SACHIN RATHOD
Boulder, Colorado

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EDUCATION

Master of Science: **Computer Science**	University of Colorado Boulder, USA	4.00 GPA	12/2024
B.Tech: **Information Technology**	National Institute of Technology Karnataka, Surathkal	8.45 CGPA	05/2019

TECHNICAL SKILLS

Course Work	Data Structures and Algorithms Design and Analysis of Algorithms Data Center Scale Computing	Database Systems Computer Vision Natural Language Processing	Big Data Architecture Distributed Systems Object-Oriented Analysis and Design
Languages	C, C++, C#, Java, Python, HTML, CSS, JavaScript, TypeScript, Node.Js, SQL, NoSQL		
Tools	Spring Boot, Pandas, Hadoop, PySpark, AEM, React, Angular, Ionic, Cordova, Capacitor, Polars		
Frameworks	GCP, AWS, Docker, Kubernetes, Jenkins, Redis, MinIO, Firebase, MongoDB, DynamoDB, MySQL, Kafka, RabbitMQ, ZeroMQ, GitHub, JIRA, Plotly		

PROFESSIONAL EXPERIENCE

Esri, USA **Software Developer** **Intern** 05/2024 - Present	• Built a tool using **C#** to fuzz test the ArcGIS Enterprise server for performance and correctness. • Responsible for architecting the tool using async tasks and the multi-threaded programming paradigm to generate **10-100 billion requests**, which could trigger code execution across various domains of the business logic. • Incorporated a python script that leveraged the fast data frame library **Polars** and generated graphs of the execution details using **Plotly** to analyse execution patterns across business logic to draw conclusions on the performance and correctness of the system.
Institute for Student-AI Teaming, USA **Software Engineer** 09/2023 - Present	• Built mechanism to track user actions on Microsoft makecode editor, store it to **DynamoDB** and provide it to machine learning pipeline to analyse collaboration among users. Deployed service on **AWS ECS**. • Developed **AWS lambda** that gets triggered on DynamoDB write, and generates **AMR graph** from the utterances of the user. • Responsible for architecting and developing various **machine learning** pipelines and services over **AWS cloud**.
Optum Inc, India **Sr. Software Engineer** 11/2022 - 04/2023	• Developed a **Jenkins DevOps** pipeline for automatic code build and deployment on **AEM**. Reduced manual work by up to 80%. • Responsible for creating module that syncs local git with **Adobe Cloud Git** and notifies the user on deployment status via email, save 100% monitoring time. • Built a python tool that compares two websites employing **Opencv-Python** and Imutils packages. Reduced manual work by up to 90%.
SAP Labs, India **Software Engineer** 06/2019 - 11/2022	• Developed **cloud-native applications** for procurement sector. This required a thorough knowledge of domain driven design and cloud architecture design principles. 100% of on-premise applications were migrated to cloud. • Responsible for **user interface**, **database modelling**, implementing Kafka based inter-service **asynchronous messaging architecture** and developing **authorization and security** using Spring Security framework. • Integrated **ESRI ArcGIS** map service to SAP UI5 version of MRS app using APIs. Increased user experience by 50% in visualizing the current position of the service provider, source to destination routes and travel details (considering live traffic).

TECHNICAL PROJECTS

Distributed Video Analyzer (Distributed Systems) 12/2023 – 12/2023 Github link	• Developed a distributed system using the **master-worker architecture**, in which the master node splits video into smaller chunks and distributes them to worker nodes. Each worker node works on assigned chunks for object detection. • Utilized **ZeroMQ** for efficient analysis of video frames, optimizing data transfer and processing capabilities without loss of frames. • Employed **Google Compute Engine** to proficiently deploy and manage master and worker nodes, ensuring scalable and reliable infrastructure for distributed computing tasks.
Music Separation System (Distributed Systems) 11/2023 – 11/2023 Github link	• Created a **Kubernetes** cluster that provides a REST API for automatic music separation service and prepares the different tracks for retrieval. • Used **Redis** as a message broker and **MinIO** for audio file storage. • Deployed services on **Google Kubernetes Engine**.
ZwellStar 02/2022-05/2023 Playstore link	• Built e-commerce and food delivery system with Ionic, Firebase, Node.js and GCP to gain full-stack development experience. • Gained experience in submitting the app to the **Google Play Store**.