

Mohammadreza Davoodi Behbahani, M.Sc.

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in mrdavoodi

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Education

- 2019 – 2023 📖 **M.Sc. Computer Engineering, Artificial Intelligence and Robotics** in Iran University of Science and Technology.
Thesis title: *One-shot Similarity on Image Recognition*.
GPA: 16.64/20.00
- 2015 – 2019 📖 **B.Sc. Electrical Engineering** in Isfahan University of Technology.
GPA: 16.07/20.00

Research Interests

- 📖 Deepfake Detection and Multimedia Forensics
- 📖 Computer Vision and Image Processing
- 📖 Natural Language Processing (NLP) and Text Understanding
- 📖 Large Language Models (LLMs) and Generative AI
- 📖 Vision-Language Models (VLMs) and Multimodal AI
- 📖 Applied Machine Learning and Deep Learning
- 📖 Trustworthy and Responsible AI

Research Projects

Deepfake Detection in Videos

- Developed a novel deepfake detection pipeline by Combining EfficientNet and Vision Transformer, GenConvViT, Altfreezing, and UCF methods.
- Created a custom dataset, applying a deepfake technique to generate realistic manipulated videos.
- Achieved 98% accuracy with UCF on my custom dataset.
- Explored Ensemble Learning as another approach to solve deepfake detection.
- Tested on Qwen2-VL as a potential future research.

Multimodal Analysis of Movie Data (Ongoing Project)

- Performing multimodal analysis on movie data from different sources
- Applying data preprocessing, feature extraction, and statistical analysis across different data modalities.
- Aiming to provide insights for predictive modeling of content ratings using multimodal signals.

Logo Detection Using YOLOv5

- Collected a custom dataset of 100 logo categories, including brand and TV channel logos extracted from internet and TV program screenshots then labeled using labelImg.
- Fine-tuned YOLOv5 for multi-class logo detection.
- Achieved over 80% detection accuracy, demonstrating the effectiveness of deep learning for visual logo detection.
- Explored challenges of dataset imbalance and variability in real-world logo appearances.

Retrieval-Augmented Generation (RAG) Service with LLMs

- Designed and implemented a document-based question answering service using a lightweight large language model (Qwen-2B).
- Integrated a retrieval pipeline to fetch relevant document passages and augment the LLM's responses for improved factual accuracy.

One-shot Similarity on Image Recognition (MSc. Thesis)

- Finetuned a pretrained YOLOv5 network (ImageNet classification weights) for image recognition on 16 classes.
- Implemented similarity method for 4 additional classes, using only a single image per class as the training sample.
- Explored fine-tuning different number of layers and their effect on accuracy.

Skills

Programming	Python, C, C++, Matlab
ML/DL Frameworks	PyTorch, TensorFlow, Scikit-learn
Tools	Linux, Git, Docker, Kubernetes
Languages	English (7.0 Academic IELTS), Persian (Native)

Extracurricular Experience

Teaching

Spring 2025	From AI to Large Language Models(24h) , Andishe Pazhohan Adib Institute
Fall 2018	Digital System Design II (Lab) , Isfahan University of Technology
Fall 2017 and Fall 2018	C Programming (Practical classes) , Isfahan University of Technology

Teaching Assistant

Spring 2025	Machine Learning , Sharif University of Technology
Spring 2021	Deep Learning , Iran University of Science and Technology
Fall 2020	Image Processing , Iran University of Science and Technology
Spring 2020 and Fall 2019	Signals and Systems , Iran University of Science and Technology
Fall 2016	C Programming , Isfahan University of Technology

Volunteering Experience

2017-2018	Extracurricular Classes Coordinator . IEEE Student Branch of Isfahan University of Technology.
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References

Available on Request