Hassan Hamidi

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PhD of Computer Science

York University *Sep. 2023 - Present*

Research Area: Diffusion Models, Debiasing, Medical Imaging, Computer Vision

Master of Science in Artificial Intelligence

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

- GPA: **4** out of **4**
- Master's thesis

Thesis Title: Multi-Modal Knowledge Distillation for Point Cloud Semantic Segmentation

Thesis description: Developed a new knowledge distillation method to address the scarcity of 3D data (point cloud). A multimodal teacher model guided a student point cloud model by distilling geometric and camera information to student. This framework improved the base model's MIoU by 6%, with notable gains in challenging classes.

Bachelor of Science in Computer Engineering

Semnan University *Sep. 2016 - Sep. 2020*

- GPA: **3.73** out of **4**
- **Project Title:** Implementing license plates detection system using YOLOv3 and OpenCV.

Technical Skills

Programming Languages:
Proficient: Python; Intermediate: SQL, JavaScript, PHP, C++, MATLAB.

Libraries:
PyTorch, PyTorch Lightning, Diffusers, Accelerate, Hugging Face, NumPy, Pandas, Scikit-Learn, PyTorch Geometric, Open3D.

Developer Tools:
VS Code, Linux, Git.

Publications

- Representation is all you need: Performance and fairness analysis of vector embedding Chest X-ray representations (Submited to MLHC)
- Point Cloud Knowledge Distillation in Image Latent Space (Under Preparation)

Honors and Awards

- Awarded the **$40,000** VISTA scholarship
- Ranked **9th** among over 16,000 graduate applicants in the National University Entrance Exam for M.Sc. of Computer Engineering.

Projects

LLM-based Recommender System (Data Mining Course Project) Jan 2024

This is a two-stage recommendation system: the first stage generates embeddings for products, and the second stage uses a transformer-based model to predict and recommend product embeddings.
https://github.com/ahmadsalimi/LLM-recom

Automated important news detection (NLP course project) March 2022

Description:I collected a dataset and labeled it according to the majority vote in a selected team. Next, I customized and trained algorithms such as BERT, BiLSTM, Robert, and SVM to identify the important news. I handled unbalanced data using sampling, upsampling, and loss weighting approaches. The results show 67% accuracy which is close to human performance. https://github.com/hahamidi/NLP-AI1400-master

PointCNN Segmentation model June 2022

Description:In this project, I contributed to the PointCNN segmentation model by implementing the model in Pytorch. I used Pytorch Geometric layers which are lightweight and fast. According to results, the model is able to scale up dynamically to more than 30M parameters on a regular GPU. https://github.com/hahamidi/pointcnn

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Other Projects .

Description:

- Create panorama image: key points were detected by the Harris corner detection then key points were matched by the SIFT at the end images were stuck together by Homography and Fundamental matrices
- Persian autocomplete: using Albert for predicting the rest of the sentence.
- Point2Point (generative model for Point Cloud colorization and segmentation)