Farzad Beizaee

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About me

A PhD candidate with a strong passion for deep learning and computer vision. Experienced in developing and applying advanced machine learning techniques across diverse domains, including different learning-based models, medical image analysis, anomaly detection, and generative models. Proficient in designing and implementing innovative solutions to complex problems, with a proven track record of impactful research and practical applications.

Education

École de Technologie Supérieure (ÉTS) — Montreal, Canada
Ph.D. in Computer Science. — *Aug. 2021 – Now*

Sharif University of Technology — Tehran, Iran
M.Sc. Computer engineering, Artificial Intelligence and robotics — *Sep. 2017 – Jan 2020*

Shiraz University — Shiraz, Iran
B.Sc. Electrical Engineering, Control — *Sep. 2012 – Sep 2017*

Experience

Zebra Technology — Computer vision Intern
Developing Character Detection for OCR. — *Dec. 2023 - April 2024*

BarAI Startup — Computer vision scientist
Developing Clothes Visual search, Attribute-tagging, image-retrieval, Persian OCR — *Aug. 2020 - Aug. 2021*

Vida Startup — Computer vision scientist
Face authentication, including face detection and recognition, spoof and blink detection. — *July. 2020 - Aug. 2020*

CE department of Sharif University of Technology — Teacher assistant
"Machine Learning", "Deep learning", "Advanced Computer vision", and "programming" — *Sep. 2018 - Jan. 2020*

Research projects

Industrial unsupervised anomaly detection. | *Ph.D. side project*

Using diffusion models for reconstruction-based unsupervised anomaly detection.

Neonatal Brain MRI assessment. | *Ph.D. Thesis*

Including brain MRI segmentation, MRI harmonization for multi-centric datasets, neonatal brain MRI age estimation, and brain unsupervised anomaly detection.

Human action Recognition using RGB-D videos. | *M.Sc. Thesis*

Including Implementation and design of Distilled Auto-Encoders, and of 3D Capsule Network for human action recognition.

Myocardial Infarction Diagnosis with ECG data. | *B.Sc. project*

Including extracting informative features from ECG data to detect Myocardial infraction.

Incremental learning using Data impressions. | *Part time researcher at IPM institute*

Extracting data impression from previously-trained models and using them for incremental learning.

Driver fatigue detection using EEG signals. | *Research collaboration with Shiraz University of Technology*

Design and Implementation of Mixed-convolutional module for EEG signal analysis, and detect driver fatigue.

Publications

CVPR 2025 | *Accepted*

"Correcting Deviations from Normality: A Reformulated Diffusion Model for Multi-Class Unsupervised Anomaly Detection.", F. Beizaee et al.

"Spectral State Space Model for Rotation-Invariant Visual Representation Learning.", S. Dastani et al.

"Spectral Informed Mamba for Robust Point Cloud Processing.", A. Bahri et al.

MedIA journal | *Accepted*

"Harmonizing Flows: Leveraging normalizing flows for unsupervised and source-free MRI harmonization Medical Image Analysis.", F. Beizaee et al.

IPMI 2025 | *Accepted*

"MAD-AD: Masked Diffusion for Unsupervised Brain Anomaly Detection.", F. Beizaee et al.

IPMI 2023 | *Accepted*

"Harmonizing Flows: Unsupervised MR harmonization based on normalizing flows.", F. Beizaee et al.

NeurIPS 2024 | *Accepted*

"WATT: Weight Average Test-Time Adaption of CLIP.", D. Osowiechi et al.

WACV 2025 | *Accepted*

"Test-Time Adaptation in Point Clouds: Leveraging Sampling Variation with Weight Averaging., A. Bahri et al.

Scientific Reports journal | *Accepted*

"Determining regional brain growth in premature and mature infants in relation to age at MRI using deep neural networks.", F. Beizaee et al.

Skills

Programming skills

Languages: Python, Matlab, C/C++
Packages: PyTorch, Tensorflow, SciKit, PyQT, Pandas

Computer skills

Microsoft Office(Word, Excel, Powerpoint), Unix, Latex, Docker

Language

English: Proficient
French : Basic
Persian: Native