Lay Sheth

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EDUCATION

VIT Bhopal University **09/2022 – 05/2026**
B.Tech in Computer Science - 8.95 GPA *Bhopal, India*

Medicaps International **04/2020 – 06/2022**
Achieved 86% in 12th grade *Indore, India*

TECHNICAL SKILLS

- **Programming Languages:** Python (Advanced), Rust (Intermediate), TypeScript/JavaScript (Intermediate)
- **Deep Learning Frameworks:** TensorFlow, PyTorch, Keras
- **Libraries & Tools:** NumPy, Pandas, Polars, Scikit-learn, OpenCV, Git, MLFlow

PROJECTS

High-Performance Web Scraping System: Python vs Rust Implementation **07/2024**
- Constructed dual-implementation of web scrapers using Python (BeautifulSoup4) and Rust (Tokio/reqwest), achieving 100% data extraction accuracy from 10,000+ Amazon product listings
- Architected concurrent scraping system in Rust using async/await patterns and Tokio runtime, processing 500 simultaneous connections while maintaining memory usage under 300MB
- Implemented robust error handling and rate limiting mechanisms, reducing server rejection rate by 95% and achieving 99.9% scraping reliability
- Established performance through Rust's zero-cost abstractions and memory management, resulting in 97% reduction in processing time (50s to 1.2s) compared to Python implementation
- Fabricated CSV data pipeline with custom serialization, handling 100,000+ records while ensuring thread-safe concurrent writes and maintaining data integrity

Distributed Real-time Image Classification System with Apache Kafka **08/2024**
- Designed a high-performance distributed image classification pipeline using Apache Kafka, TensorFlow, and Python, processing 10+ images/second with 91% accuracy on a dataset of 10,000 images
- Spearheaded concurrent message processing using Kafka consumers and producers, reducing latency by 65% through parallel processing and achieving sub-400ms classification response time
- Created a CNN architecture with 4 convolutional layers and 2 dense layers using TensorFlow/Keras, trained on google collab instances,and a model size reduction of 40% while maintaining accuracy
- Integrated error handling and monitoring systems using Python logging and Kafka metrics, achieving 99.9% system uptime and automated recovery from failures

Advanced RAG-based Question Answering System with Mistral LLM **09/2024**
- Architected a production-grade RAG (Retrieval Augmented Generation) system using LangChain and Mistral LLM, processing 1,000+ document chunks with 92% response accuracy
- Implemented sophisticated document processing pipeline with optimized text chunking (chunk size=1000, overlap=200) and Sentence Transformers embeddings, reducing context loss by 75%
- Integrated vector store integration using ChromaDB for efficient similarity search, achieving sub-100ms query response times on 100,000+ embedding vectors
- Built responsive Streamlit-based UI with async document processing, real-time progress tracking, and customizable LLM parameters, handling 10+ concurrent users (tested)

WORK EXPERIENCE

ThePreProdCorp **07/2024 – 12/2024**
Machine Learning Engineering Intern *Bengaluru, India (Remote)*
- Engineered AutoML solutions for automated model selection and hyperparameter tuning, reducing model development time by 40%
- Designed and deployed end-to-end data pipelines integrating streaming data, real-time visualization, and model deployment
- Developed RAG systems with open-source LLMs (Mistral, Llama), achieving 85% accuracy in context retrieval
- Collaborated with cross-functional teams to optimize data flow and enhance model serving architecture

ACHIEVEMENTS

Smart India Hackathon(SIH) **12/2024**
National Level Hackathon Finalist *Team of 6*
- Developed cost-effective myoelectric prosthetic hand achieving 92% cost reduction (Rs 12,500 vs Rs 1,50,000 market average) while maintaining core functionality through innovative dry electrode implementation
- Engineered companion mobile app processing EMG signals from 3 dry electrodes with distinct gesture recognition patterns achieving 85% accuracy with real-time control