

# SAGAR SWAMI RAO KULKARNI

Boulder, CO | [sagarswamirao@gmail.com](mailto:sagarswamirao@gmail.com) | (303) 434-7446 | [linkedin.com/in/sagarswamirao](https://www.linkedin.com/in/sagarswamirao) | [sagarswamirao.github.io](https://sagarswamirao.github.io)

## PROFESSIONAL EXPERIENCE

### **Full-stack Intern, WalletGyde** | Denver, CO

01/2025 - 05/2025

*Skills – Python, Typescript, AWS, Docker, Supabase*

- Built an event-driven system using AWS SQS for ML match requests and email alerts, ensuring reliable and scalable workload handling.
- Engineered client onboarding workflows, improving API performance and reducing drop-off rates by 15%.
- Developed and optimized backend APIs using Python and Supabase, implementing a cache-aside strategy that improved data retrieval speed and increased user retention by 5%.

### **Software Engineer, Quinnox** | Bengaluru, India

01/2022 - 07/2023

*Skills – Java, Spring Boot, Python, FastAPI, AWS, Agile, JWT, OAuth, TDD, Microservices, HashiCorp Vault, MySQL, Mockito*

- Optimized REST APIs across 5+ microservices using Spring Boot, reducing response time by 50% using in-memory caching with Redis.
- Collaborated in an Agile team, ensuring 90%+ test coverage and code quality using Mockito, SonarQube, JUnit, and PyTest.
- Improved search functionality for Home Healthcare Orders (HHO) by implementing live sync with write-through caching, enhancing data consistency and performance, while also setting up JWT + OAuth-based authentication and authorization for secure access.
- Fine-tuned YoloV4 and MobileNet320 object detection models, achieving an 86% F1 score and improving operational efficiency.
- Led a team of 3 in migrating core microservices to AWS, ensuring scalability with Auto Scaling Groups (ASG) and enforcing HIPAA compliance through secure credential management using HashiCorp Vault.

### **Software Trainee, Quinnox** | Bengaluru, India

01/2021 - 01/2022

*Skills – Python, Popoto.js, Azure ML Studio, AWS, MySQL, Neo4J, Amplitude*

- Integrated Stripe payment APIs and automated payment tracking using AWS Lambda, and Python, streamlining billing operations.
- Automated data pipelines from multiple sources to Neo4J, cutting data injection time by 81% and saving 3+ hours of effort per week.
- Devised an Enterprise Resource Graph, creating a digital twin of the client's cloud infrastructure and enhancing system observability.
- Developed the Labor Planning Tool for Martin Brower using Oracle APEX and PL/SQL, leveraging low-code/no-code capabilities to create efficient applications tailored to client needs

### **NLP Software Intern, Senseforth AI** | Bengaluru, India

03/2020 - 05/2020

*Skills – Python, Java, MySQL*

- Ideated and developed Java-based NLP parsers, improving KnowledgeBot's accuracy by 15% across multiple file formats.
- Enhanced document indexing with Lucene and Bird's Eye Search in Python, boosting search performance and speed.

## PROJECTS

### **Alliant National (Capstone Project)** | Azure (ML Studio, OpenAI API, Llama 3.3 LLM), Python, Flask, React

08/2024 - 05/2025

- Led a team of 4 to build an AI-driven web app for a title insurance company, automating document processing and field extraction using Azure OCR and Llama APIs; received the Excellence in Design award at the CU Engineering Projects Expo.
- Achieved a 3× cost reduction by replacing Azure Layout + Query with Llama-based extraction, lowering processing costs from \$21.50 to \$6.12 per 1,000 pages and saving approximately \$15,000 per million pages.

### **Image Flow** | Python, React, Google Cloud, Kubernetes, GCP, AWS

12/2024

- Architected a scalable image processing app using React and Python, deployed on Kubernetes across Google Cloud and AWS, and integrated Cloud Run, Pub/Sub, SQS, SNS, and RDS to handle high-volume uploads, transformations, and notifications.
- Set up event-driven workflows with Cloud Run Functions and triggers, ensuring scalability during traffic spikes.

### **Career Compass** | React, Python, Java, Spring Boot, OOP Patterns, AWS

05/2024

- Built a job search management web app, applying OOP design patterns in Spring Boot for modularity and scalability.
- Deployed a serverless architecture using AWS Lambda, S3 and CloudFront, improving performance while minimizing hosting costs.

### **Human vs Machine Generated Text Classifier** | Python, Google Colab, Jupyter Notebook

12/2023

- Achieved 87% F1 score in SemEval-2024 by fine-tuning RoBERTa models to distinguish human vs. machine-generated text.
- Conducted feature engineering and hyperparameter tuning to optimize model performance and accuracy in a text classification challenge.

### **React UI Dropzone** | React, JavaScript, TypeScript

06/2022

- Forked and enhanced the material-ui-dropzone library, adding features like previewText, dropzoneText, onSave, and onClose to improve file handling and user feedback for the developers.
- Achieved over 2,000 total downloads on NPM, with an average of 37 weekly downloads.

### **Smartphone Like-Dislike Classification** | Python, Pandas, Jupyter Notebook, Google Colab

12/2020

- Built models based on MP Neuron and Perceptron approaches, achieving 82% accuracy in smartphone market acceptance predictions.
- Published findings in an IEEE research paper, garnering 111 full-text views and highlighting the research's impact.

TECHNICAL SKILLS

**Programming:** Python, Java, C++, JavaScript, Typescript, HTML, CSS  
**Database:** MySQL, PostgreSQL, MongoDB, Neo4J  
**Libraries/Framework/Tools:** FastAPI, Flask, Spring Boot, React.js, Mockito, Git, Salesforce, JIRA, PyTorch, Postman, Swagger, HashiCorp Vault  
**Cloud Technologies:** Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP), Docker, Kubernetes  
**Development Practices:** Agile, TDD, Design Patterns, OOP, SDLC, SOLID, Object-Oriented Design, Microservices, CI/CD, Code Reviews  
**Certifications:** AWS AI Practitioner, AWS Cloud Practitioner, CodePath – Intermediate Web Development

EDUCATION

**Masters in Computer Science – University of Colorado Boulder |** 4.0/4.0 **08/2023 - 05/2025**  
**Bachelors in Computer Science – CMR University |** 9.41/10.0 **09/2016 - 08/2020**  
**Awards:** Gold Medal, First Rank Award, CMR Jnanadhara Scholarship, CMR Merit-Based Scholarship, 2nd Place - CU Engineering Projects Expo  
**Volunteering Experience:** Voice of Stray Dogs, Make A Difference, INGLU Climate Warriors, Member of Graduate Student Advisory Committee on AI in Education and Research