Hassan **Hamidi**

AI Researcher

Toronto, Canada

(+1) 647-673-4666 | hhamidi.he@gmail.com | hahamidi.github.io | hahamidi | hassan-hamidi-he

Education

PhD in Computer Science — *Toronto*

York University — *Sep. 2023 – Present*

- **GPA:** 4.0/4.0
- **Current Research:** Investigating diffusion models for generating high-quality and diverse synthetic medical images to support data augmentation and interpretability, with the goal of improving accuracy, fairness, and robustness in disease classification—particularly in rare or imbalanced imaging cases.
- **Research Focus:** ***Diffusion Models***, ***Medical Imaging***, ***Explainable AI (XAI)***, ***Computer Vision***

Master of Science in Artificial Intelligence — *Tehran*

Sharif University of Technology — *Sep. 2020 - July 2023*

- **GPA:** 4.0/4.0 (19.1/20)
- **Master's Thesis:** Multi-Modal Knowledge Distillation for Point Cloud semantic segmentation.
- Developed a novel framework to improve 3D semantic segmentation by distilling both geometric and camera information into a student point cloud model, achieving a 6% MIoU improvement. See more here.
- **Research Focus:** ***3D Computer Vision***, ***Knowledge Distillation***, ***Semantic Segmentation***

Bachelor of Science in Computer Engineering — *Semnan*

Semnan University — *Sep. 2016 - Sep. 2020*

- **GPA:** 3.6/4.0 (17.1/20)
- **Capstone Project:** Developed a license plates detection system using YOLOv3 and traditional image processing techniques.

Skills

Programming Languages	Python, SQL, C++
Libraries and Frameworks	PyTorch, PyTorch Lightning, TensorFlow, OpenCV, Open3D, PyTorch Geometric, Diffusers, Accelerate, Hugging Face, Scikit-Learn, FAISS, Django, Docker
Tools and Platforms	Git, Linux, VS Code

Publications

- **Multi-Conditional Diffusion Model for Generating Diverse Synthetic Chest X-rays**
  Submitted to: IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2025)
  Hassan Hamidi, Salamata Konate, Andrew Sellergren, Ali Sadeghi-Naini, Laleh Seyyed-Kalantari
- **Representation is all we need: performance and fairness of Google X-ray foundation model representations**
  Accepted in: 13th IEEE International Conference in Healthcare Informatics (IEEE ICHI), Rende, Italy, March 2025
  G. Bahre, H. Hamidihesarsorkh, A. Sellergren, L. A. Celi, F. Calimeri, L. S. Kalantari
- **Fairness of AI Models in Vector Embedded Chest X-ray Representations**
  Neural Information Processing Systems (NeurIPS 2024, AIM-FM Workshop)
  Gebreyowhans Hailekiros, Hassan Hamidi, Francesco Calimeri, Andrew Sellergren, Leo Anthony Celi, Laleh Seyyed-Kalantari
- **Multi-Modal Knowledge Distillation to Enhance Point Cloud Semantic Segmentation Using Image Latent Space Representations**
  Under Preparation
  Hassan Hamidi, Shohreh Kasaei

Honors & Awards

- Awarded the prestigious **$40,000 VISTA Scholarship** for conducting advanced research in Computer Vision.
- Ranked **9th** out of 16,000+ applicants in the National University Entrance Exam for M.Sc. of Computer Engineering.

Projects

Legal Conflict Detection System
Maple

Freelancer
Sep. 2024

- Designed and implemented a system that detects conflicts between written legal documents and applicable laws using a large language model (LLM). Leveraged a hierarchical RAG pipeline, chain-of-thought reasoning, Delivered results via a REST API, streamlining legal compliance checks and significantly reducing manual review time.

Article Assessment System
SWNS Media

Freelancer
Aug. 2024

- Developed an Article Assessment System that automates the evaluation of article quality and relevance using a RoBERTa model and OpenAI API via a Retrieval-Augmented Generation (RAG) system with FAISS, reducing manual evaluation time by processing over 800 articles automatically.

3D Body Shape Scanner for Fitness Centers
Remote

Freelancer
Jul. 2024

- Developed a 3D Body Shape Scanner using depth cameras and the Open3D library to capture detailed 3D models of individuals. The system enables continuous monitoring and tracking of clients' body shape changes over time.

Transformer-based Recommender System
Data Mining Course Project

Student Project
Jan. 2024

- Built a two-stage Transformer-based Recommender System for Amazon products. Achieved zero-shot recommendation capabilities with performance comparable to supervised models. GitHub Link.

Automated News Evaluator
NLP Course Project

Student Project
Mar. 2022

- Collected and labeled a dataset for news importance detection, customizing and training models such as BERT, BiLSTM, RoBERTa, and SVM. Achieved 67% accuracy, closely matching human performance. GitHub Link.

PointCNN Segmentation Model
Image Processing Course Project

Student Project
Jun. 2022

- Implemented and enhanced the PointCNN segmentation model for point cloud data, contributing to advancements in 3D reconstruction and object recognition applications. GitHub Link.

Panorama Image Stitching
3D Computer Vision Course Project

Student Project
Apr. 2021

- Developed a panorama image stitching application using Harris corner detection and SIFT descriptors for keypoint matching, demonstrating proficiency in image processing and feature matching techniques.