ANIRUDH BHATTACHARYA

Los Angeles, CA, USA | anirudhbhattacharya1@gmail.com | +1 (213) 5747034 | [LinkedIn](#) | [GitHub](#)

EDUCATION

University of Southern California — Los Angeles, CA, USA
Master of Science – Computer Science, GPA: 3.6 — May 2025

University of Mumbai — Mumbai, MH, India
Bachelor of Technology – Computer Engineering. GPA: 9.43/10

WORK EXPERIENCE

University of Southern California – Advanced Composites Simulation Lab — Los Angeles, CA, USA
Machine Learning Engineer, Research — January 2024 – Present
Tech Stack: Python, PyTorch, T4 GPU, C++, Clustering, Computer Vision
- Optimized the safety and performance of aircraft by using artificial intelligence to detect voids in aerospace materials (COSB).
- Improving void detection accuracy to 90%+ by applying state-of-the-art algorithms on High Performance Computing systems.
- Implementing novel research techniques with unsupervised, supervised deep learning performed on 3D micro-CT image data.
- Translating academic research findings into actionable code to facilitate real-world applications, authoring research papers.

ViyaMD — Los Angeles, CA, USA
Machine Learning Engineering Intern — May 2024 – July 2024
Tech Stack: Python, PyTorch, Large Language Models (LLMs), Retrieval-Augmented Generation (RAG), Docker, GPT4, Qdrant, MLOps
- Developing systems to enhance communication between doctors, patients, improving healthcare delivery, patient outcomes.
- Engineering sophisticated RAG systems, leading to improvements in data retrieval within complex information environments.
- Implemented internal typing functionalities, resulting in better evaluation metrics for RAG, 5% increase in developer efficiency.
- Optimizing ingestion to 90%+ F1 for healthcare guidelines ingestion, minimizing data loss for precise communication.

University of Southern California – Information Technology Program — Los Angeles, CA, USA
Teaching Assistant – ITP 168 — March 2024 – May 2024
- Instructed undergraduate MATLAB course to 150+ students, providing individualized support, to enhance learning outcomes.
- Developed, graded assignments, ensuring accurate assessment, feedback to promote understanding, academic performance.

Chance to Give — Hyderabad, TN, India
Software Engineering Intern - Web Development — July 2021 - October 2021
Tech Stack: JavaScript, HTML, CSS, GitHub, Git, SQL
- Directed cross-functional team in developing website, collaborating with backend, database teams, increasing reach by 25%.
- Enhanced website performance, user engagement through rigorous code reviews, adherence to Waterfall development.

SOFTWARE ENGINEERING PROJECT EXPERIENCE

Path Planning with Reinforcement Learning *(link)* — January 2024 - May 2024
Tech Stack: Python, Microsoft AirSim, Google Cloud Platform, OpenAI Gym, OpenCV, NVIDIA T4, PyTorch
- Implementing reinforcement learning and 3D image processing to plan paths of unmanned aerial vehicles (UAV) in real time.
- Leveraging High Performance Computing (HPC) systems for model development to achieve 0 collisions with 1 million+ steps.
- Building robust rewards to achieve 60% speed improvements over RL systems built in AirSim using Gymnasium models.

Feedback Based Telecom Churn Prediction with Machine Learning *(link)* | *(IEEE Xplore)* — July 2022 - May 2023
Tech Stack: Python, React.JS, JavaScript, Scikit-learn, REST APIs, Django ORM, SQLite, Docker, TextBlob, Visual Studio, git, Scrapy.
- Spearheaded a collaborative, research-driven project aimed at improving churn prediction rates by 6% in the telecom industry.
- Authored, published proposal in IEEE Xplore, contributing advancements to machine learning, big data research, development.
- Enhanced prediction accuracy by 5% with ML model in scalable full-stack system, using Agile, peer reviews, rigorous testing.

Drowsy Driver Detection *(link)* — July 2021 - December 2021
Tech Stack: Python, Keras, Tensorflow, OpenCV, Visual Studio, NVIDIA T4
- Pioneered collaborative development of 95% accurate autonomous system to detect driver drowsiness improving road safety.
- Formulated 96% accurate facial detection, 94% accuracy in drowsiness detection, automated workflow through APIs.
- Achieved 2s detection time with audio alerts, unit, integration tested in test-driven environment through CI/CD workflow.

CORE COMPETENCIES AND SKILLS

Languages: Python, C++, C#, Java, R, C, JavaScript, Go, TypeScript, Scala **Web:** React.JS, Node.JS, Express.JS, Angular, Vue, Redux, Vite
AI: PyTorch, Tensorflow, CUDA, Caffe, MxNET, TVM, Hugging face **Databases:** MySQL, Postgre, MongoDB, Oracle, Cassandra
Systems: UNIX/Linux, AWS EC2, Azure, GCP, dbt, git, Airflow, Jira **Software:** Kubernetes, Hadoop, Spark, Hive, Kafka, bigQuery
Frameworks: .NET, Django, Flask, Kotlin, Swift (iOS), Spring Boot, AJAX **Others:** HBase, Ruby, Redis, GenAI, Rust, Tableau, JVM