Yaswanth Veguru

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Summary

Versatile Data Engineer bridging data architecture and Generative AI innovation. Experienced in building RAG-driven applications, LLM-integrated automation platforms, and scalable deep learning models using TensorFlow and Keras to deliver intelligent, production-ready solutions.

Technologies

Languages: Python, SQL

AI & Machine Learning: Scikit-learn, TensorFlow/Keras, Deep Learning (CNN, RNN), NLP

Generative AI: RAG Architecture, LLM Fine-tuning, Hugging Face Transformers

Data Engineering: Pandas, Apache Airflow, DataFlow, Google BigQuery, PostgreSQL, MySQL

Deployment & APIs: FastAPI & Flask (REST APIs), Docker, Google Cloud (GCS, Cloud Run, App Engine)

Visualization: PowerBI, Apache Superset, DASH

Experience

Knowillence Private Limited, Data Engineer — Chennai — Aug 2024 – Till Date

- Built and maintained a cloud-based data warehouse on Google Cloud using Big-Query, Cloud Storage, **Apache Airflow, and Cloud Run.**
- Built a scalable **ETL pipeline using Cloud Run** to migrate PostgreSQL data to **BigQuery** with schema validation, automated table management, parallel processing, data integrity checks and automated table creation with safe backups during schema changes.
- Developed parallel, fault-tolerant ETL jobs with retry mechanisms and row-count validation to ensure data accuracy.
- Scheduled Cloud Run ETL jobs using **Cloud Scheduler** to support automated, time-based batch processing.
- Designed and orchestrated ETL pipelines from **SQL Server** to **PostgreSQL** using **Apache Airflow**, enabling automated data movement and analytics reporting in **Apache Superset**.
- Implemented **Change Data Capture (CDC)** in **SQL Server** and orchestrated incremental ingestion workflows using **Apache Airflow** for near real-time data.
- Designed and optimized tables, partitioned tables, views, and SQL transformations across SQL Server, PostgreSQL, and BigQuery.
- Built and deployed a scalable **Flask REST API** with JWT authentication, RBAC permissions, PostgreSQL (Cloud SQL), and environment-based configuration for secure production deployment on Google Cloud.
- Developed a **FastAPI** based backend system with PostgreSQL, implementing JWT authentication, role-based access control (Admin/User), secure password hashing using bcrypt, and RESTful CRUD APIs with SQLAlchemy ORM.

Tems Tech Solutions, AI/ML Intern — Chennai — Apr 2024 – Jun 2024

- **Engineered a Virtual Hiring Chatbot using Generative AI by integrating Open AI GPT LLM**, which automates resume screening and generates tailored technical questions, demonstrating practical application of LLMs and NLP.

- Acquired and applied core machine learning fundamentals through structured training, gaining proficiency in data preprocessing, exploratory data analysis (EDA), and feature selection for supervised and unsupervised learning.

Projects

Multi-Agent RAG System with MCP Integration
Source code 🔗

- Designed and implemented a production-ready Multi-Agent Retrieval-Augmented Generation (RAG) system using LangGraph to dynamically route user queries across document knowledge base, real-time web search, structured memory, and direct LLM responses.
- Built a hybrid search pipeline combining FAISS-based vector similarity with BM25 keyword scoring to improve retrieval accuracy for large PDF documents (50+ pages).
- Integrated Groq (LLaMA 3) as the primary LLM and implemented intelligent query classification to route questions to document retrieval, real-time DuckDuckGo web search (MCP-style tool), or direct LLM generation.
- Engineered a full-stack application with FastAPI backend and a single-page HTML/CSS/JavaScript frontend supporting document upload, session-based chat.
- **Tools Used**: Python, FastAPI, LangGraph, Groq (LLaMA 3), FAISS, BGE Embeddings, BM25, DuckDuckGo MCP, HTML, CSS, JavaScript

AI-Powered Job-Specific Cold Email Generator
Source code 🔗

- Developed an AI-powered tool that automatically generates personalized cold emails by extracting details directly from job posting links provided by the user.
- Integrated OpenAI GPT LLM to analyze job descriptions and craft role-specific, context-aware, and professional cold emails, enhancing recruitment outreach efficiency
- **Tech Stack**: Python, OpenAI GPT LLM, LangChain, ChromaDB, Streamlit

Restaurant Rating Forecasting Model using Machine Learning
Source code 🔗

- Developed a machine learning model to predict restaurant ratings by performing comprehensive data cleaning, feature engineering, and exploratory data analysis on restaurant attributes and reviews.
- Implemented Random Forest, Gradient Boosting, and Linear Regression models, achieving 92% prediction accuracy through hyperparameter tuning.
- **Tech Stack**: Python, Pandas, Scikit-learn, NumPy, EDA, Matplotlib, Seaborn.

Deep Learning Model for Household Energy Forecasting
Source code 🔗

- Developed a deep learning model using Keras and TensorFlow to predict household electricity consumption, achieving 95% prediction accuracy
- Performed comprehensive data cleaning, preprocessing, and feature engineering on energy consumption datasets to prepare data for neural network training.
- **Tech Stack**: Python, Keras, Pandas, EDA, Matplotlib, Scikit-learn, XG-Boost.

Education

Bachelor of Technology, Sri Venkateswara College of Engineering and Technology, Chittoor
2020 - 2024
Computer Science and Engineering**(Data Science)**, **CGPA:** 8.67

Certifications

Certified from Udemy - Data Analysis

Certified from L&T Edu Tech - Statistics for Business Analytics

Certified from Tems Tech Solutions - Artificial intelligence & Machine Learning