

Sajjad Pakdamansavoji

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SUMMARY

Driven engineer with a solid background in applied ML and NLP, a passion for creating scalable software and experience consulting 4+ SMEs on their LLM cloud solutions.

EXPERIENCE

- 2024–2024 Technical Advisor, Vector Institute for AI, Toronto, Canada.
- Jan–May
- Provide technical insight on model deployment for **3 SMEs** Profound Impact Corp, LVS AI Inc, and Giant Step Inc.
 - Held **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
- Updated **Forecasting Bootcamp** for **data refinement**, **model adjustments**, and **training optimizations**.
 - Held **Fastlane NLP workshop** for **20+ MLAs**, covering from **preprocessing** to **LLM prompting**.
 - Designed a self-assessment tool utilizing **Chain of Thought Prompting** on **Llama2** to generate customized quizzes.
 - Developed a novel maximized-learning platform called **"Booklet"** leveraging **CI/CD**, **Jupyter**, and **GCP**.
- 2021–2023 ML Engineer, TransPlan, Toronto, Canada.
- Spet–May
- Contributed to a **ML integrated software** which executes **multi-target multi-source object forecasting**.
 - Presented **proof-of-concept** and **prototypes** supporting its applicability in **real-world setups**.
 - Designed a **graphical user-interface** using **OpenGL** and **PyQt5** for **human-in-the-loop** feedback.
 - Localized and classified objects using online **trajectory forecasting** and machine learning approaches.
 - Reduced overall trajectory estimation error from **20%** to **3%**.
- 2019–2019 ML Intern, AVIR Company, Tehran, Iran.
- July–Sept
- Established a **multi-modal ML baseline** to translate Iranian **Sign Language (ISL)** translation from video to text.
 - Extracted joint feature from hand and face key-points, trained **sequence-to-sequence** models for translation.
 - Increased product accuracy from **82%** to **90%** on alphabet-level and from **60%** to **65%** on world-level translation.

PUBLICATIONS

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

PROJECTS

- Jan'24 Structured QA with Retrieval-Augmented Generation.
- Developed an **automated QA system** using **GPT-4** and **LaMMa2** for processing technical SOW documents.
 - Engineered **CoT prompts** and integrated **LLMs** to generate structured question and answers in **JSON format**.
 - Implemented a hierarchical **information retrieval techniques**, optimizing context accuracy for **LLM inputs**.
 - Collaborated on **system integration and testing**, achieving a **10%** increase in content precision.
- May'23 Sentence Generation with BERT.
- Parsing, removing stop-words, **preprocessing** of sentences on large public **dataset of 196,640 books** in plain text.
 - Studied effect of network **hyper parameters** including embedding, hidden layer size, num layers, and learning rate.
 - Efficient implementation of **masking** to support **variable 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**.
- Nov'21 Sentiment Analysis of tweets using Transformers.
- Tokenization, stemming, lemmatisation and preprocessing on public **Sentiment140** containing **1.6 million tweets**.
 - Fine tuned **large language models** from **HuggingFace** such as **BERT** and **XLnet** to extract word embeddings.
 - Achieved **95%** recognition recall with **BERT** and **88%** recall with **XLNet**.

EDUCATION

- 2021–2024 MSc in Computer Science, York University.
- 2016–2021 BSc in Computer Eng, University of Tehran.

AWARDS

- 2022–2023 VISTA Graduate Scholarship, CVR (20K CAD).
- 2021–2022 Scholarship in AI, Vector Institute (17K CAD).

SKILLS

- Languages** Python(advance), C++(advance), C, MATLAB, Java, Bash
- Framework** Pytorch, Tensorflow, Keras, JAX, GCP, AWS, OpenAI
- Tools** Scikit-learn, NLTK, HuggingFace, spaCy, Matplotlib
Numpy, Pandas, Seaborn, Docker, Git, Jupyter
- Soft** Communication, Creativity, Teamwork, Management
Continuous Learning, Analytical Thinking, Empathy