

# 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 | Unix | Bash | Git | Postman | SAP IBP

## WORK EXPERIENCE

Undergraduate Researcher and Software Engineer

June 2024 - Present

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

Davis, CA

- Developed an end-to-end **audio processing** & advanced automatic speech analysis pipeline for clinical research with patients suffering from ALS and epilepsy using **Python**, integrating denoising, speaker diarization, **AWS** transcribe, and acoustic analysis.
- Utilized 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 a **sentiment analysis** module using natural language processing (NLP) techniques to identify and quantify emotional tones in speech data

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

- Undergraduate CSE Capstone Project:** Developed an **iOS Application** to assess chronic pain and movement disorders in patients with Parkinson's disease undergoing **Deep Brain Stimulation**, integrating mobility tracking and physiological monitoring using **SwiftUI** for development and **CloudKit** for secure backend data storage.
- 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.
- AsterAI (xAI + Vercel Hackathon 2025 Winner):** Built a cursor-activated 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.
- Not Nimble Miner:** Engineered a Python clinical note classification system using **SpaCy**, **Pandas**, **Word2Vec** embeddings, and **logistic regression**, delivering a **98% accuracy** and **20% precision** improvement in healthcare decision-making.

## 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 50+ countries through online and **in-person** events, focusing on facilitating competition in **coding**, **entrepreneurship**, and **design**. Built an engaging platform for a worldwide audience.