Mohammad Reza Sheikh

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Education

- **Azad University, Tehran North Branch** Tehran, Iran
  Bachelors of Computer Software Engineering; Last two years GPA: 3.50/4 *2018 - 2022*
  Thesis: Pretrained transformers for Sentiment Analysis and Text Summarization
  Selected Courses: Fundamentals of Speech Processing, Fundamentals of Computer Vision, Statistics and Probability, Signal and Systems, Data Structure, Artificial Intelligence and Expert Systems, Software Engineering, Engineering Mathematics

- **Azad University, Tehran North Branch** Tehran, Iran
  Master of Artificial Intelligence; GPA: 4/4 *2023 - 2025*

Expertise

- Extensive hands-on experience with EEG and ECG signal processing, including preprocessing, feature extraction (e.g., wavelet transform, xDAWN), and classification using deep learning models such as CNNs and Transformers.
- Proficient in applying both time-domain and frequency-domain techniques to neurophysiological data for tasks like brain disorder detection and emotion recognition.
- Skilled in designing end-to-end pipelines for biosignal-based machine learning projects, with focus on interpretability and performance.

Publications

- **ViT-CNN: Leveraging a hybrid convolutional neural network and vision transformer for Alzheimer's disease classification based on EEG signal**: IEEE 2nd International Conference on Artificial Intelligence and Software Engineering
- **A Convolutional Neural Network Approach to Schizophrenia Detection Based on Wavelet-Transformed EEG Signals**: The 1st International Conference on Machine Learning and Knowledge Discovery
- **An EEG-based Transformer Approach for Automatic Identification of Schizophrenia Disorder**: Achieving a classification accuracy of 98.50 using xDAWN-extracted P300 features. (Submitted)
- **A Comparative Study of Deep Learning Models for Sleep Apnea Detection: Raw Signal vs. Scalogram Image Inputs**: (Submitted)

Projects

- **batGPT**: My personal Transformer-based language model, trained using the top 10 Batman movies.
- **Deep Transfer Learning with CNN for EEG signals**: Transform EEG signals into images using continuous wavelet transform (CWT) and classify using CNN.
- **Transformer Based Topic Modeling and Sentiment Analysis**: Use Siebert and BERTopic Model on Persian Dataset.
- **Dynamic Web App for Text Summarization and Sentiment Analysis**: Use HuggingFace's Pre-Trained Transformer Model.
- **Sentiment Analysis on IMDb reviews**: Use Naive Bayes, Logistic Regression, BOW and TFIDF.
- **Dataset**: All The Elon Musk's Tweets.

Experience

- **Graduate Research Assistant**
  under supervision of Dr. Malihe Sabeti *Jan 2024 - present*
  - Integrating temporal and spectral EEG characteristics using multi-layer CNNs, performed spectro-temporal analysis using wavelet transform, analyzed brain activity across regions and frequencies.
- **Teaching Assistant**
  Natural Language Processing Course - under supervision of Dr. Nava Eslami *Feb 2024 - Jul 2024*
- **Giftak**
  Python Backend Developer (Part-time) *Aug 2020 - Sep 2021*
  - Developed website backend using Flask and SQLite.
- **Giftak**
  CEO and Founder (Full-time) *Aug 2020 - Sep 2021*
  - Managed a team of developers and designers.

Certificates

- **Intro to Brain Computer Interface**: UC San Diego, Winter 2023
- **Machine Learning**: Stanford University - Andrew Ng's course
- **Machine Learning A-Z™: Hands-On Python & R In Data Science**: Udemy
- **SQL - MySQL for Data Analytics and Business Intelligence**: Udemy
- **Generative AI with Large Language Models**: Coursera - Deep Learning AI

Honors and Awards

- **Half Marathon: 2:20:00**: Completed a half marathon in 2 hours and 20 minutes (Summer 2023).
- **National Olympiad in Mathematics Major**: Fall 2012
- **Member of University Artificial Intelligence Association**: April 2022

Languages

- **Persian**: Native
- **English**: Fluent

Hobbies

- **Gaming**: Play Dota and enjoy strategy-based games.
- **Cooking**: Loves experimenting with recipes and preparing meals.
- **Running**: Passionate endurance runner, enjoys long-distance challenges.