DELARAM **RAJAEI**

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· github.com/DelaramRajaei
· Home-page https://delaramrajaei.github.io/

Curious and dedicated computer engineering student (3.75/4.00 GPA) currently attending Amirkabir University of Technology (AUT), voracious desire to learn more about Artificial intelligence and Machine Learning.

RESEARCH INTERESTS

- Fuzzy Logic
- Computer Vision
- Natural Language Processing (NLP) In Artificial Intelligence
- Reinforcement Learning
- Machine Learning

EDUCATION

SEP 2018 - PRESENT

BACHELOR'S DEGREE, AMIRKABIR UNIVERSITY OF TECHNOLOGY (AUT)

B.Sc. of Computer Engineering, IT (7th Semester) | Tehran, Iran

Major GPA: 3.75/4.00
Major: Artificial intelligence and Machine learning
Minor: Software
Took most optional courses in network field.

HONORS & AWARDS

- Among top ranked undergraduates, Amirkabir University of Technology, Spring 2022
- Achieved top 2% place among all applicants of the Nationwide University Entrance Exam for B.Sc. in Mathematics and Engineering (Approximately 150000 applicants), Iran, 2018
- Advanced degree in English, Iran language Institute, 2016
- Top 3 Among all students in each Semester in High School, Alavi Highschool

TEACHING EXPERIENCES

FEB 2022 – PRESENT

TEACHING ASSISTANT, PRINCIPLES OF COMPUTIONAL INTELLIGENCE

- Work in a team
- Developing homework for students
- Developing projects
- Answering students' questions
- Evaluating homework scores

Professor: *Mohammad Mehdi Ebadzadeh*

FEB 2022 – PRESENT

TEACHING ASSISTANT, PRINCIPLES OF ARTIFICIAL INTELIGENCE

- Work in a team
- Translating and designing educating slides

Professor: *Mahdi Javanmardi*

SEP 2021 – DEC 2021

TEACHING ASSISTANT, SOFTWARE ENGINEERING I

- Work in a team
- Preparing tutor pdfs regarding the homework

Professor: *Amir Kalbasi*

SEP 2020 – DEC 2020

TEACHING ASSISTANT, ADVANCED PROGRAMMING, JAVA LANGUAGE

- Work in a team
- Developing homework for students
- Developing projects
- Answering students' questions
- Evaluating homework scores

Professor: *Ehsan Edalat*

ACADEMIC PROJECTS

SPRING 2022

DATA MINING AND NEURAL NETWORK

This project is based on creating a model with keras and tenserflow libraries to cluster the given dataset by their label. The evaluation of the model is checked by graphs and calculated accuracy. After creating an accurate model with an acceptable accuracy, the model used for a bigger dataset.

Given tasks are:

- Finding the best number of nodes in a layer
- Finding the best number of hidden layers
- Add the suitable activation function
- Learn how to work with TenserFlow and Keras
- Change the learning rate
- Add the suitable loss function

Tech stack:
Programming language: Python
Libraries used in this project: Pandas, Numpy, Matplotlib, Sklearn, TenserFlow, Keras
Link: https://github.com/DelaramRajaei/Data-Mining-HW2

SPRING 2022

SEMI-GLOBAL-ALIGNMENT

A bioinformatic project. Two protein sequences are given and they ought to be aligned using dynamic programming method in a way to get the best possible score.
Tech stack:
Programming language: Python
Link: https://github.com/DelaramRajaei/Semi-Global-alignment

SPRING 2022

DATA MINING DATASETS

Working with datasets and learn how to use pandas library by simple practical tasks such as deleting noisy data and detecting outliers.
Tech stack:
Programming language: Python
Libraries used in this project: Pandas, Numpy, Matplotlib
Link: https://github.com/DelaramRajaei/Data-Mining-HW1

SPRING 2022 – PRESENT

THESIS: PEDESTRIAN AND VEHICLE DETECTION IN AUTONOMOUS VEHICLE PERCEPTION SYSTEMS

Developing a model to recognize and classify vehicles and pedestrians. Neural network is going to be used in this project to locate and classify the object whether it is another vehicle or a pedestrian crossing the street. Root Mean Square (RMS), Average Percentage Error (MAPE) and F1-score are going to be used for evaluating the system. Currently the proposal is accepted and ready.
Libraries used in this project: OpenCV, PyTorch, Matplotlib, TenserFlow
Professor: *Mohammad Rahmati*

WINTER 2022

SPRINKLE

Estimating the time duration of watering soil. Inputs are temperature and soil moisture. The process of fuzzification and appending rules induce in the duration of watering the soil and after defuzzification the understand how many minutes is needed.
Used fuzzy logic
Tech stack:

- Programming language: Python

Link: https://github.com/DelaramRajaei/Sprinkle

WINTER 2022

SNAILJUMPER-MASTER

Developed a game that can be played both manually or by a neuroevolution algorithm. In this game, there is an animal that tries to avoid obstacles and gain scores.
Used neuroevolution algorithm
Evolution is used to create generations and go through the game and neural network is used to learn from mistakes and get the best possible score in the next generation.
Tech stack:

- Programming language: Python

Link**:** https://github.com/DelaramRajaei/SnailJumper-master

WINTER 2022

INVERTED PENDULUM

Created a pendulum fixed on top of the cart in reverse. The cart can move either left or right at a different speed in order to keep the pendulum stable.

