuzzification Algorithms May 2022 - June 2022

- Developed a system to evaluate patients' health
- Involves around three phases: Fuzzification, Rule inference, and Defuzzification ⭘ [Project Link]

Data Mining Projects September 2022 - December 2022

- Developed five projects for the Data Mining course.
- Concepts in each project: Data Preprocessing, Linear and Polynomial Regression, Keras ANN and CNN Models, K-Means vs. DBScan Clustering and Apriori Decision Trees, XGBoost Decision Tree and GridSearchCV. ⭘ [Project Link]

Search Engine January 2022 - February 2022

- Implemented a Search Engine using different Information Retrieval techniques.
- Includes Preprocessing, Inverted Positional Indexes, TF-IDF Document Vectors, Cosine Similarity, Word2Vec Embedding, K-means Clustering, and K-Nearest-Neighbours Ranking. ⭘ [Project Link]

Teaching Experience

Teaching Assistant, Principals of Artificial Intelligence Summer 2022 - Spring 2023

- Under the supervision of Prof. Mahdi Javanmardi
- Serving as the lead for the Lecture Slide Design and Translation teams.
- Contributed to the complete design and translation of the Artificial Intelligence course lectures based on UC Berkley CS188 AI Course Materials.

Head Teaching Assistant, Software Engineering II Spring 2023

- Under the supervision of Dr. Faezeh Gohari
- Assigned as the Head Teaching Assistant of Software Engineering II along with Pouyan Hesabi, to manage the other teaching assistants.
- Designing (and grading) assignments and projects related to Software Testing and the implementation of Unit Tests. Also recording lecture videos for the students.

Teaching Assistant, Algorithm Design Spring 2023

- Under the supervision of Prof. Alireza Bagheri
- Designing (and grading) assignments and projects related to different problem solving techniques such as Divide and Conquer and Dynamic Programming.

Technical Skills

Programming Languages: Python, Java, Kotlin, C, C++, Javascript, HML, CSS
Artificial Intelligence: Keras, Tensorflow, Pytorch, Scikit Learn, OpenCV, Gensim, NLTK
Web Development: NodeJS, React, Golang, Flask
Database Systems: MySQL, SQL Server, MongoDB
Operating Systems: Windows, Linux(Ubuntu)
DevOps: Docker, Kubernetes
Miscellaneous: Pandas, Jira, Git, Latex, Matplotlib, NumPy, VHDL, Arduino, GNS3, Verilog, Pascal, Delphi, Sketchup, ROS, AWSim, Bash

Selected Courses

- Principals of Computational Intelligence: 4/4
- Algorithm Design: 4/4
- Operating Systems: 4/4
- Theory of Machines and Languages: 4/4
- Advanced Programming: 4/4
- Information Security: 4/4
- Software Engineering: 4/4
- Computer Architecture: 4/4
- Microprocessor and Assembly Language: 4/4
- Robotics: 4/4

Awards and Honors

Nationwide University Entrance Exam   2018

- Achieved top 1% among all applicants of the Nationwide University Entrance Exam for B.Sc. in Mathematics and Engineering (Approximately 150000 applicants)

NODET: Entrance Exam Qualification   2011 and 2015

- Got qualified in the National Organization for Development of Exceptional Talents (NODET) school entrance exam

Languages

Perisan	Native
English	CEFR level: C1
Japanese	JLPT level: N5

References

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