Tahoura Morovati

Tehran, Iran
t.morovati.99@gmail.com · (+98) 935 774-6076
Linkedin · Github · Personal Website

Education

M.sc. in Electrical Engineering - Telecommunication Systems Sep 2021 – Oct 2024
University of Tehran, Tehran, Iran
Supervisor: Prof. Hamid Soltanian-Zade
Thesis: Call detection and recognition in Zebra finches using Machine Learning

B.sc. in Electrical Engineering Sep 2017 – Aug 2021
Alzahra University, Tehran, Iran
Supervisor: Dr. Zhila Amini
Thesis: Design and Build a Toy Based on MicroElectronics

Research Interests

Deep Learning, Machine Learning, AI in Healthcare

Selected Courses

- Deep Neural Networks (4/4)
- Signals and Systems (4/4)
- Stochastic Processes (4/4)
- Probability and Statistics (4/4)
- Machine Learning (4/4)
- Data Engineering (IBM)
- Digital Signal Processing (4/4)

Publications

- Zolnoori, M., Esmaeili, E., and **Morovati, T.**, "Voice-Mark ADRD: An Explainable Automated Speech Processing Tool for Early Detection of Cognitive Impairment in Patients", 22nd Intl. Conf. on Artificial Intelligence in Medicine, Salt Lake City, Utah, USA, July 2024. http://dx.doi.org/10.13140/RG.2.2.14725.56808
- Zolnour, A., Rashidi, S., Noble, J. M., Hirschberg, J., Esmaeili, E., **Morovati, T.**, Zolnoori, M., "TransformerCARE: A Novel Speech Analysis Pipeline Using Transformer-Based Models and Audio Augmentation Techniques for Cognitive ImpAiRment DEtection", Under Review.
- Makhloughi, F., Abdipourasl, A., **Morovati, T.**, Zandbagleh, A., Amiri, M. "EEG-Based Temporal and Spatial Assessment of Alzheimer's Disease Using Deep Learning Approaches", Under Review.
- **Morovati, T.**, Vaezi, H., Karimi, S., Mahmud, M., Crook-Rumsey, M., Heym, N., Brown, J.D., and Sumich, A. "Deep Learning Approaches in EEG Analysis for Early Detection of Alzheimer's Disease and Mild Cognitive Impairment: A Systematic Review", Under Review.
- Hejazi, M., **Morovati, T.**, and Sheshdeh, Z, "Design and Build a Toy Based on Microelectronics with the Approach of Teaching Emotions to Children". 3rd Intl. Conf. on Researches in Nanotechnology and Nanoscience papers. 2022. https://civilica.com/doc/1692607

Honors and Awards

- Ranked within the top 0.1% among approximately 13100 participants in the national master entrance exam for Iranian universities.(ranked 57th)
- Ranked 2nd student throughout my four-year undergraduate program at the university.

Selected Projects

- Implementation of AlexNet and LSTM Models on EEG Data for Classifying Alzheimer's Disease from Healthy Controls in Python
- Participated in a challenge for dementia recognition using NLP, where I cleaned transcript data with NLTK in Python and applied machine learning methods for detection.
- Designed and implemented an API to store and retrieve city data using Flask and Redis, deployed with Docker.
- Development of Acoustic Feature Analysis in Python for Early Detection of Mild Cognitive Impairment in Human Speech
- Implementation of YOLOv7 for Human Keypoint Detection in Python
- Implementation of Emotion Detection System using HuBERT on Farsi Voice Files
- Image Authenticity Detection using SVM and MLP
- Parkinson's Diagnosis using Support Vector Machine in Python

Work Experience

- Biomedical Engineering Lab — Sep 2023 – Sep 2024
  Research Assistant
  Supervisor: Dr. Hamid Soltanian-Zade
  Implemented acoustic features to detect and recognize the Zebra finches' vocalizations using **Deep Learning Methods**.

- Institute for Research in Fundamental Sciences (IPM) — June 2022 – Aug 2023
  Research Assistant
  Supervisors: Dr. Mahdi Khademian, Ms. Zohre Safarcharati, Dr. Hamid Soltanian-Zade
  Employed audio recording and data synthesis techniques to explore the presence of zebra finch vocalizations **using Machine Learning Methods**.

- ViraTech, Amirkabir University — Nov 2019 – Feb 2020
  Developer
  Employed 3D motion tracking using Python for VR glasses.

- ToobaTech Company — Jan 2018 – Oct 2019
  Developer
  Implemented advanced surveillance and number plate recognition technologies, optimized image processing, and developed efficient real-time monitoring solutions for university parking facilities.

- Safir Language Academy — Jan 2022 – Mar 2023
  English Teacher
  I learned Effective communication and strong teaching skills for conveying complex concepts.

Technical Skills

- Languages: Farsi (Native), English (TOEFL ibt 100/120[(R:23, L:26, W:24, S:27)])
- Programming/Scripting: Python, MATLAB, C, C++, LaTeX
- frameworks in Python: Pandas,Numpy,Matplotlib,NLTK,Scikit-learn,TensorFlow,PyTorch,Flask
- Operating Systems: Windows, Linux (Ubuntu, Raspian)
- Data Bases: SQL, Redis
- Tools/IDEs: Docker, Git, Apache Spark, Microsoft Office
- Hardware: Raspberry Pi, Arduino, AVR, STM32 Series
- Soft Skills: Team Working, Management, Problem-Solving, Adaptability

References

- Dr. Alex Sumich
  Professor
  School of Social Sciences, Nottingham Trent University, Nottingham, UK
  alexander.sumich@ntu.ac.uk

- Dr. Mahmoud Amiri
  Senior Researcher
  Department of Engineering Management, University of Antwerp, Antwerp, Belgium
  mahmood.amiri@uantwerpen.be

- Dr. Mufti Mahmoud
  Associate Professor
  Department of Computer Science; Computing and Informatics Research Centre; Nottingham Trent University, Nottingham, UK
  mufti.mahmud@ntu.ac.uk