

MOULIK SHAH

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Education

New York University

September 2024 – May 2026

Masters in Computer Engineering GPA: 4.0/4.0

New York, NY

- Coursework: Machine Learning, Natural Language Processing, Computer System Architecture

University of Mumbai

August 2019 – June 2023

Bachelor of Technology in Electronics and Telecommunication Engineering GPA: 3.6/4.0

Mumbai, India

- Coursework: Data Structures and Algorithms, Object Oriented Programming, Python, Mathematics, Database Management System, Computer Networks, Neural Networks, Big Data Analytics, Artificial Intelligence, Image Processing

Experience

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July 2023 – August 2024

Data Scientist

Mumbai, India

- Engineered a **recommendation engine** for skill-based games using **reinforcement learning** with **PyTorch**, employing **unsupervised clustering** techniques to segment users by engagement behavior. Conducted **A/B testing** to validate model efficacy, achieving a **25%** increase in user retention and reinforcing community safety through behavior-based recommendations.
- Led research and development of **multilingual NLP pipelines**, integrating **embedding models** and **Named Entity Recognition (NER)** for enhanced speech recognition. Refined pipeline through iterative experimentation with various embeddings, achieving a **30%** accuracy boost and supporting inclusive, language-diverse interactions.
- Enhanced **Open-Domain Question Answering system** with **Dense Passage Retrieval (DPR)** and **Retrieval-Augmented Generation (RAG)** models, achieving a **15%** reduction in unanswered queries through iterative model configuration and validation, supporting real-time NLP applications in **multilingual environments**.
- Integrated **LLMs** and **advanced embedding techniques** into chatbot functions, applying risk control and **anomaly detection** methods to analyze user behavior and uphold platform integrity by flagging suspicious interactions.
- Built a high-performing **song search engine** and **personalized recommendation system** using the iHeart Music dataset, using **feature detection** to analyze song attributes and elevate user experience in web-based applications, supporting platform safety by prioritizing user-friendly interactions.

Sykes and Ray Equities

October 2022 – December 2022

Quantitative Research Intern

Mumbai, India

- Collaborated on developing and tested trading models using **Monte Carlo simulations** and **Alpha Hedging**, conducting experimental **backtesting** and leveraging **graph theory** to analyze patterns—achieving a **12%** boost in portfolio performance.
- Automated portfolio strategies like Straddle and Iron Condor with **Pandas** and analyzed NSE datasets through **SQL** and **APIs**, achieving **85%** model accuracy through advanced **feature engineering** and **risk assessment strategies**.

Bipolar Factory

January 2022 – March 2022

Machine Learning Intern

Mumbai, India

- Architected end-to-end **deep learning** projects with **CNNs** in **TensorFlow**, optimizing model accuracy through **iterative tuning** and deploying on **AWS** for real-time, scalable applications.
- Developed **YOLOv4** and **SSD object detection models (89% accuracy)**, deploying via **Flask APIs** and validating for real-world performance, collaborating on **frontend** integration with **React.js** and **Node.js**

Myraa Technologies

January 2022 – February 2022

Deep Learning Engineer Intern

Mumbai, India

- Fine-tuned **Random Forest** and **CNN** models for HR analytics, resulting in a **92%** increase in decision-making efficiency through enhanced data-driven insights.
- Implemented a **Binary Classifier** using **TensorFlow** to detect disaster tweets with **91%** accuracy, integrating **React.js** to create an intuitive UI for data visualization.

Ares Data Private Limited

December 2021 – January 2022

Software Engineering Intern

Mumbai, India

- Designed a **scalable microservices architecture** with **Spring Boot** and **Node.js**, boosting data retrieval speed by **25%** via **Redis** caching and load balancing. Integrated **MongoDB** to enhance backend performance in real-time, data-intensive applications.
- Implemented an automated testing suite with **JUnit** and **Mocha**, increasing code coverage by **30%** and optimizing the QA. Set up **CI/CD pipelines** in **Jenkins**, accelerating deployments and ensuring consistent quality.

DJS Phoenix

March 2020 – November 2021

Head of Coding Department

Mumbai, India

- Created an autonomous drone system with the help of **Python** and a **OpenCV** for my team's Immediate Aid Assistance Drone (IAAD) which helped in healthcare services and became the **finalist in the Indian Institute of Project Technology Competition**.
- Managed a team of 10 developers in designing and implementing an **autonomous object tracking system**, overseeing coding tasks and ensuring project milestones were met efficiently.

