Shyam Sundar

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Experience

USEReady **April 2024 – P**

Machine Learning Engineer Intern | Python, Langchain, Databricks, Streamlit, Langsmith, Langraph, Mlflow,Snowflake *Bengaluru, Ka*

- Implemented a **custom RAG chatbot** with *multi-query generation, keyword extraction* using **RAPTOR** chunking, integrating with **Azure**, **AWS**, and **local storage**, and an interactive **Streamlit** interface featuring **user authentication** and **session-based history deletion** for enhanced privacy.
- Engineered a **RAG** incorporating **human feedback** by labelling responses, fine-tuning the **cross-encoder**, and integrating it into a **Streamlit** interface for enhanced user interaction.
- Applied various **RAG** methods such as **CRAG**, **Self-RAG**, **Adaptive RAG** and **RAFT** methods and ***evaluation of RAG application*** using **Langsmith**
- Built End-to-End production ready **RAG** application in **Databricks** using **Langchain** and **Mosaic AI Vector Search** and in **Snowflake** using **Snowflake Arctic** and **Snowflake Cortex Analyst**

Projects

Signature Authenticity Verification System | *Python, Streamlit, Pytorch,Pytorch lightning, Jupyter* **April 2024**

- Utilized the **CEDAR dataset** to analyze 2,640 signature samples, distinguishing between genuine and forged signatures.
- Combined two **PyTorch models**, achieving a high accuracy of 98.11% with SiameseNetwork1 and optimizing model performance with Contrastive Loss in SiameseNetwork2.
- Integrated models into a **Streamlit application**, enabling user-friendly signature authenticity verification.

LLM-Powered Coupon Recommender | *Python, Streamlit, Langchain, OpenAI* **November 2023**

- Developed a **QA system for e-commerce** with personalized coupon recommendations using **OpenAI's LLMs**.
- Streamlined user interactions through a **Streamlit** interface and **Langchain** for real-world scenario simulations.
- Incorporated **FAISS** for refined recommendation processes.

PeopleCare Insurance Prediction | *Python, Jupyter, Azure Cloud, Flask, Docker* **October 2023**

- Expanded PeopleCare into vehicle insurance with a predictive model for **effective customer targeting**.
- Thorough analysis of customer behaviour and data cleaning for accurate predictive modelling.
- Achieved **80%** prediction accuracy using **LightGBM**.

Hate Speech Prediction | *Python, Pytorch Lightning, Flask, Docker* **October 2023**

- Established a robust hate speech detection algorithm for content filtration.
- Attained **91.95% accuracy** with fine-tuned pre-existing **Bert model**.
- Executed model deployment via **Flask** and **Docker** for scalability.

Data Driven Model for Anomaly Detection and Path Prediction | *Python, Deep Learning* **July 2022 - April 2023**

- Investigated and improved AIS for cargo vessel anomaly detection and path prediction.
- Formulated a statistical method for robust **anomaly detection**.
- Created a path prediction algorithm using a **sequence-to-sequence model with an attention mechanism**.

Education

Defence Institute of Advanced Technology **Pune, IN**

M.Tech in Modelling and Simulation, GPA: 7.95 *May 2023*

National Institute of Technology **Tiruchirappalli, IN**

B.Tech in Chemical Engineering, GPA: 7.65 *May 2021*

Technical Skills

Languages: Python, C/C++, SQL (Postgres), Matlab, Latex
Frameworks & Tools: Pytorch, Tensorflow, Flask, Pytorch Lightning,Tableau, Power Bi, Azure, Git, Jupyter, Docker

Certifications

- Microsoft Certified: Azure Data Scientist Associate ⋆⋆
- Certified Associate Data Analyst
- SQL [Advanced] - Hackerank
- Python [Basic] - Hackerank
- Software Engineer Intern -Hackerank
- Generative AI Fundamentals - Databricks

Publications

- Published a conference paper on **Suspicious Event Detection of Cargo Vessels Based on AIS Data** in the ***Springer*** proceedings of **ICDMAI, 2023.**