

Farzad Beizaei

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ABOUT ME

Ph.D. candidate in Computer Science with 5+ years of experience conducting research and developing solutions across a broad range of computer vision tasks, including segmentation, detection, image retrieval, OCR, anomaly detection, medical image analysis, and generative modeling. Proven publication record in top-tier venues, and passionate about applying cutting-edge machine learning to real-world challenges.

EDUCATION

École de Technologie Supérieure (ÉTS) <i>Ph.D. in Computer Science.</i>	Montreal, Canada Aug. 2021 – Now
Sharif University of Technology <i>M.Sc. Computer engineering, Artificial Intelligence and robotics</i>	Tehran, Iran Sep. 2017 – Jan 2020
Shiraz University <i>B.Sc. Electrical Engineering, Control</i>	Shiraz, Iran Sep. 2012 – Sep 2017

EXPERIENCE

Zebra Technology <i>Developing Character Detection for OCR.</i>	Computer vision intern Dec. 2023 - April 2024
BarAI Startup <i>Developing Clothes Visual search, Attribute-tagging, Image-retrieval, Document OCR.</i>	Computer vision scientist Aug. 2020 - Aug. 2021
Vida Startup <i>Face authentication, including face detection and recognition, spoof and blink detection.</i>	Computer vision scientist July. 2020 - Aug. 2020
CE department of Sharif University of Technology <i>“Machine Learning”, “Deep learning”, “Advanced Computer vision”, and “programming”</i>	Teacher assistant Sep. 2018 - Jan. 2020

RESEARCH PROJECTS

- Industrial unsupervised anomaly detection.** | *Ph.D. side project*
Using diffusion models for reconstruction-based unsupervised anomaly detection.
- Brain MRI assessment using generative models.** | *Ph.D. Thesis*
Including brain MRI segmentation, MRI harmonization for multi-centric datasets, brain age estimation, and brain unsupervised anomaly detection with a focus on generative models.
- 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.
- Gist Extraction for CLIP zero-shot prediction.** | *Course project at Mila, Links between Vision and Language*
Designing and implementing gist extraction for CLIP zero-shot improvement.
- 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. Beizae 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. Beizae et al.

MICCAI 2025 | Accepted

“REFLECT: Rectified Flows for Efficient Brain Anomaly Correction Transport.”, F. Beizae et al.

IPMI 2025 | Accepted

“MAD-AD: Masked Diffusion for Unsupervised Brain Anomaly Detection.”, F. Beizae et al.

IPMI 2023 | Accepted

“Harmonizing Flows: Unsupervised MR harmonization based on normalizing flows.”, F. Beizae et al.

ICML 2025 | Accepted

“SMART-PC: Skeletal Model Adaptation for Robust Test-Time Training in Point Clouds”, A. Bahri 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. Beizae et al.

SKILLS

Deep Learning skills

Model types: CNNs, Transformers, Diffusion, Normalizing Flows, CNFs, VLMs.

Vision tasks: Detection, Segmentation, OCR, Visual Retrieval, Anomaly detection, Translation, Adaptation.

Programming Skills

Languages: Python, Matlab, C/C++

Packages: PyTorch, Tensorflow, OpenCV, SciKit, PyQt, Pandas

Computer skills

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

Language

English: Proficient

French : Basic

Persian: Native