Atefe Hassani

Research Intern at BASIRA Lab

CONTACT INFORMATION

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Google Scholar

BASIRA Lab
Imperial-X (I-HUB)
White City Campus
Imperial College London
London, UK

RESEARCH INTEREST

- ❑ **Medical Imaging**
- ❑ **Representation Learning**
- ❑ Deep Learning
- ❑ **Federated Learning**
- ❑ **Multimodal Language Model**
- ❑ Signal Processing

EDUCATION

Shahed University — Tehran, Iran
M.Sc. in Biomedical Engineering (First Class Honours) — Aug. 2017 - Sep. 2020
- Supervised by Prof. Ali Motie Nasrabadi

University of Zanjan — Zanjan, Iran
B.Sc. in Electrical Engineering — Jan. 2013 - Aug. 2017

INTERNSHIP EXPERIENCE

BASIRA Lab, Imperial College London — London, United Kingdom
Research Intern — Sep. 2023 – Now
- Supervised by Prof. Islem Rekik
- Project: Federated Multi-Task Learning on Heterogeneous Medical Images

Fatima Fellowship — Remote
Research Fellow — Apr. 2023 – Dec. 2023
- Project: Medical Image Classification using Quaternion Convolutional Neural Networks

Bio-Imaging Lab, Antwerp University — Antwerp, Belgium
Research Intern — Aug. 2021 – Feb. 2023
- Supervised by Prof. Mahmood Amiri

Biological Signal Processing Lab, Shahed University — Tehran, Iran
Research Assistant — Aug. 2017 – Sep. 2020

Signal and Image Processing Lab, University of Zanjan — Zanjan, Iran
Research Assistant — Aug. 2016 – Aug. 2017

ValiAsar Hospital — Zanjan, Iran
Research Intern — Jan. 2016 – Sep. 2016

PUBLICATIONS
SCHOLAR
RESEARCHG

Preprints & Under Submission

8. **Multimodality Representation Learnings from Heterogeneous Data to Handle Missing Labels and Modalities**
Atefe Hassani, Islem Rekik
(*Working Progress*)

7. **UniFed: A Universal Federation of a Mixture of Highly Heterogeneous Medical Image Classification Tasks**
Atefe Hassani, Islem Rekik
Machine Learning in Medical Imaging (***MLMI@MICCAI***), 2024
arXiv *UniFed* *Video*

6. **Neuromarketing Dataset: Cognitive Movement and Decision-Making Based on Human Sexuality**

Atefe Hassani, Amin Hekmatmanesh, Ali Motie Nasrabadi
Scientific Data, 2024 (*Under Submission*)

5. **Anodal HD-tDCS on the dominant anterior temporal lobe and dorsolateral prefrontal cortex: clinical results in patients with mild cognitive impairment**
Soheila Rezakhani, Mahmood Amiri, Atefe Hassani, Vahid Sheibani, Khadijeh Esmaeilpour
Alzheimer's Research & Therapy, 2024
Paper

4. **Gender Differences in EEG Responses to Color and Black-and-White Images: Implications for NeuroMarketing Strategies**
Atefe Hassani, Amin Hekmatmanesh, Ali Motie Nasrabadi
IEEE Access, 2023
Paper

3. **The impact of selective and non-selective medial septum stimulation on hippocampal neuronal oscillations: A study based on modeling and experiments**
Nima Salimi-Nezhad, Stephan Missault, Anais Notario-Reinoso, Atefe Hassani, Mahmood Amiri, Georgios A Keliris
Neurobiology of disease, 2023
Paper

2. **Discrimination of Customers Decision-Making in a Like/Dislike Shopping Activity Based on Genders: A Neuromarketing Study**
Atefe Hassani, Amin Hekmatmanesh, Ali Motie Nasrabadi
IEEE Access, 2022
Paper

1. **Improved PPG-based estimation of the blood pressure using latent space features**
Atefe Hassani, Amir Hossein Foruzan
*Signal, Image and Video Processing (**SIVP**)*, 2019
Paper

Honors

Full Scholarship for Fatima Fellowship 2023
Ranked amongst the top 20%
San Francisco, California, USA

TWINNIBS Bootcamp Scholarship 2023
Belgrade, Serbia

Full Scholarship for Oxford Machine Learning Summer School (MLx Health) 2023
University of Oxford, UK

Outstanding Researcher among Master Students 2022
Department of Engineering, Shahed University, Iran

AWS Machine Learning Foundation Scholarship 2021
Udacity

First-rank Graduate Amongst MSc Students 2020
Department of Engineering, Shahed University, Iran

Projects

Highly Heterogeneous Multi-task Federated Learning London, BASIRA Lab

A federated learning framework which is able to learn from a mixing highly heterogeneous medical image classification tasks, dataset, and imaging modalities by introducing a loss-guided dynamic and sequential model exchange between the server and client with an application for medical image classification.
`UniFed`

AI or Not? AI-Generated Images Detector using Vision Transformers Fatima Fellowship

The pipeline of training a model to detect if images are generated by AI or not through Vision Transformers (ViT).
`AI or Not`

Classification of Images Using Transfer Learning and Fine Tuning

This project classifies images by using transfer learning from a pre-trained network such as MobileNetV2.
`Transfer Learning`

Detection of Parking Occupancy Using Deep Learning

This project aims to detect parking occupancy using ResNet-50 model for Training and validating the PKLot dataset implemented by TensorFlow, Keras, and scikit-learn library.
`Parking Occupancy Detection`

Teaching Experience

Teaching Assistant, University College London (UCL) London, United Kingdom
COMP0173: AI for Sustainable Development (Dr. Maria Perez Ortiz) 2023 – 2024

Teaching Assistant, University College London (UCL) London, United Kingdom
COMP0186: Foundation of Artificial Intelligence (Dr. Sahan Bulathwela) 2023 – 2024

Services

Program Committee and/or Reviewer

- PRIME@MICCAI 2024
- Journal of Big Data 2024

Certificates

- Machine Learning | Coursera | Stanford University
- Deep Learning Specialization | Coursera | deeplearning.ai
- fMRI Introduction | NI-edu | Amestredam
- fMRI Principle and Practice | Sharif Neuroscience Symposium
- Brain Signal Processing in Computational Neuroscience | National Brain Mapping Laboratory (NBML)
- Neuromarketing Workshop | National Brain Mapping Laboratory (NBML)

Technical Skills

- Programming Languages: Python, MATLAB, C
- Database Systems: SQlite, SQL Server, MongoDB
- Medical Data Analysis Tools: EEGLAB, FSL, AFNI, fMRIPrep
- Deep Learning Frameworks: PyTorch, PytorchGeometric, TensorFlow
- Tools: Scikit-Learn, NumPy, SciPy, Pandas, Matplotlib, Seaborn, Web Scraping (Beautiful Soup)
- Typesettings: Microsoft Office, LaTex

Language Skills

- Persian and Azerbaijani(Native)
- English - IELTS Test Score taken in October 2024: 6.5
- Turkish (Elementary)