Mahesh Chandra Duddu

Data Scientist | 1.8 YOE | 2022 Computer Science Graduate (Int. MTech)

Passionate GenAI enthusiast and Developer driven to innovate in Data Science. Aspiring Full Stack Data Scientist adept at Predictive Modeling, Natural Language Processing, and mastering language nuances.

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EDUCATION

Integrated MTech(Computer Science)
University of Hyderabad

07/2017 - 08/2022 *CGPA: 7.65/10*

Detection of Social Bots in Twitter Network
MTech Dissertation

Achievements

- **Published "Detection of Social Bots in Twitter Network" research work** in Springer Series Book of IJCACI 2022 Conference.
- Engineered diverse features via extensive EDA, including **Profile, DNA, and Sentiment Analysis** on TwiBot-20 data.
- Achieved **0.657 MCC** on TwiBot-20 Dataset, demonstrating strong binary classification.
- Implemented **XGBoost Classifier** using engineered features to discern Twitter handles as bots or genuine users.

WORK EXPERIENCE

Wind Turbine Performance Optimization
Data Scientist, ReNew

02/2023 - 09/2024
Estimating ideal performance of wind turbines based on its historical performance

Achievements/Tasks

- Employed **XGBoost model for regression** analysis on 10-minute turbine-level data to predict wind turbine power.
- Achieved a **5% MAPE (Mean Absolute Percentage Error)** and **secured World Economic Forum (WEF) award** for ReNew.

IEX Market Price Forecasting
Data Scientist, ReNew

02/2023 - 09/2024
Forecast day-ahead 96 timeblock(15min intervals) energy market prices for the day-ahead, green-day ahead, real time markets of Indian Energy Exchange(IEX)

Achievements/Tasks

- Employed **LightGBM Regression model** to provide accurate day-ahead forecasts of the IEX market prices using weather forecasts, till date clearing prices, volume data.
- Achieved **12% MAPE (Mean Absolute Percentage Error)** facilitating strategic choices between selling and buying bids.

SKILLS

Python | SQL | Azure | Git | RAG | PEFT
Langchain | LlamaIndex | Ollama | Streamlit

GENAI PROJECTS

QLoRA optimized Fine-Tuning of Gemma-2B Model
*Fine-tuned the **Gemma-2B model** using **QLoRA** on the FIQA dataset, significantly enhancing its ability to **generate accurate and contextually relevant financial responses.***

Advanced RAG System Using SentenceWindow, Recursive Retriever and Router Query Engine
*QA system built on Coco Cola Filings using the **Router Query Engine, combining SentenceWindow and RecursiveRetriever in a Retrieval-Augmented Generation (RAG) setup**, achieving **high correctness (4.63) and context similarity (0.95) scores**.*

In-Context learning using GPT-3.5-turbo
*Developed a QA system for the Nippon India Short Term Fund by leveraging GPT-3.5-turbo, configuring the OpenAI chat completion API, and employing **in-context learning for precise information retrieval.***

ML HACKATHONS

MachineHack + ReNew Hiring Hackathon (Top 3)
***ExtraTreesRegressor** based modeling on each turbine id using engineered features along with square root data transformation, 5-fold CV.*

Analytics Olympiad 2022 (Top 10)
*Achieved **0.161296 Log Loss score** by employing tuned **Logistic Regression** model which consumes **digitwise binary encoded postal_code feature** and **OHE features** along with **Stratified 10 fold CV Strategy.***

CERTIFICATES

Analytics Vidhya's GenAI Pinnacle Program (03/2024 - Present)
Focused on Transformers, Prompt engineering, RAG systems, Vector Databases, Fine-Tuning, PEFT as well as training LLMs from scratch.

HOBBIES

Cricket | Badminton | Music | ML Hackathons