

Mohammad Reza Iravani

Isfahan, Iran | +98 (913) 819-0650 | Mrezairavani.ai@gmail.com

[ResearchGate](#) | [LinkedIn](#) | [GitHub](#) | [Website](#)

Education

B. Sc. In Biomedical Engineering

(September 2019 – February 2024)

Islamic Azad University, Khomeinishahr Branch, Isfahan, Iran

- **GPA: 3.49 (16.94/20)**
- **BME GPA: 3.62 (17.38/20)**
- Capstone Project: “Sleep stage classification based on electrocardiogram using fully connected neural network”
- Advisor: Dr. Sadaf Moharreri

Publications

- **M. R. Iravani, S. Moharreri, “Sleep stage classification based on electrocardiogram using fully connected neural network”** (Ready to Submit) 2023
- **M. R. Iravani, S. Moharreri, “Autism disorder classification based on pediatric brain MRI images using convolutional neural networks”** (In Preparation) 2023

Research Interests

- | | | |
|------------------------------|---------------------|--------------------|
| • Computational Neuroscience | • Image Processing | • Deep Learning |
| • Neural Engineering | • Signal Processing | • Machine Learning |

Skills

- **Programming:** Python (TensorFlow, NumPy, Pandas, OpenCV), C#, JavaScript, MATLAB
- **Research Methodology:** Quantitative Research, Analytical Research, Statistical Analysis, Scientific Writing
- **Language Skills:** English (IELTS: 7), Persian (Native)

English Scores

- **IELTS(Academic): 7.0 (Overall Score)**
 - Listening: 8.0, Reading: 6.5, Writing: 6.5, Speaking: 6.0
 - Test Date: 25th September, 2023

Experiences

Research Experiences:

- **Research Assistant** (Dr. Moharreri's Lab) (January 2022 - Present)
Islamic Azad University, Khomeinishahr Branch, Isfahan, Iran
 - Signal Processing Researcher
 - Image Processing Researcher
 - Vital Signals Recording Assistant (ECG, EEG)
- **Member of the Young Researchers and Elite Club** (March 2023 – Present)

Teaching Experiences:

- **Teaching Assistant** (October 2022 - Present)
Islamic Azad University, Khomeinishahr Branch, Isfahan, Iran
 - Mid-term exam and assignment grader for the “Bioelectric phenomena” course
 - Undergraduate capstone project advisor
 - Resolving issues in signal and image processing projects for undergraduate and graduate students

Vocational:

- **Preventive Maintenance and Troubleshooting of Medical Equipment** (July 2022 – July 2023)
Technical and Vocational Training Organization, Tajhizteb Educational Institute, Isfahan, Iran
- **Biomedical Engineering Internship** (June 2022 – September 2022)
Isfahan University of Medical Sciences, Isfahan, Iran

Volunteering:

- **TED Translators** (September 2023 - Present)
Translator
 - Translator of English Subtitles of TED’s Videos to Farsi (Persian)

Honors and Awards

- **Selected as the Team Leader for the AI Contest, Since October 2023**
Isfahan University, Isfahan, Iran
Competition tasks:
 - Present an MRI segmentation model for patients with MS.
 - Predict reflux occurrence based on esophagus impedance in six channels.
Delivery Date: December 5th, 2023
Announcement of Results: December 21st, 2023
- **Ranked within the top 5% GPA among undergraduate students, July 2023**
Biomedical Engineering Department, Islamic Azad University, Khomeinishahr Branch, Isfahan, Iran
- **1st place in Programming Contest, May 2023**
Islamic Azad University, Khomeinishahr Branch, Isfahan, Iran
- **National Exam Entrance, 2019**
Ranked within the top 1% of Iranian university exam entrances for bachelor’s degrees among approximately 700,000 students

Selected Workshops/Courses Certificates

- **“Fundamental Neuroscience for Neuroimaging”** Arnold Bakker, Johns Hopkins University, Coursera online MOOC, 2023 (Attending)
- **“AI for Medical Prognosis”** Pranav Rajpurkar, DeepLearning.AI, Coursera online MOOC, 2023
- **“Convolutional Neural Networks”** Andrew Ng, DeepLearning.AI, Coursera online MOOC, 2023
- **“AI for Medical Diagnosis”** Pranav Rajpurkar, DeepLearning.AI, Coursera online MOOC, 2023
- **“Machine Learning Specialization”** Andrew Ng, Stanford Online, Coursera online MOOC, 2022
 - Supervised Machine Learning: Regression and Classification
 - Advanced Learning Algorithms
 - Unsupervised Learning, Recommenders, Reinforcement Learning

- **“Troubleshooting and Preventive Maintenance of Medical Equipment in the Operation Room and Hospital Intensive Care Department”** Technical and Vocational Training Organization, Isfahan, Iran, 2023
- **“Responsive Web Design”** freeCodeCamp, 2023

Selected Projects

- **Sleep Stage Classification based on Electrocardiogram Using Fully Connected Neural Network**
 - Extracted features from the Poincare plot were manipulated and fed into the optimal network for classifying the proper sleep stage.
- **Autism Disorder Classification based on Pediatric Brain MRI Images Using Convolutional Neural Networks**
 - A classification output of the status of being autistic is obtained by a 2D convolutional neural network followed by flattened dense layers.
- **Classifying Sleepy Drivers with EEG Signal**
 - The classification of whether a driver is sleeping based on features of the EEG signal, such as lowAlpha and highAlpha. The complexity of features is increased by assigning weights to engineered features.
- **Patient Condition Prediction Based on Blood Tests**
 - The patient status is detected through the analysis of blood tests conducted by neural networks, and recommendations for remedies or actions to mitigate adverse effects are provided.
- **Prototyping a Smart Cane for Blind People**
 - Prototype of an intelligent cane utilizing ultrasound for distance detection and location trackers and able to charge the cane by hitting the ground using a piezoelectric sensor.
- **Naive Bees: Deep Learning with Images (Datacamp)**
 - Build a deep learning model automatically detecting honey and bumble bees in images.
- **Heart Failure Prediction**
 - The risk of heart failure for patients is predicted based on features such as age, anemia, diabetes, etc.
- **Designing a UI for Controlling Radiology Devices Using Mobile Devices**
 - The UI of an application to control radiology devices is designed using common connections such as Wi-Fi and Bluetooth.

Hobbies

Sports (Gym, Swimming), Video Games, Watching Movies, Hangout with Friends