Mohammad Javad Ranjbar | CV

Amirkabir University of Technology–Department of Electrical Engineering
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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

RESEARCH INTERESTS

- **Machine Learning**
- **Deep Learning**
- **Computer Vision**
- **Natural Language Processing**
- **Data Mining**
- **Pattern Recognition**

Internships and Work Experience

- **Teacher at Amirkabir Robotics and Programming School (FIRA Academy)** 2020–Present
  - Course name: An Introduction to Machine Learning and Computer Vision
- **Research Assistant at Computer Intelligence and Large Scale System Research Lab** 2020–Present
  - I work on Facial Expression Recognition project
- **Innovation Center of Amirkabir University of Technology**
  - Member of executive committee. September 2019-December 2020
- **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 7th International Conference on Robotics and Mechatronics**
  - Member of secretariat team and responsible for designing and printing all certificates and badges, also helping all other parts of student committee which needed a hand. November 2019

NOTABLE COURSES

- Introduction to Computational Intelligence A
  - Instructor: Dr. Farzaneh Abdollahi
- Introduction to Computational Intelligent lab A+
  - Instructor: Mr. M.H Amini
- An Introduction to Machine Learning A
  - Instructor : Dr. Sanaz Seyedin
- Research Methods Report Writing A+
  - Instructor : Dr. Gholam H.Riahy
- Microprocessor Systems Interfaces Lab A+
  - Instructor : Mr. Reza Zavari
- Microprocessor Systems Interfaces PASS
  - Instructor : Dr. Saeid Sharifian

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 in "Iranian Physics Olympiad stage 1". 2015
- Accepted to take part in "Iranian Olympiad on Astronomy and Astrophysics stage 2 " from top 5 percent of participants in "Iranian Olympiad on Astronomy and Astrophysics stage 1". 2015
- Accepted to take part in "Iranian Olympiad on Astronomy and Astrophysics stage 2 " from top 5 percent of participants in "Iranian Olympiad on Astronomy and Astrophysics stage 1". 2014
- Accepted to take part in "Iranian Olympiad on Astronomy and Astrophysics stage 2 " from top 5 percent of participants in "Iranian Olympiad on Astronomy and Astrophysics stage 1". 2013
- Competed in a Kaggle Competition ("Titanic: Machine Learning from Disaster") and ranked within and top 150 .
- Competed in a Kaggle Competition ("Digit Recognizer") and ranked within and top 500 .

Skills

Programming/Scripting

- Python
  - Tensorflow
  - Keras
  - OpenCV
  - SciPy
  - Scikit-learn
  - Pandas
  - Numpy
  - NLTK
  - Matplotlib
  - Pygame
  - Pyaudio
  - Threading
  - PyQt
  - Xlsxwriter
- C/C++
- C
- Matlab
- VHDL
- Assembly
- HTML
- LaTeX

Simulation Tools and HardWares

- ARM (STM32)
- Arduino
- Raspberry Pi
- NodeMCU
- Simulink
- Proteus
- H SPICE
- Advanced Design System

IDEs/Tools

- Jupyter Notebook
- Google Colab
- PyCharm
- Visual Studio
- Keil5
- STM32 Cube MX
- Microsoft Office
  - Word
  - Excel
  - PowerPoint
- Adobe Photoshop
- Adobe Premiere
- Adobe Animate
- After Effects
- Unity
- Github
- Docker

Key Academic Projects

- **Snake game with Voice Control, Motion Detection and Hand Gesture Recognition**
  I implemented the game with the help of the Pygame module, for the Voice control I trained a model with the 4 wake word, for motion control I detected the movement of a specific colour and for the gesture recognition I trained a CNN model with 4 gestures.
  - Instructor : Dr. Amir Jahanshahi
- **Handwriting Digit Recognition**
  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.
  - Instructor : Dr. Sanaz Seyedin
- **Fruit Classification using Deep Learning**
  I Trained a Convolution Neural Network (CNN) with help of TensorFlow, to learn 4 different fruit and achieved 96 percent accuracy on test data. additionally, I used a pre-trained YOLO network for real-time fruit classification.
  - Instructor : Dr. Farzaneh abdollahi
- **Titanic: Machine Learning from Disaster**
  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.
  - Instructor : Dr. Farzaneh abdollahi
- **2x2 Rubik's Cube Solver**
  First, I made a RubikCube Class therfore 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.
  - Instructor : Dr. Amir Jahanshah
- **Face Recognition System Based on Eigenfaces Method**
  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.
  - Instructor : Dr. Amir Jahanshah
- **Smart Temperature Control System using STM32**
  I used STM32, LM35 (temperature sensor), Stepper motor (Adjusting the radiator valve), HCSR05 (calculating the door distance) and Arduino Due (sending and receiving commands and data).
  - Instructor : Dr. Saeid Sharifian

For more References, Further information, and Proofs contact me or visit my website or Github.