Used fuzzy logic

Tech stack:

- Programming language: Python

Link: https://github.com/DelaramRajaei/Inverted-pendulum

WINTER 2022

FRUITS CLASSIFICATION

Implemented a deep learning model that recognizes and distinguishes three different types of fruits

Used neural network

Tech stack:

- Programming language: Python

Link: https://github.com/DelaramRajaei/Fruits-Classification

SPRING 2021

BINARY PUZZLE

Filling a Binary puzzle according to some specific rules. Given N x N puzzle like sudoku but with binary numbers. There are some rules that should be applied before solving each puzzle. The machine can also recognize unsolvable puzzles.

Two different heuristics:
MRV: Choose the variable with the fewest possible values.
LCV: Tries to avoid failure by assigning values that leave maximal flexibility for the remaining variables.

Constraint propagation:
Forward Checking: Maintains arc-consistency on constraints with exactly one uninstantiated variable
MAC: Performs full arc-consistency after each domain value is rejected
Tech stack:

- Programming language: Python

Link https://github.com/delaramrajaei/binary-puzzle

SPRING 2021

BRINGING BUTTER

Developed a robot choosing the optimal way in order to deliver butter to a person on a table. There is a table full of obstacles, n number of butter slices (at least one), and a corresponding number of people who are waiting around the table to be served by the butter piece(s). The robot has the responsibility to give the butter to a person with fewer possible moves. It can move in 4 ways: up, down, left, and right.

Implemented iterative deepening depth-first search (IDS) algorithm

Tech stack:

- Programming language: Java

Link: https://github.com/DelaramRajaei/IDS

SPRING 2021

SENTIMENT ANALYSIS

Deciding if a comment is negative or positive.

Natural language processing (NLP)

Tech stack:

- Programming language: Python

Link: https://github.com/hedzd/sentiment-analysis

SPRING 2021

INFORMATION-RETRIEVAL

Created a search engine. Used multiple news to create an inverted index which client can search any word(s) through them.

Used inverted index, tf-idf, max heap in three sections

Tech stack:

- Programming language: Java

Link: https://github.com/delaramrajaei/information-retrieval

SPRING 2021

MAZE NAVIGATION

The task consists in designing a reactive controller that can let your robot navigating safely and effectively in a maze-like environment using basic sensor data.

Design a PI controller for the robot.
Used ROS and Gazebo

Tech stack:

- Programming language: Python

Link: https://github.com/DelaramRajaei/Maze_Navigation

SUMMER 2020

THEORY OF MACHINES AND LANGUAGES

Deciding whether the given state is accepted by DFA or NDFA algorithm. Deciding whether the given state is accepted by DFA or NDFA algorithm

Tech stack:

- Programming language: Java

Link: https://github.com/DelaramRajaei/Theory-Of-Machines-and-Languages

SUMMER 2019

JPOTIFY

Implemented Spotify. Developed an application for listening to music and can share songs with your friends

Tech stack:

- Programming language: Java

Link: https://github.com/DelaramRajaei/Jpotify

WORK EXPERIENCES

AUG 2021 – DEC 2021

JUNIOR BACKEND DEVELOPER, SOCIAL SPORT STARTUP

Software engineer and backend developer. Developing a sport application using typescript and in NodeJS.

JUL 2021 – AUG 2021

INTERNSHIP, HENGAM TECHNOLOGY DEVELOPMENT CO.

Software engineer and backend developer. Learned NodeJS and typescript. Learned how to containerize applications using Docker and got familiar with pipelines of Bitbucket as CI/CD.

CERTIFICATES

- Dive Into Deep Learning, Adventures with Artificial Intelligence | Amirkabir Artificial Intelligence Summer Summit Of 2020's Workshop
- Udemy The Complete NodeJS Developer Course 3rd Edition
- HTML Tutorial and Advanced | W3school
- CSS Tutorial and Advanced | W3school
- Python Tutorial | W3school

TECHNICAL SKILLS

- Programming Languages
  - Java - Java Swing
  - Python
  - C/C++
  - Racket
- Databases
  - SQL based: MySQL
  - NoSQL: MongoDB
- Web development
  - HTML5, CSS2 (frameworks: Bootstrap), Javascript
  - NodeJS
  - Typescript
- Operating systems
  - Windows
  - Linux (Ubuntu)
- Languages
  - English (IELTS score 7)
  - Persian (Native)
- Miscellaneous
  - VHDL

- Verilog
- Boson NetSim
- Wireshark
- Adobe Photoshop
- Office: Word, Excel
- SPSS
- Postman
- Docker
- Source control: Git
- Project management, collaboration tools and prototyping tool: Jira, Pumble, Figma

OTHER ACTIVITIES

- Helped on making posters, Students Scientific Chapter (SSC)
- Participated in Linux Festival, Amirkabir University of Technology, Winter 2020
- Participated in ACM ICPC, Department of Computer Engineering Amirkabir University of Technology, Fall 2018

REFERENCES

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