

# AARSH GHEWDE

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## EDUCATION

### STEVENS INSTITUTE OF TECHNOLOGY

Master of Science in Data Science

Hoboken, New Jersey

May 2024

Coursework: Machine Learning, Time Series Analysis, Artificial Intelligence, Big Data Management, Statistics & Probability

### NMIMS University

B.Tech in Data Science

Mumbai, India

May 2022

Courses: Deep Learning, Predictive Modeling, NLP, Data Structures & Algorithms, ETL, Cloud Computing, Statistical Modeling

## WORK EXPERIENCE

### ECOM Consulting Inc

Plano, Texas

Data Scientist, Gen AI

Sep 2024 – Present

- Engineered an AI-powered email response system using a RAG pipeline with **LangChain** and **GPT-4**, reducing response time by **40%** and enhancing customer satisfaction.
- Built a hybrid knowledge base combining internal PDF documents and a structured email response database, using **ChromaDB** and OpenAI embeddings to enable fast and accurate retrieval.
- Deployed the end-to-end prototype on **Hugging Face Spaces** and implemented a feedback loop to capture user ratings, continuously refining future responses and document relevance.

### Stevens Institute of Artificial Intelligence (SIAI)

Hoboken, New Jersey

AI Student Researcher

Sep 2023 – Mar 2024

- Built a local, **RAG** based error resolution assistant using a quantized **LLaMA3** model via Ollama to answer software debugging queries based on historical error logs.
- Designed the reasoning pipeline using **LangGraph** and **ChromaDB** to modularize document retrieval, generation, and output display for better orchestration.
- Integrated **LangSmith** for real-time observability, tracking retrieval speed, document relevance, and model latency; built a **Streamlit** interface for user interaction.

### Techvision, Inc

Dallas, Texas

Intern- Data Scientist

May 2023 – Jul 2023

- Automated **supply chain analysis** with Python, improving operational insights and reducing decision-making time by **40%**.
- Designed interactive dashboards for real-time KPI anomaly detection, speeding up insights by **35%**.
- Enhanced the accuracy of predictive models by **20%** through advanced **feature engineering** techniques, careful data preprocessing, and optimization of the end-to-end machine learning pipeline.

### Air India

Mumbai, India

Intern- Data Analyst

Jun 2021 – May 2022

- Modernized current analytical pipeline to automate **data processing, visualization, and interactive reporting** of customer and operations data using **Plotly** and **SQL** improving communication efficiency and reducing analysis time by **70%**.
- Utilized data visualization tools to analyze **50000+** resource allocations for **in-depth exploratory data analysis** on Airport/Airlines operations, highlighting key performance metrics (**KPI**) and patterns in resource allocation, helping in model building and optimization.
- Led development of **10+** classification models like **Random Forest, Decision Tree Classifier** using **PyCaret** for forecasting optimal flight allocations involving multiple hyperparameter tunings and ensemble techniques.

## PROJECT EXPERIENCE

### HabitHelper AI | GenAI | NLP | Retrieval Augmented Generation | PEFT

- Fine-tuned a Large Language Model (**LLAMA2**) on the book "Atomic Habits" with **LoRA** and NLP improving contextual accuracy of responses by **30%**.
- Integrated Retrieval-Augmented Generation (**RAG**) using **LangChain** and semantic similarity, fetching relevant advice from the book pertinent to the user's query enhancing relevance and accuracy of the response.

### LLM-Driven Financial Sentiment Analysis Tool | LLM | Data Mining | NLP | AI | Prompt Engineering

- Utilized Python's **Scrapy** for web scraping of financial news, integrating **BERT** transformers to perform sentiment analysis and text summarization and obtained a **90%** accuracy, boosting strategy performance.
- Fine-tuned the **BERT** model on a custom dataset of financial news articles, using learning rate scheduling, gradient clipping, and data augmentation to improve sentiment analysis accuracy.

### Lyrics based Song Genre Classifier | Natural Language Processing | Scikit-learn | NLTK | PyTorch

- Developed machine learning models like **Naive Bayes & Random Forest** using natural language processes to predict genre and provide recommendations for the song with **86%** accuracy.
- Stored and managed processed lyrics in a **NoSQL** database and deployed a user-centric web application using **Flask**.

## TECHNICAL SKILLS

### Languages

Python, R, SQL, C/C++, HTML, Matlab

### Framework/Libraries

NumPy, Scikit-learn, TensorFlow, PyTorch, Pandas, HuggingFace, OpenCV, spaCy, LangChain, LangSmith

### Databases/Cloud

AWS, Azure, PostgreSQL, Cassandra, Docker, Spark, Hadoop, ChromaDB, NoSQL

### Analytical tools

Tableau, PowerBI, Microsoft Excel