SAHIL MUTHA

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Serial entrepreneur and a passionate **data enthusiast**, fueled by relentless drive for innovation with **3+ years** of hands-on experience, over **20+ projects**, specializing in data science and machine learning applications. A collaborative **team player** with a vision for positive change in digital landscape. Seeking a **full-time** opportunity starting **July 2025** to continue driving innovation & revolutionize the tech space.

Education

M.S. in Computer Software Engineering *(Data Science & ML Track)* **|** Northeastern University, Boston, MA **(GPA: 3.85/4)** **Expected Jul 2025**
B.E. in Electronics and Telecommunication **|** Pune Institute of Computer Technology, Pune, India **(GPA: 3.91/4)** **Aug 2018 – Jul 2021**

Technical Skills

Programming Languages & Database: Python, R, C++, JavaScript, TypeScript, SQL, MongoDB, PostgreSQL, MySQL, Oracle, Supabase
Data Science & ML Tools: Pandas, NumPy, scikit-learn, nltk, TensorFlow, PyTorch, Matplotlib, Hugging Face, Apache Spark, Databricks
Cloud Platforms: AWS (S3, EC2, Glue, SageMaker), GCP (Cloud Run, BigQuery), Azure (Azure ML, Azure Synapse Analytics, Azure Functions)
Tools: Snowflake, Talend, Tableau, PowerBI, Alteryx, E/R Studio, SSMS, Databricks, Git, Postman, MS Excel
Generative AI: Transformer Models (GPT, LLaMA, BERT), Prompt Engineering, Retrieval-Augmented Generation (RAG)

Experience

AI Software Co-op, PatrolAI, Boston, MA — Jul 2024 – Dec 2024

- Applied **time series analysis** techniques to monitor system performance metrics and forecast resource usage, enhancing scalability.
- Designed and implemented a **Retrieval-Augmented Generation** (RAG) framework for efficient code search and retrieval, integrating a vector database (Pinecone) with around **~70k+ embeddings** to store and retrieve historical Shopify code issues and fixes.
- **Evaluated model performance** using **Confusion Matrix and ROC curves**, improving GPT-based accessibility fixes by reducing false positives by 18%.
- Collaborated with engineering team to deploy fine-tuned GPT-4o models in production using **Docker** and **GCP**'s scalable cloud infrastructure, ensuring high availability and efficiency.

Founder and Machine Learning Engineer, Websoft Oceans (Got Acquired), India — Mar 2021 – Sep 2023

- Developed an **NLP-powered medical analytics tool** (Python, NLTK, spaCy) to process **500K+ medical records**, using **TF-IDF**, word embeddings (Word2Vec), and topic modeling (LDA, BERTopic) to extract key insights, reducing manual review time by 30%.
- Designed and integrated a real-time **telemetry data pipeline** using OpenTelemetry and Prometheus for monitoring API performance and model latency in a financial risk assessment model to proactively detect issue and reduce the response times by 25%.
- **Optimized SQL queries** for ETL processes, improving **data pipeline efficiency by 40%**, leading to faster model training & better decision-making.
- Applied **statistical modeling** techniques such as ARIMA, Prophet, and Bayesian inference to analyze patient risk trends, contributing to a 25% reduction in hospital readmission rates.
- **Led a team of 10 professionals** and successfully managed technical support activities while advocating for client requirements and improved team productivity by introducing **agile methodologies** and conducting regular stand-up meetings even when faced with tight deadlines.

Academic and Personal Projects

Product Performance Analytics Platform

- Built a **scalable data pipeline** using **AWS S3, AWS Glue, and Pandas**, optimizing ETL workflows and **boosting data processing efficiency by 35%**, to enable faster analytics.
- Implemented **time series forecasting** models (ARIMA, LSTMs) to predict product performance trends, reducing inventory waste by 20%.
- Developed a **quantitative analysis framework** incorporating **statistical models (Regression, Bayesian Inference)** and **machine learning** algorithms to evaluate key product metrics, improving business insights and decision-making by 20%.

BERT-Based Optimized Market Sentimental & Portfolio Analysis

- Designed and fine-tuned **BERT-based sentiment analysis model** (Hugging Face, TensorFlow) to analyze **1K+ financial articles**, improving risk assessment and portfolio rebalancing strategies.
- Applied **hypothesis testing (t-tests, chi-square)** and **confidence intervals** to evaluate model performance and optimize forecasting by 15%.
- Built a **TensorFlow -based fine-tuning pipeline** for sentiment classification, integrating **Matplotlib & Seaborn** for market trend visualization.

Research Paper

- Maturity Detection of Tomatoes using Deep Learning – Springer 2021 (Link)

Leadership and Awards

- Runner-up at **Harvard University** Hackathon (Sept 2023) and **Boston University** Tech Hackathon (Feb 2024)
- Ranked finalist **nationwide** in **Indian Institute of Technology Bombay (IITB)** Project Competition & Robotics Competition (Feb 2020)