DHANUSH RATHINAVELU

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TECHNICAL SKILLS

Programming Languages: Python, C, SQL
Tools & Technologies: Pandas, NumPy, Scikit-learn, NLTK, Matplotlib, PyTorch, FastAPI, Langchain
Cloud Platforms & Databases: Google Cloud Platform, BigQuery, AWS (Beginner), Vector Databases

EXPERIENCE

Schnell Energy   July 2024 – December 2024
Data Science Intern   *Coimbatore, India*

Cloud Data Engineer

- Engineered Google Cloud Functions (Python, Pub/Sub) for real-time smart lighting data ingestion, boosting operational efficiency
- Designed BigQuery schema architecture and optimized complex SQL workflows, improving query performance by **25%** on large-scale datasets
- Built scalable ETL pipelines and led IoT server migration, reducing manual effort by **30%** and improving system reliability and scalability by **50%**

Intelligent Chatbot Development

- Developed a domain-specific AI chatbot using LLMs (OpenAI GPT-4) with custom RAG pipelines for smart lighting system support
- Constructed semantic retrieval systems using FAISS, embedding models, and advanced prompt engineering for accurate real-time responses
- Deployed chatbot via FastAPI, Docker, improving field engineers' efficiency by **50%** through automated support across IoT systems

PROJECTS

Portfolio Optimizer with Real-Time Analysis | *Python, Dash, Plotly, yFinance, PSO-FA* | [GitHub]
- Innovated a real-time optimizer for 15 S&P 500 stocks, using Hybrid PSO-FA and mean-variance methods, improving return-risk ratio by **18%**
- Integrated 1-min live price updates, 5+ technical indicators, and interactive charts via Plotly
- Executed a comprehensive risk module computing Sharpe, Sortino, and Information ratios, 10,000-path Monte Carlo simulations

Adaptive RAG system with web search | *Python, FastAPI, HuggingFace, Tavily API, Vector Search* | [GitHub]
- Built an question-answering system integrating document retrieval and LLM-based response generation
- Implemented LLM-based document grading to filter irrelevant results, ensuring high-quality responses
- Programmed a conditional web search module using Tavily API to fetch real-time information when needed

Face-Mask-Detection-using-MobileNetV2 | *Python, PyTorch, MobileNetV2, Computer Vision* | [GitHub]
- Delivered a real-time face mask detection model using PyTorch and MobileNetV2, achieving **94%+** validation accuracy on a multi-class image dataset
- Devised a complete computer vision pipeline with data augmentation and confusion matrix-based evaluation for class-wise accuracy
- Optimized the system for deployment using a lightweight CNN for fast inference on edge and embedded devices

EDUCATION

Coimbatore Institute of Technology   2021 – 2026
MSc in Artificial Intelligence and Machine Learning | ***CGPA: 7.8/10.0***   *Coimbatore, India*
- **Relevant Coursework:** Machine Learning, Deep Learning, Reinforcement Learning, Natural Language Processing, Data Analysis

LEADERSHIP & ACTIVITIES

FOSS Club of CIT   June 2022 – May 2023
Innovation Head   *Coimbatore, India*
- Led 20+ member team, delivering technical workshops and managing 50+ events focused on open-source technologies
- Organized "The Coding Season" with 120+ students, covering programming knowledge in Large Language Models
- Managed an engaging event tailored for first-year students, attracting over 150 participants, fostering interaction and enjoyment.