AIESEC

February 2020 – January 2021

Corporate Relationship Strategist

Mumbai, India

- Managed **B2B lead generation**, sales, and **client relations** for AIESEC's Incoming Global Talent program, collaborating with **MNCs** and **SMEs** to drive **successful internship placements**.
- Established **customer-centric standards** and efficient **communication channels** to **enhance client experience**, improve **team productivity**, and ensure alignment with **stakeholder needs** for seamless project execution.

Projects	
Cross-Domain Adaptation through Soft Prompt Tuning in Low-Parameter Language Models <i>Python, Pandas, LoRA, LLMs, Linux, GitHub</i> <ul style="list-style-type: none">Optimized cross-domain adaptation for low-parameter language models using soft prompt tuning (e.g. prefix tuning) on T5-large, achieving over 90% accuracy in sentiment analysis across multiple domains with less than 1% of model parameters trained.Improved few-shot learning in resource-constrained models through techniques like LoRA and soft prompting, enhancing sentiment analysis accuracy while reducing the need for extensive model fine-tuning.	November 2024
LLM-Powered Financial News Sentiment Trader <i>Python, Pandas, TensorFlow, BERT, UNIX</i> <ul style="list-style-type: none">Created LLMSentiments Trader with DistilBERT and FinBERT for real-time NER and sentiment analysis on financial news, supporting investment decisions for hedge funds. Integrated Point72's CSP library, improving stream processing efficiency.Implemented a sentiment-based trading strategy that yielded a 0.21% return with a sharpe ratio of 0.84, outperforming traditional methods by analyzing a 20GB dataset of global news to track sentiment-driven stock movements.	January 2024
Smart Interactive Marketing <i>Python, TensorFlow, CNN, React.js, Node.js</i> <ul style="list-style-type: none">Built a CNN model for fashion product classification using the DeepFashion Dataset (800k images), achieving 88% accuracy and integrating it into a React.js application for real-time recommendations, which boosted product engagement by 30%.Created an Object Detection System leveraging ResNet50 and VGG-16, achieving 62% accuracy and enhancing product recommendations by 20% through effective image analysis and feature extraction.	February 2023
Smart Mart <i>Python, TensorFlow, YOLO, React.js, Flask</i> <ul style="list-style-type: none">Developed a Smart Shopping Basket using YOLOv3 for accurate product identification 81% accuracy, connecting it with an e-commerce web platform via React.js and Flask to streamline user interaction.Deployed a real-time recommendation system that clustered user behavior and preferences, enhancing shopping experiences by 30% through personalized product suggestions tailored to user segments.	October 2022
Speech Emotions Recognition System <i>Python, TensorFlow, HuggingFace, Flask, Gradio</i> <ul style="list-style-type: none">Engineered a CNN-based speech-emotion recognition system with 82% accuracy using TensorFlow, MFCC features, and Wav2Vec2 from HuggingFace, classifying emotions like happiness, sadness, anger, and fear from speech.Implemented a real-time emotion classification via Gradio app and Flask API, increasing user engagement by 18%, leveraging advanced signal processing techniques like MFCCs and Fourier Transform.	February 2022
Technical Skills	
Languages: C, C++, C#, Java, Go, Python, R, SQL, HTML, CSS, JavaScript, TypeScript, Scala, Matlab, Julia, Kotlin, Swift Frameworks: TensorFlow,PyTorch,Keras,OpenCV,YOLO(v3/v4),Django, Matplotlib,NumPy,Pandas,Flask,Roboflow,Gradio,Scikit-learn, React.js, Node.js, AngularJS,Three.js,Next.js,Tailwind CSS,Spring Boot,LangChain,Flutter,Bootstrap,Hadoop,BERT,RNN,CNN,Redux DevOps & Cloud: Docker,Jenkins,Spark,AWS,Jira,Postman,GCP,Hive,NVIDIA CUDA,Snowfalke,Azure,Kubernetes,Airflow Databases: MySQL, PostgreSQL, SQLite, Firebase, MongoDB, Oracle Developer Tools: Linux, Lucid, Figma, HuggingFace, Tableau, Power BI, Microsoft Excel	

Extra-Curricular Activities

DJS Beats <i>Marketing Associate</i> <ul style="list-style-type: none">Initiated contact with different companies to seek sponsorship for the events organised by our Student Forum.Coordinated data tracking, events, interviews, and managed finances, including budget monitoring.	Jan 2020 – Aug 2020 <i>Mumbai, India</i>
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Achievements

<ul style="list-style-type: none">Finalist at Indian Institute of Project TechnologyThe Math Company Triathlon Competition WinnerParticipated in State Level Competition DJ SparkParticipated in Rubix 22- 43 Hour Online Hackathon which was organised by computer society of india student chapter of Thadomal Shahani Engineering College, Mumbai.Represented Maharashtra at National Level Throwball Competition	
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