

ANIRUDH VENKATACHALAM

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EDUCATION

University of California, Davis

Bachelor of Science in Computer Science and Engineering

Sep 2021 - June 2025

Relevant Coursework: Data Structures and Algorithms, Algorithm Design & Analysis, Software Engineering, Operating Systems, Compilers, Computer Networks, Probability & Statistical Modeling, Theory of Computation, Artificial Intelligence, and Data Science.

TECHNICAL SKILLS

Python | C++ | C | Java | Swift | JavaScript | TypeScript | HTML & CSS | Angular | React | Node.js | Flutter | R | Go | MySQL | MongoDB | CloudKit | AWS | GCP | Docker | Audio Processing | Digital Signal Processing | Multithreaded Development | Agent Orchestration | AI Agents | RAG | MCP | Unix | Bash | Git | Postman | SAP IBP

WORK EXPERIENCE

Software Engineer and Undergraduate Researcher

June 2024 - Present

Speech Neuroengineering and Cybernetics Laboratory, Center for Mind and Brain, UC Davis

Davis, CA

- Developed an end-to-end modular pipeline in **Python** for large-scale **audio processing** and speech analysis in clinical research involving ALS and epilepsy, working directly with clinicians and researchers to define requirements and iterate on the software in their environment, integrating denoising, speaker diarization, **AWS Transcribe**, & acoustic analysis for speech patterns.
- Integrated speech processing libraries such as **OpenSMILE** for acoustic feature extraction and Montreal Forced Aligner.
- Containerized the pipeline using **Docker** to enable reproducible execution, deployment, and systematic module-level audio testing to ensure clinical reliability across changes.
- Worked on neural speech models such as **NANSY++** to support speech synthesis and analysis for advanced clinical evaluation.
- Contributed to the development of an AI-driven **sentiment analysis** module using natural language processing (NLP) techniques to identify and quantify emotional tones in speech data, directly supporting clinical interpretation.

Software Engineer - Undergraduate CSE Capstone Project Client Engagement

Jan 2025 - June 2025

Department of Computer Science, College of Engineering, UC Davis

Davis, CA

- Direct client engagement with a neuroscientist at UC Davis Medical Center. Developed an **iOS** Application to assess chronic pain and movement disorders in patients with Parkinson's disease undergoing Deep Brain Stimulation.
- Worked closely with clinical stakeholders to iteratively define requirements and tailor the solution to real patient and scientific needs.
- Integrated mobility tracking and physiological monitoring using **SwiftUI** for development and **AWS** for secure backend data storage.

Software Engineering Intern - SAP Digital Supply Chain

July 2024 - Sep 2024

CloudPaths Inc.

Newark, CA

- Developed and optimized data integration workflows using **Open Data Protocol** (OData) API to support external forecasting and preprocessing functions within **SAP Integrated Business Planning** (IBP).
- Scripted Python algorithms for external forecasting methods, creating and executing **RESTful API** calls with Postman to enable seamless data exchange between SAP IBP and external systems, ensuring efficient and reliable communication.
- Automated command execution for external systems using SAP IBP scripting and API interfaces, streamlining data pipelines.

Software Engineering Intern

June 2022 - Aug 2022

FundsIndia.com (Leading Investment Platform for Stocks and Mutual Funds)

Chennai, India

- Engineered interactive tools using **Angular** and **TypeScript** for a high-traffic investment platform, increasing user adoption by **75%** through feature enhancements tracked via Google Analytics.
- Improved platform efficiency, reducing website launch time by **26%** through instance configuration and advanced performance optimization techniques. Collaborated to resolve user pain points via **code reviews**, **agile sprints**, and **debugging sessions**.

PROJECTS & PRODUCTS

- LeisurelyAI.com:** Building an **agentic AI** travel concierge in **Next.js** and **TypeScript** where **AI agents** handle the full trip lifecycle, from natural language ideation and itinerary generation to booking coordination and proactive post-booking monitoring, using **Browser Use** and **multi-agent orchestration** for end-to-end autonomous execution.
- FindaNook.com:** Built an AI-powered app to discover cafes, libraries, and coworking spaces using **Next.js**, **TypeScript**, **Supabase**, and Mapbox GL JS, with AI that intelligently parses crowdsourced reviews and their personality to match users with the right spot.
- AsterAI (xAI + Vercel Hackathon 2025 Winner):** Built a cursor-activated multi-modal Lens system with similarity detection, smart summarization, and contextual visual analysis using the **xAI API** and **Next.js** for real-time, on-page document intelligence.
- DocuVault (HackDavis 2025 Winner):** Built a secure iOS app with **OCR** scanning, smart search, version control, **OAuth/JWT** auth, and offline-first access. Designed an adaptive UI to manage time-sensitive document requests.

LEADERSHIP

Technical Director

Sep 2023 - Sep 2024

Google Developer Student Club @ UC Davis | Davis, CA

- Built a geolocation reminder app with **React Native** and **GCP** and partnered with startup TerraAI to build a **MERN**-stack app.
- Delivered a workshop on Retrieval Augmented Generation (**RAG**) Architectures to the broader tech community.

President

Feb 2022 - June 2025

SacHacks (sachacks.io) | Sacramento, CA

- Led and collaborated with a team of 20 that hosted Greater Sacramento's largest **intercollegiate hackathon** three times, attracting 500+ global participants from 20+ countries through online and **in-person** events, focusing on **coding**, **entrepreneurship**, and **design**.