Mojan Izadkhah

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Education

Sharif University of Technology — **Tehran, Iran**
B.Sc. in Electrical Engineering, GPA: 17.20/20 — *Sept.2017 - July.2021*

Young Scholars Club — **Tehran, Iran**
Official Preparation Course for National Mathematics Olympiad — *Summer.2016*

Farzanegan High School — **Tehran, Iran**
Diploma in Mathematics and Physics Discipline — *2013–2017*

Awards and Honors

Konkur — **Ranked top 0.3%**
National Mathematics and Physics University Entrance Exam with 148,429 candidates — *Summer.2017*

IMO — **Bronze Medal**
Iranian Mathematics Olympiad — *Summer.2016*

IGO — **Silver Medal**
Iranian Geometry Olympiad — *Summer.2016*

Khwarizmi Awards — **Semifinalist**
National Science Competition(Mathematics Group) — *Spring.2016*

IGO — **Gold Medal**
Iranian Geometry Olympiad — *Summer.2014*

National Organization for Development of Exceptional Talents
Got accepted in the national high school of exceptional talents entrance exam — *Fall.2013*

Research Experience

Developing a Deep Neural Network for speech decoding of sEEG data
EEG signal processing, Deep Learning, remote internship at University of Vienna — *Fall.2021*
This project entails comparing a stand-alone deep learning model with a model based on a pre-trained speech-recognition neural network for the task of decoding speech (audio or text) from the Stereo-EEG neural data.

Functional organization of face responsive regions in lateral prefrontal cortex
Neuroimaging, fMRI signal processing, Supervised by Reza Rajimehr at the University of Cambridge — *Summer.2021*
After analyzing the movie watching data of Human Connectome Project, we are investigating some new face-selective areas to understand their roles in face processing.

Investigating value memory using visual stimuli in virtual reality environment
Behavioral Neuroscience, Sharif Neuroscience Laboratory — *Spring.2021*
We recorded subjects' EEG signals and their performance while playing in a virtual reality environment (implemented for this purpose), in order to investigate value association in humans. An alike paper was conducted with monkeys called: Object-finding skill created by repeated reward experience.

Classifying depression patients and normal subjects using EEG signals
EEG signal processing, Atieh Neuroscience Clinical Center — *Summer.2020*
Extracting features from EEG signals taken from clinical patients and classifying them with Neural networks.

Evaluation of auditory attention using EEG signals when performing motor and visual tasks
EEG signal processing(HCI purposes), Sharif University Human & Machine Interfaces Lab — *Summer.2019*
In order to model the human auditory system and evaluate auditory attention while doing visual or motor tasks(using EEG, eye-tracker, and the glove), we defined different tasks so that we could measure the subject's attention and the brain's response to unexpected events and also find brain source localization.

Course Projects

Lumbar vertebrae registration
Image Registration, Medical Image Analysis & Processing, final project *Spring.2021*
Using the CPD algorithm, explored different solutions in order to improve performance of the algorithm on real world data and decrease interpenetration of spines mid-registration.

Further Analyses & Comparison of Different Modes of Decision-making
EEG signal processing, Foundations of Neuroscience, final project *Winter.2020*
Using available data from Libet experiment, we conducted more investigation to test our hypothesis about the basis of the decision-making process in the human brain.

Forecasting stock market prices
Machine Learning (Python), Introduction to Machine Learning, final project *Fall.2020*
Using statistical parameters and special python libraries such as fasti, ARIMA, and prophet I implemented machine learning algorithms to forecast the future values of the given data.

Investigating an fMRI signal
Machine Learning (Matlab) *Fall.2020*
I analyzed and labeled the available data from the paper(The spatiotemporal neural dynamics underlying perceived similarity for real-world objects).

Teaching Experience

Department of Electrical Engineering: Teaching assistant in Foundations of Biomedical Engineering, *Fall.2021*

Department of Electrical Engineering: Teaching assistant in Special topics in Biomedical Engineering: EEG Signal Processing, *Fall.2021*

Department of Electrical Engineering: Teaching assistant in AI & Biological Computations, *Fall.2021*

Department of Electrical Engineering: Teaching assistant in Machine Learning, *Spring.2021*

Department of Electrical Engineering: Teaching assistant in Engineering Statistics & Probabilities, *Fall.2021 & Spring.2021*

Department of Electrical Engineering: Teaching assistant in Data Structure & Algorithm, *Spring.2021*

Farzanegan 1 High School: Teaching Mathematics Olympiad, *Spring.2018*

Related Attended Courses

- Special topics in Biomedical Engineering: EEG Signal Processing
- Medical Image Analysis & Processing
- Neural Networks
- Foundations of Neuroscience
- Foundations of Biomedical Engineering
- Introduction to Machine Learning
- AI & Biological Computations
- Digital Signal Processing
- Probability & Statistics
- Signals & Systems

Skills

English: Advanced, TOEFL IBT:(104/120)(Reading:28, Listening:30, Speaking:22, Writing:24)

Programming Languages: Matlab, Python, C/C++, Assembly Mips

Familiar with: LaTeX, TeX, Unity, Comsol Physics, Altium, Simulink, git, HTML

Other Activities

Sharif University Mountain Climbing Group: Leader of a mountain climbing trip to Duna summit(3674m)

Resana(Main Association of Electrical Engineering): Member of the Central Council

Sharif University Mountain Climbing Group: Member of Main Committee

IGO-2019 (Iranian Geometry Olympiad): Member Executive Team

IGO-2018 (Iranian Geometry Olympiad): Member of Grading Team

Mabna Group(Designing Questions of Mathematics Olympiad): Member of the team