Soroosh Sorkhani

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Summary

- AI specialist with 6+ years of experience in machine learning, computer vision, and LLMs. Expert in developing and deploying advanced AI solutions, from real-time computer vision systems to LLMs for actionable insights. Proven ability to innovate and deliver impactful, scalable AI applications across industries.

Skills

- **Programming Languages**: Python, R, SQL, NoSQL, Cypher, VBA
- **Libraries/Frameworks**: Transformers, LangChain, scikit-learn, TensorFlow, Pytorch, L2R, Pandas, NumPy
- **Field/Area**: Machine Learning, Deep Learning, CNN, LLM, Computer Vision, NLP, Transformers, Time Series, Neural Networks, Information Retrieval, Data Mining, Network Analysis
- **Systems**: AWS, Unix/Linux, NVIDIA Jetson Nano, Neo4j

Experience

- **McGill University** — Montreal, Canada
  Data Scientist, LLM Engineer — Sep 2024 - Present
  Developing a Large Language Model-based system to support 3,300+ members of GEO BON across 150 countries and 2,000 organizations in biodiversity observation. The RAG-enabled LLM chatbot offers a wide range of capabilities, from coding and statistical data analysis to delivering customized, actionable solutions for real-world applications.
- **York University** — Toronto, Canada
  Data Scientist, Computer Vision Engineer — Jun 2023 - Sep 2024
  - Developed a Smart City Signals system utilizing advanced object detection models like YOLOv8 for live traffic analysis at intersections. Achieved a flawless 100% accuracy in vehicle detection per lane. Additionally, estimated speed and waiting times at intersections for deeper analysis and insights. *(Link to a demo on my website)*
  - Achieved 100% accuracy in a real-time parking lot occupancy detection system harnessing computer vision technology. The data is then aggregated and displayed on a web app accessible to all. *(Link to a demo on my website)*
  - Developed an advanced computer vision system, equipped with GPS data, to enable the detection of parked cars on urban streets by analyzing dashboard camera feeds. I led the deployment and evaluation of cutting-edge models such as YOLOv8. *(Link to a demo on my website)*
  - Implemented machine learning models, such as Graph Neural Network and XGBoost, for predicting parking violations across an extensive network of 940 parking facilities in Downtown Toronto. The best model predicted the number of issued tickets within one unit of error for 81.78% of given location-time instances.
- **Canadian Tire Corporation** — Toronto, Canada
  Data Analyst — Sep 2021 - Sep 2022
  Successfully monitored transportation operations and identified opportunities for improvement. Expertly managed **databases** using SQL and performed **statistical analyses** to generate detailed daily and weekly reports and dashboards for internal teams and managers. Led the improvement and refinement of a data-driven report encompassing over 5000 daily records on transportation equipment repairs. Achieved operational efficiency by **integrating data** from multiple databases and automating processes using Python, resulting in a significant 50% reduction in daily processing time.
- **Toronto Transit Commission (TTC)** — Toronto, Canada
  Machine Learning Engineer — Jan 2021 - Jun 2021
  Analyzed and optimized the process of a machine learning product deployed on **AWS** infrastructure, developed by BAI Canada for TTC, to predict real-time passenger counts at subway stations accurately. Identified problems within the data pipeline and consulted on improving production in data sourcing and model development. Presented 4 potential solutions, including utilization of advanced time series models such as RNN and LSTM, to enhance overall model performance.
- **LS3, Toronto Metropolitan University** — Toronto, Canada
  Data Scientist — Sep 2019 - Jun 2021
  Developed an expert **recommending system** for Q&A platforms, such as Stack Overflow and Quora. Defined 74 features using techniques such as **LDA topic modeling**, **word mover's distance text similarity**, and **graph embedding**. Optimized the features through **feature engineering** and proposed a **learning to rank** approach that achieved 16.41% higher performance than the state-of-the-art model in NDCG@10 on 5 websites' datasets, containing over 15,000 users and 21,000 questions. Provided insights on the most important and effective features.

Education

- **DeepLearning.AI** — Online
  Deep Learning Specialization on Coursera — Jun 2022 - May 2023
  Courses: Neural Networks and Deep Learning, Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization, Structuring Machine Learning Projects, Convolutional Neural Networks, Sequence Models
- **Toronto Metropolitan University** — Toronto, Canada
  Master of Science in Electrical and Computer Engineering — Sep 2019 - Jun 2021
  Thesis: Feature-based Question Routing in Community Question Answering Platforms

Publications

- Sorkhani, S., Etemadi, R., Bigdeli, A., Zihayat, M., & Bagheri, E. (2022). Feature-based Question Routing in Community Question Answering Platforms. *Information Sciences*