

Mohammad Reza Iravani

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

Education

B. Sc. In Biomedical Engineering

(October 2019 – February 2024)

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

- Neuroscience
- Machine Learning
- Deep Learning
- Signal Processing
- Image Processing

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)
Azad University Khomeinishahr Branch, Isfahan, Iran
 - Signal Processing Assistant
 - Vital Signals Recording Assistant (ECG, EEG)
- **Member of the Young Researchers and Elite Club** (March 2023 – Present)

Teaching Experiences:

- **Teaching Assistant** (Dr. Moharreri's Lab) (October 2022 - Present)
Azad University Khomeinishahr Branch, Isfahan, Iran
 - Grading mid-term exams and assignments for the "Bioelectric phenomena" course
 - Students' advisor on their capstone projects
 - Solving issues for students in their signal and image processing projects

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
 - Translating English Subtitles of TED's Videos to Farsi (Persian)

Honors and Awards

- **Selected as a competitor team for the AI Contest, 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: November 28th 2023
- **1st place in Programming Contest, May 2023**
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

- **"Convolutional Neural Networks"** Andrew Ng, Deeplearning.ai, Coursera online MOOC, 2023
- **"AI for Medical Diagnosis"** Pranav Rajpurkar and Andrew Ng, 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

- **Classifying Sleeping Status of Drivers with EEG Signal**
 - Classifying if a driver is sleeping based on features of EEG signal such as lowAlpha, highAlpha, etc., and making features more complex by allocating weights to engineered features.
- **Patient Condition Prediction Based on Blood Tests**
 - Detecting patient status with blood test analyses done by artificial neural networks and recommending remedies or actions to diminish its bad effects
- **Naive Bees: Deep Learning with Images (DataCamp)**
 - Build a deep learning model that automatically detects honey and bumble bees in images.
- **Heart Failure Prediction**
 - Predicting the risk of heart failure for patients based on features such as age, anemia, diabetes, etc.
- **Autism Disorder Classification based on Pediatric Brain MRI Images Using Convolutional Neural Networks**
 - 2D convolutional neural network followed by flattened dense layers with a classification output of the status of being autistic or not.
- **Sleep Stage Classification based on Electrocardiogram Using Fully Connected Neural Network**
 - Detecting noisy HRVs extracted from the ECG signal by getting help from the Poincare plot
 - Extract common features from the HRV signal.
 - Manipulate extracted features and make more complex features.
 - Feed features to the network and optimize it.
- **Designing a UI for Controlling Radiology Devices Using Mobile Phones.**
 - Designing the UI of an application to control radiology devices by using common ways of connection such as Wi-Fi and Bluetooth.

Hobbies

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

References

Dr. Sadaf Moharreri (My B.Sc. Project advisor)
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