Prathap HM

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Education

Bachelor of Technology (B.Tech), *MS Ramaiah University of Applied Sciences* 2018 – 2022 | Bengaluru, India
CGPA: 9.66/10

Professional Experience

AI/ML Developer, *EMotorad* 08/2024 – Present | Bengaluru, India

- Being the Founding member of the AI/ML Team, I designed and developed a **conversational AI** system, integrating a **LLM** model based on **Transformer** Architecture with optimized contextual response handling, reducing response inconsistencies by approximately 40% compared to initial iterations thereby providing a **futuristic** user experience through personalized interactions.
- Implemented **Retrieval-Augmented Generation** (**RAG**) with a 500,000-entry vector database (**FAISS**), reducing factual inconsistencies by 30% and **improving knowledge recall**. Optimized **retrieval latency** to under 300ms, ensuring real-time, context-aware responses.
- Developed a voice-enabled interaction system with real-time speech-to-text (**STT**) and text-to-speech (**TTS**) capabilities, achieving an average latency of under 1.5 sec for **seamless** user experience.
- Optimized **beam search** and **nucleus sampling** (**top-k, top-p**) for response generation, improving coherence and diversity, while maintaining fluency.
- Applied model optimization techniques including **quantization** (INT8), **pruning**, and **knowledge distillation**, reducing model size by 50% while maintaining 95% of the original accuracy. These optimizations improved inference speed by 30%, enabling real-time responses on **edge devices** with minimal latency.
- **Collaborated** with cross-functional teams, including mobile app developers, UI/UX designers, and product managers, to seamlessly integrate the **conversational AI** into the company's application, ensuring optimal user experience and **real-time interaction** without compromising app performance.

Data Analyst, *Toyota Kirloskar Motor* 12/2023 – 06/2024

- Developed and implemented a **data-driven** approach to optimize production line scheduling, resulting in a 20% reduction in production downtime and a 15% increase in overall production output.
- Developed and implemented an **automated** data-driven predictive maintenance model by integrating **SQL**, **Python** and Power BI thereby reducing **unplanned downtime** by 25%.
- Presented data-driven insights to senior management, influencing strategic decisions on pricing, marketing, and resource allocation.

Skills

Python • Mathematics and Statistics • Machine Learning • Deep Learning • TensorFlow • Pytorch • Computer Vision • Time Series Prediction • Transformers • NLP • Generative AI • Retrieval Augmented Generation(RAG) • Git

Projects

Advanced Voice Based AI Powered Conversational System for Daily Tasks, *Conversational Companion*

An Advanced ML Model for Stock Price Prediction on Tesla Stock Data, *Prediction Model*

Analysis and Forecasting of Financial Markets using LSTM networks in Deep Learning model, *Forecasting Model*

Design and Development of Machine Learning Algorithm for Drone Detection using Passive RF signal, *Computer Vision*

Achievements

- Awarded M S Ramaiah Gold medal for academic excellence for securing the highest CGPA of 9.65 (University 1 st Rank).
- Semifinalists in India Innovation Challenge for building an AI powered robot for vertical agriculture.
- 3x Winner of the Hackathon organized by University coders club Synergy.
- Cleared UPSC prelims 2023.

Publications

Springer
Enhanced Financial Market Forecasting with LSTM-based Deep Learning model (Published in Springer's Conference Proceedings). We achieved 15% higher prediction accuracy compared to traditional methods