SIDDHANT RAO

Los Angeles, CA | 213-675-5892 | raosiddh@usc.edu | linkedin.com/in/siddhantrao/ | siddhantrao23.github.io

EDUCATION

UNIVERSITY OF SOUTHERN CALIFORNIA — Los Angeles, CA, USA
Master of Science in Computer Science — Aug 2024-May 2026
Cumulative GPA: **3.7**
Relevant Coursework: Analysis of Algorithms; Web Technologies; Game Engine Development; **Operating Systems**; Robotics

PES UNIVERSITY — Bangalore, India
Bachelor of Technology in Computer Science and Engineering — Aug 2018-Sep 2022
Systems and Core Computing Specialization
Cumulative GPA: **3.66**
Relevant Coursework: Database Management Systems; Data Structures and Algorithms; **Cloud Computing and Big Data**;

SKILLS

Languages: C/C++, **Python**, Java, **Go**, **JavaScript**, Rust, HTML/CSS
Cloud & Backend Systems: Kubernetes, Docker, **AWS (EKS, CloudWatch),** Apache Spark; Django, Node.js, Flask, Angular
Data Stores: MongoDB, MySQL, Redis, AWS S3, Dremio Datalakehouse
Technical Skills: Open Source, **Distributed Systems**, **OOP**, Performance Optimization, Version Control
Certifications & Awards: Google Cloud Certified; Prof. CNR Rao Scholarship (2018); 4x Prof. MRD Scholarship Awardee

PROFESSIONAL EXPERIENCE

AMAZON WEB SERVICES — Seattle, WA
Software Development Engineer Intern - EKS etcd Team — May 2025-Aug 2025
- Architected and implemented a **dynamic configuration system** for etcd servers, reducing deployment time from **1 month to 3–5 days** (15× improvement) for configuration updates
- Built a **Golang-based gRPC service** and thread-safe in-memory store for robust and secure config propagation
- Created **CloudWatch** dashboards, alarms, and metrics to track latency and failures to monitor operational health
- Implemented error handling and logging within a fault-tolerant architecture to prioritize **system availability**
- Collaborated with senior engineers, project mentor, and team manager on design docs, runbooks, and readiness reviews; validated through unit, integration, and cluster-level testing.

DREMIO SQL LAKEHOUSE — Bangalore, India
Software Developer - Performance and Optimization Team — Jan 2022–Feb 2023
- Engineered a persistent caching mechanism for Apache Arrow's *Gandiva* expression compiler by integrating Java and C++, accelerating build times by approximately **50%** on large customer workloads
- Resolved direct customer-reported onboarding bottlenecks, reducing bugs by **80%**, leading to customer adoption
- Reviewed **10+** PRs adding user-defined functions to Gandiva, ensuring coding standard compliance and performance efficiency

RESEARCH EXPERIENCE

Center for Cloud Computing and Big Data — PES University, Bangalore, India
Bachelor's Thesis: "*Enhancing Cache Reuse in Gandiva with Literal Parameterization"* — May 2021-May 2022

Identified bottlenecks in Gandiva's code generation phases and implemented advanced LLVM-based optimizations, including a novel literal parameterization model, improving cache reuse and reducing build duration by **40%**.

LEADERSHIP

PES OPEN SOURCE CLUB — PES University, Bangalore, India
Lead of Operations — Jun 2021-Sep 2022
- Organized professional development events focused on bringing more exposure to open-source concepts and ideologies, including a *Hacktoberfest Hack Night* attended by **150** students
- Conducted knowledge-building workshops and deep dive sessions with open-source industry experts, directly contributing to a **30%** increase in club membership
- Fostered diversity by prioritizing inclusion of marginalized groups in community events

PROJECTS

RESPONSIVE WEATHER APPLICATION — Fall 2024
- Designed a responsive full-stack **Angular + Node.js** web app integrating Google Maps, IPInfo, and Tomorrow.io APIs for geolocation, weather data, and real-time interactions
- Deployed the application to **Google Cloud**, with integrated MongoDB Atlas for cloud-based NoSQL

SCOOP - NEWSLETTER DELIVERY SYSTEM — Fall 2023
- Developed a **Rust**-based REST API to facilitate newsletter delivery with a fault-tolerant design
- Implemented **Redis**-based session management for **10x** faster performance with secure authentication
- Containerized and deployed on the **Fly.io** platform for scalable delivery

VIEW FRUSTUM OPTIMIZATION - PRIME GAME ENGINE — Spring 2025
- Implemented Axis-Aligned Bounding Boxes for static meshes and designed a view frustum culling system, reducing draw calls and increasing FPS by **50%**