Tanistha Hota

Bengaluru, India

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EDUCATION

PES University **August 2022 – Present**
B.Tech Computer Science Engineering, 6th Semester ***7.86 / 10.0 GPA.*** *Bengaluru, India*

Relevant Coursework/Skills: Operating Systems, Computer Networks, Machine Learning, Database Management Systems(DBMS), Big Data, Data Analytics, Data Structures & Algorithms and Software Engineerings

TECHNICAL SKILLS

Languages: Python, C, C++, R, SQL, LaTeX

Machine Learning: Scikit-learn, TensorFlow, PyTorch, Deep Learning , Natural Language Processing (NLP), Computer Vision, Time series forecasting, Spark, Hadoop, PySpark, kafka

Developer Tools: Git, VS Code

EXPERIENCE

Autonomize AI **June 2024 – July 2024**
Machine Learning Engineer Intern *Bengaluru, India*

- Developed and optimized **Tolstoy, a proprietary vision-to-text model** based on the DONUT architecture, enhancing document processing capabilities by **extracting 23 distinct fields** from diverse medical documents for healthcare administration
- Created and implemented a classification model to differentiate between inpatient and outpatient faxes, improving document routing and processing workflows

Bitstar Technologies **August-2023**
Research and Development Intern *Bengaluru, India*

- Implemented YOLOv8 for **semiconductor fault detection**, enhancing quality control processes through advanced object detection techniques using segmentation.
- Developed comprehensive datasets and metadata for semiconductor images using LabelImg, contributed to improved machine learning model training and accuracy.

PROJECTS

YADTQ- Yet Another Distributed Task Queue **November 2024**

- Contributed to the development of a **distributed task queue system** using Kafka as a communication layer, enabling coordination among multiple workers for **efficient, fault-tolerant task processing.**
- Integrated **Kafka as a message broker** to facilitate **asynchronous client-producer** and **worker-consumer communication,** distributing tasks across nodes for scalable performance.
- Designed task assignment mechanisms using Kafka consumer groups, ensuring **balanced load distribution** and **robust fault recovery** for uninterrupted task processing.
- Implemented a result backend with Redis to **track task statuses (queued, processing, success, failed)** and allow client-side status/result queries.

Automated Skill Matching and Gap Analysis Tool **September 2024**

- Developed a full-stack web application to help users analyze their qualifications in relation to job requirements, fostering **targeted skill enhancement.**
- Automated a system for parsing resumes and job descriptions, standardizing extracted skills into a structured database schema.
- Designed and optimized SQL database architecture to streamline storage and retrieval of user profiles, skills inventory, and job requirement data.
- Built an **interactive dashboard** with data visualizations for skill gap analysis, providing users with **personalized skill development** insights.

Baraat **April 2024**

- Contributed substantially to the design and advancement of Project Baraat– an **innovative Cross-Lingual Mixture of Experts Model built upon LLaMa-2**, facilitating seamless interactions in Hindi, English, and Kannada.
- **Designed and developed dataset creation pipelines** tailored for diverse fine-tuning tasks such as machine translation, logical reasoning and question answering across Kannada and Hindi languages, fostering more robust and effective training processes.
- Implemented the creation of **mixture of experts through a gradient-free method**, ensuring streamlined and scalable model training processes, and validated the end result as a robust proof of concept.

MQTT Broker Simulation Project **March 2024**

- Designed and implemented a **comprehensive MQTT (Message Queuing Telemetry Transport) broker** simulation system using socket programming, demonstrating proficiency in **network protocols such as TCP/IP** and low-level network communication
- Developed both **publisher and subscriber** components using socket APIs, showcasing a thorough understanding of the publish-subscribe messaging pattern and network programming
- **Integrated SSL (Secure Sockets Layer) encryption** to ensure secure communication between sockets

'Stonks!' Stock Market Analysis **September 2023**

- Conducted time-series and exploratory data analysis on Indian stock market data, visualizing trends with candlestick charts and predicting **high and low stock values.**
- Developed and trained forecasting models**(ARIMA, SARIMA, LSTM, HOLT WINTERS, PROPHET)** to predict stock prices, achieving accurate 3-month forecasts.
- Implemented feature engineering techniques, leveraged **open and close price trends**, and performed extensive data preprocessing to identify patterns and improve forecast accuracy.

INVOLVEMENT

Neural Hive - AI/ML Club of PES University - Student Lead

- Led AI/ML initiatives, organized workshops, and supported projects and learning within Neural Hive at PES University.

ACHIEVEMENTS

Hasgeek Open Source AI Hackathon (January 2024 - April 2024)
Winners of the National Level Open Source AI Hackathon (Winter Edition) hosted by Hasgeek, sponsored by Microsoft for Startups and Meta.

PESU IO- Decoding Tomorrow: An Introduction to Time Series Forecasting (October 2023)
Awarded Distinction Certificate for mastering data analysis, advanced problem-solving techniques, and diverse forecasting models, demonstrating exceptional analytical and predictive skills