Mohammad Javad Ranjbar | CV

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RESEARCH INTERESTS

- Machine Learning
- Deep Learning
- Computer Vision
- Human–robot interaction
- Data Mining
- Natural Language Processing

EDUCATION

- **Bachelor of Science** Sep 2016–2021
  Amirkabir University of Technology *Tehran-Iran*
  - Electrical Engineering Sep 2016- Sep 2021
    - Last 2 years GPA: : **3.64/4** via 67 passed credits
  - Thesis Title: Facial Expression Recognition
    I used transfer learning to finetune ResNet for the facial expression recognition task. then, I implemented the facial expression recognition system on a personal assistant robot that knows its owners and based on the facial expression of them interacts with them by playing the proper song or showing emotions with gestures and more.
    Supervisors: Dr. Mohammad Bagher Menhaj and Dr. Hassan Taheri

Work Experience

- **Research Assistant at DML lab at Sharif University of Technology** October 2021 – Present
  - I'm on working DML lab's project under the supervision of Dr. Hamid Reza Rabiee
- **Teaching Assistant for Introduction to Computational Intelligence Course** October 2021 – Present
  - Instructor: Dr. Heidar ali talebi (Amirkabir University of Technology)
- **Research Assistant at CILSS Lab at Amirkabir University of Technology** 2020 – Present
  - I was working on my thesis project (facial expression recognition).
- **Machine learning Teacher at Amirkabir Robotics and Programming school (FIRA Academy)** 2020 – 2021
  - I designed and taught an introduction to machine learning and computer vision course
- **Member of the production team of SWIMBot** (Designed for **Diginext**) March 2021
  - SWIMBot is a platform for implementing various applications such as image processing, mapping, obstacle avoidance and more.
- **Innovation Center of Amirkabir University of Technology** 2019 – 2020
  - Member of executive committee.
- **Internship** Summer 2019
  - I used Arduino nano to designe a low priced IR-remote dimmer at Internship at Canavat electric Iranian Arvand

SELECTED COURSES

- Introduction to Computational Intelligence 4/4
- Introduction to Computational Intelligent lab 4/4
- An Introduction to Machine Learning 4/4
- Microprocessor Systems & Interfaces with Lab 4/4
- Computer Programming 4/4
- Advanced Programming Passed

Online Courses

- Machine Learning [Certificated]
  - Instructors: Dr. Andrew Ng
  - Offered by: Stanford University
- Deep Learning Specialization [In-progress]
  - Instructors: Dr. Andrew Ng
  - Offered by: Deeplearning.ai

HONORS

- Ranked within the top 0.15% among approximately 131000 participants in the national master entrance exam for Iranian universities. 2021

- Ranked within the top 0.25% in the nationwide entrance exam for B.Sc. degree among 163000 participants. 2016
- Accepted to take part in "Iranian Physics Olympiad stage 2 " from top 5% of participants. 2015
- Accepted Three times to take part in "Iranian Olympiad on Astronomy and Astrophysics stage 2 " from top 5% of participants. 2013–2015

Technical and Personal Skills

- **Programming/Scripting:** Python *(Tensorflow, Keras, NLTK, OpenCV, SciPy, Scikit-learn, Pandas, Matplotlib, Numpy, Pygame, Pyaudio, Threading, PyQt, Xlsxwriter)*, C/C++, C#, Matlab, VHDL, Assembly, HTML, MySQL, LaTeX
- **Simulation Tools and HardWares:** ARM(STM32), Arduino, Raspberry Pi, NodeMCU, Simulink, Proteus, H SPICE, Advanced Design System.
- **IDEs/Tools:** Jupyter Notebook, Google Colab, Visual Studio, Keil5, STM32 Cube MX, Microsoft Office, Word, Excel, PowerPoint, Adobe Photoshop, Adobe Premiere, Adobe Animate, After Effects, Unity, Git, Docker
- **Language:** Persian(Native), English(Fluent), Toefl Score: 107 (R: 29, L: 30, S: 24, W: 24)

SELECTED PROJECTS

- **Prediction of application's category based on their description** Personal Project [2021]
  Using NLTK and Hazm libraries to handle Persian language and training various models for predicting the correct category.
- **Game Recommender** Personal Project [2021]
  - Implementing collaborative filtering to recommend games to users based on the similarity of users' history.
- **Snake game with Voice Control and Motion Detection** Advanced Programming [2020]
  - I implemented the game with the help of the Pygame module, for the Voice control I trained a model with 4 wake words, for motion control I detected the movement of a specific colour and for the gesture recognition I trained a CNN model with 4 gestures.
- **Self-driving Car** Personal Project [2021]
  - Using OpenCV to detect lanes and control the car movement in the Avis Engine simulator
- **Handwriting Digit Recognition** Introduction to Machine Learning [2019]
  - I used Mnist dataset to train different convolutional neural network (CNN) with different activation functions and learning rates and compared their effects on loss and accuracy.
- **Fruit Classification using Deep Learning** Introduction to Computational Intelligence [2019]
  - I trained a Convolution Neural Network (CNN) with help of TensorFlow, for 4 different fruit and achieved high accuracy on test data. additionally, I used a pre-trained YOLO network for real-time fruit classification.
- **Titanic: Machine Learning from Disaster** Introduction to Computational Intelligence [2019]
  - First, I analyzed the data and eliminated the irrelevant features. Afterward, I used multiple machine learning methods (Decision Tree, KNN and ...) to get the best result and finally, I achieved a good accuracy on the test data.
- **2x2 Rubik's Cube Solver** Advanced Programming [2020]
  - I implemented a program that user can play with 2x2 Rubik using commands. Also, user can give colors for the cube and the program will solve the Rubik using DLS(depth limited search) and will print the needed moves.
- **Face Recognition System** Advanced Programming [2020]
  - Projecting image of face to subspace and classifying the face based on comparing its position in the face space with the positions of the known individuals. (Eigenfaces method)
- **Irrigation System using STM32** Microprocessor Systems Interfaces [2020]
  - I used stm32, LCD, keypad and YL-69 to implement an irrigation system. The LCD shows the menu, the user can choose how long the irrigation should be, and YL-69 is used to find out the soil condition.
- **Smart Temperature Control System using STM32** Microprocessor Systems Interfaces [2020]
  - I used STM32, LM35, Stepper motor HCSR05 to make a smart temperature control system and also added a remote control to change setpoint using an Arduino Due.
- **Remote Dimmer** Internship Project [2020]
  - I designed a low priced IR-remote dimmer using Arduino nano.

For further information, and proofs check my Gitub