Mohammed Faheem

Machine Learning Engineer

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PROFILE

Passionate and skilled ML Engineer with a strong foundation in Machine Learning (**ML**) and Natural Language Processing (**NLP**), adept at developing intricate Large Language Models (**LLMs**) and cutting-edge Generative AI Applications. I bring a wealth of technical expertise to tackle complex challenges and deliver impactful solutions. Committed to continuous learning, I strive to stay ahead in this rapidly evolving field by adapting to new technologies and industry trends.

PROFESSIONAL EXPERIENCE

Deep Learning Engineer   Feb 2024 – Apr 2024
Artizence ⌨   Lucknow, India

- Trained and evaluated various Language Models (SLM & LLM) and Natural Language Processing (NLP) models for the application development pipeline.
- Created a resume parsing application leveraging custom-trained **SLMs** to streamline the interview screening process.
- Built a multi-lingual Retrieval-Augmented Generation (**RAG**) application for a real-estate firm.
- Designed and implemented a **CV** application pipeline by leveraging a CNN backend, capable of detecting anxiety, stress, depression, and facial expressions.
- Wrote and executed web-scraping scripts for data collection, followed by local **ETL** (Extract, Transform, Load) processes to prepare data for future development.

ML Engineer   present
Freelance

Incorporated additional functionality into existing LM evaluation pipeline

- *Prompt Tuner*: Written DSPy program using it's signature and modules and other custom python modules and compiled them using teleprompters on prepared data to iteratively tune the prompts to find the ideal prompt that performs well.
- *Evaluator*: developed a flexible module to evaluate proprietary models response. the goal is to assess the quality of response made by different LMs with different prompts and compare them against an ideal response generated by ideal prompt.

And more such projects.

SKILLS

Programming Language
- Python
- C/C++
- SQL

Frameworks & Libraries
- Pytorch, Tensorflow, Keras, Langchain & Llamaindex, Spark, Fast API, Flask
- Hugging Face, Scikit-Learn, NLTK, Spacy, OpenCV, Polars, Numpy, Spark, Flask, Fast AP

Core Skills
- Generative AI, Machine Learning Algorithms, Deep Learning & Natural Language Processing Techniques, Language Modeling, MLOps, Data Processing & ETL, NoSQL DBs (MongoDB, Redis)

Development & Deployment
- Jupyter/Colab Notebooks,Git, Docker, Kubernetes
- Microsoft Azure, Google Cloud Platform, Amazon Web Services

PROJECTS

LMBuilder ⌐
- Developed LMBuilder, an open-source deep learning library, specifically for effortless building and training of Language Models (LMs).
- Democratizes the complex task of LLM development, providing a streamlined journey for both novices and seasoned researchers by removing intricate code barriers.

SentiNet ⌐
- A comprehensive repository covering all stages from data preparation and preprocessing to efficient training and inference.
- Built a robust sentiment analysis pipeline.

TGS ⌐
Text Generation Server
- This project aims to effortlessly deploy and serve LLMs as an API endpoint.
- It provides a seamless solution for efficiently integrating language models into real-world applications.

Transformers ⌐
- Written up a comprehensive implementation of **Transformers** architecture from ground- up, which is the foundational architecture for all current state-of-the-art language models.
- I aimed it to offer myself and other, a unique opportunity for deep exploration of fundamental transformer architecture and each of it's intricate module, showcasing practical application of deep learning and NLP principles.

COURSES

Natural Language Processing Specialization ⌐   May 2023 – Aug 2023
DeepLearning.ai, Coursera

Completed a 4-course specialization taught by AI Scientist Lukas Kaiser, co-author of TensorFlow 2.0 and Transformers paper (with other instructors). Courses covered a comprehensive range of NLP techniques:

- *Natural Language Processing with Classification and Vector Spaces* - Implemented sentiment analysis, analogy completion, and word translation using logistic regression, naïve Bayes, and word vectors.
- *Natural Language Processing with Probabilistic Models* - Applied dynamic programming, hidden Markov models, and word embeddings for autocorrect, autocomplete, and part-of-speech tagging.
- *Natural Language Processing with Sequence Models* - Used RNNs, **LSTM**s, **GRU**s, and Siamese networks in **Trax** for sentiment analysis, text generation, and named entity recognition.
- *Natural Language Processing with Attention Models* - Implemented encoder-decoder architectures, causal models, and self-attention for machine translation, text summarization, and question-answering chatbot.

Machine Learning Specialization ⌐   Sep 2022 – Dec 2022
DeepLearning.ai, Coursera

Completed a 3-course specialization taught by ML pioneer Andrew Ng ⌐ covering:

- *Supervised Machine Learning: Regression and Classification* -Developed skills in building and training supervised models for prediction and classification task.
- *Advanced Learning Algorithms* – Gained expertise in neural networks, decision trees, and ensemble methods for multi-class classification.
- *Unsupervised Learning, Recommenders, and Reinforcement Learning* – Applied clustering and anomaly detection techniques, built recommender systems, and developed deep reinforcement learning models.

EDUCATION

Bachelor of Engineering (Computer Science)   Sep 2023 – present
NCE ⌐   Tirunelvelli, India

HS (Mathematics & CS)   Jul 2021 – May 2023
St. John's Higher Secondary School ⌐   Tirunelvelli, India