

# ANIRUDH BHATTACHARYA

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## EDUCATION

**University of Southern California**, Master of Science – Computer Science May 2025

**University of Mumbai**, Bachelor of Technology – Computer Engineering July 2023

## WORK EXPERIENCE

**University of Southern California** – Marshall School of Business Los Angeles, CA, USA

**Software Engineer** October 2024 – Present

**MSME AI Tool** | **Tech Stack:** Python, Postgres, React.JS, FastAPI, Jenkins, Docker

- Develop scalable Agentic AI system for MSME marketing, growing operational efficiency by 15% through automated workflows.
- Build fault tolerant, unit/integration tested service to refine decision-making by 30%, automate deployment through CI/CD.

**Transmission Line Damage Modeling** | **Tech Stack:** Python, ArcGIS, React.JS, Leaflet

- Designed, validated fire-driven transmission line damage models, improving prediction accuracy by 30% over Fragility curves.
- Developed Public Safety Power Shutoff threshold model, reducing asset damage by 15% through cross-functional collaboration.

**ViyaMD**

Los Angeles, CA, USA

**Machine Learning Engineering Intern**

May 2024 – July 2024

**Tech Stack:** Python, PyTorch, RAG, Qdrant

- Developed communication platforms connecting doctors, patients, enhancing healthcare delivery, improving patient outcomes.
- Spearheaded construction of internal typing functionalities to improve evaluation metrics, boosting developer efficiency by 5%.
- Optimized ingestion pipeline's support for healthcare guidelines, achieving 90% F1-score, reducing loss for accurate analysis.

**University of Southern California** – Advanced Composites Simulation Lab

Los Angeles, CA, USA

**Machine Learning Student Researcher**

January 2024 – December 2024

- Enhanced aircraft safety by 30% through integrating deep learning models for void detection in aerospace materials (COSB).
- Fine-tuned computer vision models on large-scale 3D micro-CT data, achieving 93% detection score, reducing false negatives.

**University of Southern California** – Information Technology Program

Los Angeles, CA, USA

**Teaching Assistant** – ITP 168

March 2024 – May 2024

- Taught MATLAB to 150+ undergraduates, providing tailored support to boost technical skills and achieve learning goals.
- Designed, evaluated coursework, providing actionable feedback improving student performance, ensure consistent assessment.

## KEY PROJECTS

**QuestDB**: Automated, Lightweight Snapshots

October 2024 - December 2024

**Tech Stack:** Java, Database Internals, Docker

- Reduced time-series database data loss by 50% with automated lightweight snapshots, boosting reliability and data integrity.
- Improved database performance by 40% on unstable IoT hardware in manufacturing through optimizations, enhancing stability.

**Path Planning with Reinforcement Learning**

January 2024 - May 2024

**Tech Stack:** Python, Microsoft AirSim, GCP, OpenAI Gym, OpenCV, PyTorch

- Implemented reinforcement learning training framework enabling real-time pathfinding for UAVs, enhancing mission efficiency.
- Co-developed reward functions based on 3D Image, LIDAR sensors to search 60% faster than standard systems with 0 collisions.

**Dronebusters**: Hacking for Defense

January 2025 - May 2025

**Tech Stack:** MATLAB, Acoustic Sensors

- Modeled search, kill algorithms in C-sUAS for US Army, enabling a 95% reduction in soldier injuries by optimizing navigation.
- Conducted stakeholder interviews, customer discovery using MMC to define clear requirements, achieving operational goals.

## PUBLICATIONS

**Feedback Based Telecom Churn Prediction with Machine Learning**

December 2022

Institute of Electrical and Electronics Engineers, ICAST 2022 | doi: 10.1109/ICAST55766.2022.10039530

## CORE COMPETENCIES AND SKILLS

**Languages:** Python, Java, JavaScript, C++, C, C#, MATLAB, Ruby

**Web:** FastAPI, Django, Flask, React.JS/TS, Node.JS/TS, .NET

**AI:** PyTorch, Hugging Face, Langchain, Tensorflow, SKLearn

**Databases:** Postgres, SQLite, Oracle, QuestDB, MongoDB

**Systems:** Docker, Linux, GCP, AWS, Supabase

**Tools:** Kubernetes, Hadoop, Spark, Hive, git, n8n, nmap, Redis