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
AI: PyTorch, Hugging Face, Langchain, Tensorflow, SKLearn
Systems: Docker, Linux, GCP, AWS, Supabase
Web: FastAPI, Django, Flask, React, Node, .NET, Spring Boot
Databases: Postgres, SQLite, QuestDB, MongoDB, Redis
Tools: Kubernetes, Hadoop, Spark, Hive, git, n8n, nmap