SRIRAM RAO

Software engineer with industry and research experience in distributed compute systems. Proven track record in developing efficient, scalable solutions and collaborating across teams to drive software innovation.

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EXPERIENCE

University of California, Irvine
Graduate Student Researcher
Sep 2020 - Sep 2024 | Irvine, CA

- Designed database plugin; balances latency and resource costs by **allocating** compute between current and **decision-tree**-forecast loads.
- Developed framework to call **data generators** implicitly during analysis. Integrated simulator into **PostgreSQL** for no-setup follow-up.
- Created a **pipeline execution** system for workflows defined as directed acyclic graphs of tasks. (On GitHub as sample.)

Dremio
Software Engineer - PhD Intern
Jun 2022 - Sep 2022 | Remote, CA

- Devised a proof-of-concept (POC) to progressively improve query response in data lakes. Familiarized with **Calcite** and **Iceberg**.
- Improved row-count estimation in **query planning** via accurate statistics observed in previous executions. (From LEO, Markl V., VLDB 2001).

Microsoft
Software Engineer 2
Jun 2016 - Sep 2020 | Bengaluru, India

- Redesigned a workflow manager used for Extract-Transform-Load **(ETL)** in 100+ workflows, reducing deployment time from 1h to < 5s.
- Piloted a **Spark** Streaming POC pipeline to compute the statistical significance for A/B tests 3x faster than existing batched methods.
- Refactored cache configuration system using **Aspect-Oriented** Programming. Decreased config. code 5x and codebase size by 300 lines.
- Contributed to teammates' success with detail-oriented guidance on 40+ design reviews, 100+ **code reviews** and live issues while on call.

Microsoft
Summer Intern
May 2015 - Jun 2015 | Bengaluru, India

- Analyzed insert & response times of 3 data stores under stress loads. Stores: Azure Data Explorer (**Kusto**), **MongoDB**, **column-store** SQL.
- Concluded Kusto suited the use-case of log analysis (response < 5s) and column-store SQL for aggregation-based queries (response < 1s).
- Enabled migration from **OLAP** cubes to column-stores. Cut ETL time from 10 days to 1 hour, with response time < 1s (vs. instant in cubes).

University of California, Irvine Academia
Teaching Assistant
Sep 2020 - Dec 2024 | Irvine, CA

- Rated 4/5 in anonymous feedback from students in courses, with appreciation for database expertise and **straightforward explanation**.
- Collaborated with professors & TAs on lecture slides, questions, assignments, discussion sessions in database courses for 200+ students.

SKILLS

Languages — *: Novice

Python, C#, Java, C++, C, Ruby, Lisp, Prolog, SQL
UI/UX: HTML, CSS, TypeScript (& JS), SwiftUI*
Automation: Bash, Powershell, Lua

Technologies

Databases: Big Data, NoSQL, MongoDB, OLAP, PostgreSQL, Column-stores.
Compute Platforms: Spark, ETL, DAG, Query Engine, Apache Calcite, Iceberg, Trino.
Backend: .NET, Spring, Flask, REST, SvelteKit, Microservices, AOP, Architecture, Caching.
Infra: Docker, AWS, Azure, CI/CD, Custom IaC.

EDUCATION

University of California, Irvine
MS in Computer Science
Sep 2020 - Mar 2025 | Irvine, CA

University of California, Irvine
PhD in Data Management - ABD
Sep 2020 - Sep 2024 | Irvine, CA

- All But Dissertation. Advised by Prof. Sharad Mehrotra on workload-aware pre-computation.

National Institute of Technology, Karnataka
B. Tech. in Computer Engineering
Jul 2012 - Mar 2016 | Surathkal, India

PUBLICATIONS

- **S. Rao**, M. Boissier, and S. Mehrotra, "Genie generator-driven iterative data exploration," Integrating data generators, like simulators or benchmark data producers, into databases; poster presented at alumni meet (Paused).
- **S. Rao**, M. Boissier, and S. Mehrotra, "Janus autonomous resource allocation and pre-compute for future workloads," (Paused).
- S. Dinesh, **S. Rao**, and K. Chandrasekaran, "Traceback a forensic tool for distributed systems," in *Proceedings of 3rd International Conference on Advanced Computing, Networking and Informatics ICACNI 2015, Volume 2*, Springer, 2016, pp. 17–27.