Ragupathi M

Data enthusiast

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Summary

- Data enthusiast with a proven track record in leveraging analytics and machine learning techniques to drive business insights and decision-making. Proficient in developing innovative solutions to complex problems through data analysis and predictive modeling. Strong background in Operations Research, applying optimization techniques to enhance operational efficiency and strategic decision-making processes.

Professional Experience

Approlabs, Chennai
GenAI Engineer
March 2024 – Present

- Chatbot and Voice Application Development: Led the development of a chatbot and voice assistant solution leveraging Large Language Models (LLMs) to provide personalized business insights for users.
- Technology Integration: Integrated cutting-edge technologies including Langchain, Phi Data, Crew AI, Ollama, and OpenAI to enhance the chatbot's conversational capabilities, ensuring smooth and dynamic interactions.
- Personalized Recommendations: Focused on delivering tailored business insights through the integration of various data sources and AI models, optimizing the user experience with real-time conversational abilities.
- Platform Integration: Incorporated voice features to enable seamless communication via multiple channels, including WhatsApp, facilitating easy access and business recommendations.

Highlights of Project Experience

- During my internships, I worked on diverse projects to optimize processes and develop innovative solutions. In **Phantom Optimization** (Jan 2024) at LiviNsense, I used a Linear Programming Model to reduce wastage in decal printing by intelligently distributing demand across Phantom sheets. In **Object Detection in Multiple ROI** (Dec 2023), I implemented real-time object detection with edge computing for efficient processing across multiple Regions of Interest. I also built a **Stock Price Prediction** model (Mar 2023) using quantum computing, achieving 89% accuracy. Lastly, I designed a scalable **SAAS Platform for IoT** (Jan 2023) at Galaxy Technology Services, focusing on ETL processes and efficient data analysis for improved decision-making.

PHANTOM OPTIMIZATION - (Jan 2024):

Description: During my full-time internship at **LiviNsense** in Bengaluru, I worked on enhancing efficiency in decal printing. This involved intelligently distributing demand across predefined Phantom sheets to minimize wastage and optimize the printing process.

Key Components:

- **Linear Programming Model:** Mathematical optimization to minimize wastage while meeting SKU demand. The role involves formulating objectives, defining variables, setting constraints, and employing an optimization solver.

OBJECT DETECTION IN MULTIPLE ROI (Dec 2023):

Description: During my full-time internship at **LiviNsense** in Bengaluru, I implemented object detection in multiple Regions of Interest (ROI), focusing on edge computing and real-time streaming.

Key Components:

- **Edge Computing:** Utilized edge computing for real-time processing of data streams, enhancing efficiency.
- **Multi-ROI Detection:** Developed object detection algorithms capable of handling multiple Regions of Interest simultaneously.

STOCK PRICE PREDICTION (Mar 2023):

Description: Built a Proof-Of-Concept utilizing quantum computing for stock price prediction at **Galaxy Technology Services**, achieving an accuracy rate of 89%.

Key Components:

- **Predictive Analytics:** Leveraged predictive analytics techniques for stock price prediction.
- **yfinance and Stock Data:** Utilized the yfinance library and stock data for analysis.

SAAS PLATFORM FOR IOT DESIGN (Jan 2023):

Description: During my remote internship at **Galaxy Technology Services**, I designed a scalable and user-friendly Software as a Service (SAAS) platform for IoT. The platform prioritized efficient data management and analysis from various IoT devices.

Key Components:

- **ETL Processes:** Integrated Extract, Transform, Load (ETL) processes for seamless data integration.
- **Data Transformation:** Implemented robust techniques for harmonizing data from various IoT sources.
- **Optimized Analysis:** ETL processes optimized data for meaningful insights, contributing to informed decision-making.

Education

M**aster of **E**ngineering in **Operations Research
Ramanujam computing center, CEG, Anna University, Guindy

Coursework

- **Linear Programming:** Mastering techniques to optimize resource usage while meeting constraints.
- **Non-linear Programming:** Solving problems with non-linear relationships using methods.
- **Optimization Techniques:** Studying diverse methods like integer programming for systems.
- **Python for Optimization:** Proficiency in using Python for solving optimization problems.

B**achelor of **E**ngineering in **Data Science
Annamalai University, Chidambaram

Coursework

- **Python:** Proficient in programming with Python, including data manipulation, and scripting.
- **Data Analysis:** Skilled in analyzing data sets using statistical methods and visualization tools to extract meaningful insights.
- **Machine Learning:** Experienced in applying machine learning algorithms to solve real-world problems and make predictions from data.
- **Image Processing:** Knowledgeable in image processing techniques for image enhancement, object detection, and recognition tasks.
- **Deep Learning:** Familiar with deep learning frameworks like TensorFlow for building and training neural networks for complex tasks.

Technical Skills

- **Python and Data Analysis:** Pandas, NumPy, Matplotlib, SciPy (Intermediate)
- **Machine Learning and Artificial Intelligence:** Scikit-learn (Intermediate), TensorFlow (Beginner)
- **Big Data and Distributed Computing:** Hadoop (Beginner)
- **Scripting and Automation:** Linux Shell Scripting (Intermediate)
- **Cloud Computing and Tools:** AWS, boto3 (Beginner)
- **Database Management:** PostgreSQL, MySQL (Intermediate)
- **Containerization and Version Control:** Docker, Git (Intermediate)
- **Project Management:** Asana (Intermediate)
- **Optimization Software:** TORA (Intermediate)
- **Prompt Engineering:** practices with LLM by customizing data for improved efficiency

Certifications:

- Python for Data Science: Kaggle
- Machine Learning: Coursera
- Data Visualization using POWER BI: Great Learning
- Introduction to Quantum Information: Coursera

Workshops:

- STTP on Speech and Image Processing using Deep Learning: Annamalai University
- Data Analytics with R Programming: Annamalai University
- NextGen Intelli Generative AI: Anna University

Paper Publication:

Title: Proactive Security: Integrated Surveillance and Intrusion Detection

Presented at: National Conference on Signal Processing, Communication, and Networking

Title: Performance and Accuracy of Distributed Computing Frameworks: A Study of Dask, PySpark, and Ray in Monte Carlo Simulations

Published in: IEEE Transactions on Parallel and Distributed Systems (**Q1** Journal – Communication)