

Sahar Rahimi Malakshan

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Fourth-year Ph.D. student with a strong focus on Machine Learning and Computer Vision.

Education

West Virginia University

Ph.D. in Electrical Engineering (GPA: 4.0/4.0)- Expected Graduation: Dec 2025 – May 2026.

Morgantown, USA

Aug 2021 - Current

- **Courses:** Deep Learning, Computer Vision, Application of Neural Networks, Stochastic System Theory, Pattern Recognition, Natural Language Processing Specialization (Coursera), Generative AI with Large Language Models (Coursera).

K. N. Toosi University of Technology

M.Sc. in Biomedical Engineering (GPA: 4.0/4.0)

Tehran, Iran

Sep 2017 - Sep 2020

K. N. Toosi University of Technology

B.Sc. in Electrical Engineering (GPA: 3.5/4.0)

Tehran, Iran

Sep 2012 - Sep 2016

Selected Papers (Google Scholar Link)

- ARoFace: Alignment Robustness to Improve Low-Quality Face Recognition, *In ECCV, 2024*.
- Hyperspherical Classification with Dynamic Label-to-Prototype Assignment, *In CVPR, 2024*.
- A Quality Aware Sample-to-Sample Comparison for Face Recognition, *In WACV, 2023*.
- Joint Super-Resolution and Head Pose Estimation for Extreme Low-Resolution Faces, *In IEEE Access, 2023*.
- Deep boosting multi-modal ensemble face recognition with sample-level weighting, *In IJCB, 2023*.

Skills

- **Technical Skills:** Proficient in Python for machine learning, deep learning, and data analysis; experienced with platforms like Dataiku and AWS (SageMaker, S3), and familiar with biomedical image and signal processing tools.
- **Soft Skills:** Demonstrated creativity in problem-solving and strong communication abilities, evidenced by presentations at academic meetings, poster sessions, and publications in peer-reviewed journals and conference proceedings.

Recent projects

- **Efficient Dataset Condensation:** Currently investigating a streamlined and efficient method for dataset condensation. This approach aims to minimize the training efforts for deep neural networks by synthesizing a condensed dataset that retains the effectiveness of the original data. We have submitted our ongoing research to Round 1 of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2025.
- **Long Range Face Recognition:** Supported by the Intelligence Advanced Research Projects Activity (IARPA), contributed to presentations and PI review meetings for the IARPA-Biometric Recognition and Identification at Altitude and Range (BRIAR) program in Spring 2022, Fall 2022, Spring 2023, and Fall 2023. These efforts led to the publication of four papers on advancements in real-world face recognition: one accepted at European Conference on Computer Vision (ECCV), two presented at IEEE International Joint Conference on Biometrics (IJCB) conferences and one presented at Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV).
- **Metric Space Utilization:** Developed a novel method for dynamic optimization of prototype categories during deep learning training, enhancing metric space utilization. Our approach, which diverges from traditional static methods, employs a two-step optimization process involving network parameters and label-to-prototype mapping. This method demonstrated improvements in both balanced and long-tail classification tasks across various architectures, resulting in a paper accepted at the IEEE Conference on Computer Vision and Pattern Recognition (CVPR).
- **Head Pose Estimation and Profile-to-Frontal Face Recognition:** Supported by the Office of the Director of National Intelligence (ODNI), conducted research resulting in one published paper presented at the IEEE International Joint Conference on Biometrics (IJCB) focusing on profile-to-frontal face recognition techniques. Additionally, authored another paper published in the IEEE Access journal covering challenges in head pose estimation for extremely low-resolution images.
- **Functional and Structural human brain changes:** Developed an innovative model that integrates EEG data and MR images to analyze age-related changes in the adult brain cortex. This research culminated in significant findings, published in two prominent journals: a research paper in the PLoS ONE journal and a comprehensive review in the Reviews in the Neurosciences journal.

Reference

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