Mohammad Javad Ranjbar | CV

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Education

- **Bachelor of Science** 2016-2021
  Amirkabir University of Technology(AUT) – Tehran Polytechnic Tehran–Iran
  - Electrical Engineering
    - Last four semesters GPA : 16.96/20 (**3.61/4**) via 64 passed credits
  - Thesis Title: Facial Expression Recognition
    Supervisors: Dr. Hassan Taheri and Dr. Mohammad Bagher Menhaj

Internships and Work Experience

- **Teacher at Amirkabir Robotics and Programming School (FIRA Academy)** 2020 - 2021
  - Course name: An Introduction to Machine Learning and Computer Vision
- **Member of the production team of SWIMBot Robot** (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** September 2019- December 2020
  - Member of executive committee.
- **Internship at Canavat electric Iranian Arvand** Summer 2020
  - I designed a low priced IR-remote dimmer using microcontrollers such as Arduino nano.
- **Staff member at The International Conference on Robotics and Mechatronics**
  - Member of secretariat team. November 2019
- **Freelance Graphic Designers** 2016 - 2018
  - I designed posters, logos and helped in holding events.

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 Project

- **Prediction of application's category based on their description** Personal Project
  Using NLTK and Hazm libraries to handle Persian language and training various models for predicting the correct category.
- **Game Recommender** Personal Project
  Implementing collaborative filtering to recommend games to users based on the similarity of users' history.
- **Snake game with Voice Control, Motion Detection** Instructor : Dr. Amir Jahanshahi
  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**
  Using OpenCV to detect lanes and control the car movement in the Avis Engine simulator.
- **Handwriting Digit Recognition** Instructor : Dr. Sanaz Seyedin
  I used Mnist dataset to train different convolutional neural network (CNN) with different activation functions and learning rates to see their effects on loss and accuracy.
- **Fruit Classification using Deep Learning** Instructor : Dr. Farzaneh abdollahi
  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** Instructor : Dr. Farzaneh abdollahi
  First, I analyzed the data and eliminated the irrelevant features then I used multiple machine learning methods (Decision Tree, KNN and ...) to get the best result and finally, I achieved an accuracy around 71 percent.
- **2x2 Rubik's Cube Solver** Instructor : Dr. Amir Jahanshahi
  First, I made a Rubik Cube Class therefore user will be able to play the game. Second, I implemented a graph class based on Depth-limited search (DLS) method that gets the Depth number and returns if the Rubik is solvable or not and if it is solvable it returns the needed moves to solve the Rubik.
- **Face Recognition System Based on Eigenfaces Method** Instructor : Dr. Amir Jahanshahi
  I Implemented Eigenfaces Method in python. Recognition is performed by projecting a new image into the subspace spanned by the Eigenfaces ('face space') and then classifying the face by comparing its position in the face space with the positions of the known individuals.
- **An Irrigation System using STM32** Instructor : Dr. Saeid Sharifian
  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.
- **Remote Dimmer** Instructor : Dr. Hassan Taheri
  I designed a low priced IR-remote dimmer using Arduino nano.
- **Smart Temperature Control System using STM32** Instructor : Dr. Saeid Sharifian
  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.

Honors and Awards

- Ranked within the top 0.25 percent among approximately 165000 participants in the National Entrance Examination from Iranian universities. 2016
- Accepted to take part in "Iranian Physics Olympiad stage 2 " from top 5 percent of participants. 2015
- Accepted Three times to take part in "Iranian Olympiad on Astronomy and Astrophysics stage 2 " from top 5 percent of participants. 2013, 2014, 2015

For more references, further information, and proofs, contact me or visit my website or Github.