

SIDDHANT RAO

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EDUCATION

UNIVERSITY OF SOUTHERN CALIFORNIA

Master of Science in Computer Science

Relevant Coursework: Analysis of Algorithms; Web Technologies

Los Angeles, CA, USA

Aug 2024-May 2026

PES UNIVERSITY

Bachelor of Technology in Computer Science and Engineering

Systems and Core Computing Specialization

Cumulative GPA: 9.13

Relevant Coursework: Database Management Systems; Generic Programming; Cloud Computing and Big Data;

Object Oriented Analysis;

Bangalore, India

Aug 2018-Sep 2022

SKILLS

Languages: Programming: C/C++, Python, Java, Rust; Fluent in English, Hindi, Kannada

Frameworks: Django, Node.js, Actix Web, Docker, Apache Spark, Hadoop

Technical Skills: Open Source, Distributed Systems, Backend Systems, Linux, OOP, Performance Debugging, Optimization

Certifications & Awards: Google Cloud Certified; Prof. CNR Rao Scholarship (2018); 4-time Prof. MRD Scholarship Awardee

PROFESSIONAL EXPERIENCE

DREMIO SQL LAKEHOUSE

Software Developer, Performance and Optimization Team

Bangalore, India

Jan 2022-Feb 2023

- Developed a persistent caching mechanism for Apache Arrow's expression compiler, *Gandiva*, accelerating build times by approximately **50%** on large-sized customer query workloads by integrating Java and C++ code
- Resolved direct customer-reported onboarding bottlenecks, reducing bugs by **80%**, leading to customer adoption
- Operated with AWS and S3 clusters to test new features and debug older releases
- Reviewed 10+ pull requests that added user-defined functions to *Gandiva*, ensuring adherence to coding standards, performance efficiency, and seamless integration with existing features
- Collaborated in an agile team with stakeholders on each project, including leadership, product managers, quality assurance, and senior developers, to create pull requests and conduct extensive unit testing

RESEARCH EXPERIENCE

Center for Cloud Computing and Big Data

Bachelor's Thesis: "Enhancing Cache Reuse in *Gandiva* with Literal Parameterization"

PES University, Bangalore, India

May 2021-May 2022

- Identified bottlenecks in *Gandiva*'s execution kernel, particularly in code generation phases; Worked closely with peers, mentors, and professors to implement advanced optimization strategies in *Gandiva*, integrating academic insights with hands-on system design
- Improved caching mechanisms by formulating and implementing a novel literal parameterization model and achieved a **40%** improvement in build duration by analyzing build time data

LEADERSHIP

PES OPEN SOURCE CLUB

Lead of Operations

PES University, Bangalore, India

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
- Encouraged community involvement in communication channels and prioritized building a diverse community with a special focus on marginalized groups

PROJECTS

MANGO - ALBUM RATING APPLICATION

Summer 2024

- Devised an end-to-end web application leveraging Django, applying views, models, templates, and forms
- Added user authorization and sessions to control site behavior and access, ensuring a secure user experience and personalized content delivery
- Deployed application to a production environment, optimizing server configurations, and ensuring high availability and scalability for real-world usage

SCOOP - NEWSLETTER DELIVERY SYSTEM

Fall 2023

- Built a Rust-based website to facilitate newsletter delivery with a fault-tolerant and concurrent design
- Integrated Redis for fast, secure sessions and implemented robust error-handling strategies with extensive logging for debugging
- Containerized the application for ease of deployment and launched it on the Fly.io platform

SADENSTEIN - OLD-SCHOOL FPS GAME

Summer 2020

- Developed a 2.5D FPS game using C++, inspired by *Wolfenstein3D*, implementing ray casting for rendering
- Utilized advanced C++ techniques to manage game mechanics, player movement, and collision detection within a 2.5D environment