

Sajjad Pakdamansavoji

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SUMMARY

Enthusiastic engineer with a CS background, research experience in computer vision, and technical advisor to 4+ SMEs. Specializing in ML-based vision tasks like detection, segmentation, and tracking. Passionate about writing well-documented and scalable code.

EXPERIENCE

- 2024–2024 Technical Advisor, Vector Institute for AI, Toronto, Canada.
Jan–May
 - Delivered technical support on **cloud solutions** for **3 SMEs** Profound Impact, LVS AI, and Giant Step Inc.
 - Facilitated **Data Readiness** and **Model Deployment** workshop for **40+ technical staff** coming from **20+ SMEs**.
- 2023–2023 Applied AI Intern, Vector Institute for AI, Toronto, Canada.
May–Dec
 - Upgraded **Forecasting Bootcamp** by **data refinement**, **model adjustments**, and **training optimizations**.
 - Led **Fastlane NLP workshop** for **20+ MLAs**, covering from **preprocessing** to **LLM prompting**.
 - Architected a **RAG** agent utilizing **Chain of Thought Prompting** on open-source **LLMs** to generate quizzes.
 - Developed a novel maximized-learning platform called **"Booklet"** leveraging **CI/CD**, **Jupyter**, and **Google Cloud**.
- 2021–2023 ML Engineer, TransPlan, Toronto, Canada.
Spet–May
 - Contributed to a **ML integrated software** which executes **multi-target multi-source object tracking**.
 - Built a **fine-tuning** and **inference** pipeline for **detection**, **segmentation**, **pose estimation**, and **classification**.
 - Presented **proof-of-concept** and **deployed** the product on a **Docker** envs in **real-world setups**.
 - Designed a **GUI** using **OpenGL** and **PyQt5** for **human-in-the-loop** feedback.
 - Reduced overall trajectory classification error from **20%** to **3%**.
- 2019–2019 ML Intern, AVIR Company, Tehran, Iran.
July–Sept
 - Established a **multi-modal ML baseline** for **Iranian Sign Language (ISL)** translation from video to text.
 - Extracted feature from **hand and face key-points**, trained **seq-2-seq language models** for translation.
 - Increased accuracy from **82%** to **90%** on alphabet-level and from **60%** to **65%** on world-level translation.

PUBLICATIONS (Under Review)

- ITSC 2024 3D Multi-Camera Turning Movement Counts at Intersections; Sajjad PS, Kumar VJ, Baher A, James E.
ECCV 2024 A Multi-Camera/LiDAR, All-Weather, Day/Night Intersection Traffic Dataset; Kartikeya B, Sajjad PS.

PROJECTS

- Jun'23 3D Multi-Camera Turning Movement Counts at Intersections.
 - Data cleaning, pre-processing, and camera calibration on **large private dataset** for an **industry-based** project.
 - Fine-tuned **deep learning** based **re-ID**, multiple **object detection**, and **tracking models** on private dataset
 - Implemented an **open-source** software to annotate and **visualize** resulting object trajectories on the ground plane
 - Efficient **distributed training and inference** of deep learning object-trackers on **multiple GPUs** on the server
 - Improved **MOT CLEAR** metric by **2%** and enhanced trajectory classification accuracy from **80%** to **97%**
- May'23 Sentence Generation with Transformers(BERT).
 - Parsing, removing stop-words, **preprocessing** of sentences on large public **dataset of 196,640 books** in plain text
 - Efficient implementation of masking to support **variable sentence length** during **training and evaluation on GPUs**
 - The top model had the lowest **perplexity(PP)=3.4** while its rivals perplexity ranged from **5** to **10**
- Dec'21 Fake Face Generation Based on Celebrity Faces.
 - Comparison of the performance of **Deep Generative Models** on face generation based on the public dataset CelebA
 - Trained models include **GANs**{DCGAN, ACGAN, CGAN}, **Normalizing Flow** {RealNVP}, **Auto Encoders**{VAE}
 - Ranked models based on Inception Score (top **IS≈113.9**) and Fréchet Inception Distance (top **FID≈8.2**)

EDUCATION

- 2021–2023 MSc in Computer Science, York University.
2016–2021 BSc in Electrical Eng, University of Tehran.

TECHNICAL SKILLS

Languages Python(advance), C++(advance), C, MATLAB, Bash Script
Tools Pytorch, Tensorflow, OpenCV, NLTK, HuggingFace

AWARDS

- 2021 Vector Scholarship in AI, Vector Institute.
2022 VISTA Graduate Scholarship, CVR.
2021 Lassonde Entrance Scholarship, York University.
2018 Founders Scholarship, University of Tehran.