RUTUJA KAWADE

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WORK EXPERIENCE

Software Development Engineer **June 2026- Present**
Kroger Technology & Digital (via IBM)

- Building **KOAP**, an AI-powered enterprise ops agent platform that automates data pipeline failure detection, root cause analysis, and incident routing across **Azure Data Factory, Databricks, and GitHub Actions**; integrated with **ServiceNow**, **Microsoft Teams**, and Kroger's internal LLM gateway (**KrAIG**) using **Python, CrewAI multi-agent orchestration, FastAPI, PostgreSQL, FAISS, React/TypeScript.**
- Developing Talent Compass, an enterprise workforce planning platform that uses **LLM-assisted** recommendations to analyze cost impact across 30,000+ employees. (**Django, ReactJS, CI/CD, Docker, Kubernetes**).
- Designing secure data pipelines for sensitive workforce data and multi-environment deployment requirements. (**Databricks, Spark, ETL**).

Software Engineer II **July 2022 – July 2025**
Rakuten Cloud (Robin.io)

- Worked on private cloud infrastructure and delivered Cloud Native Storage (**CNS**) to Google Marketplace, enabling deployment and optimized installer and operator code used across **40,000+** installations and provisioned **128** nodes to **256 nodes**.
- Developed **quorum-based replication** for **PostgreSQL**, migrating the database from a master-slave model to a leaderless architecture to improve fault tolerance and write availability.
- Built **multithreaded** services in **Python/C++** for storage management, async jobs and **REST APIs** used by **CLI** and **GUI**.
- Debugged production services running on Linux-based environments and performed root cause analysis for deployment issues.
- Designed & Developed **Volume and Snapshot** deletions including Cascade logical and physical deletions.(**C++**).
- Enhanced planner with **asyncio parallel execution** and **python GIL** optimizations, enabling **200% increase** in cluster capacity.
- Refined installer and operator script **(Go, Bash, Kubernetes, Docker),** supporting **1000+** clusters and **40,000+** deployments.
- Refactored schedulers to use event driven architecture for job creation, scheduling and adding **Kafka** ingestion pipeline.
- Built a chargeback system for resource utilization(**CPU and memory**) and helm charts for **object storage** products.
- Exposed platform metrics to **Prometheus/Grafana, audit logging** and optimized monitoring services, improving observability.
- Implemented ephemeral storage management by extending **Kubernetes LimitRange** and integrating **CRI** notifications.

Project Contributor **Oct 2021- Dec 2021**
Microsoft

- Built a scalable web platform, Kaksha as part of Microsoft's Engage program to support remote learning during pandemic.
- Implemented a **collaborative whiteboard** using **JavaScript and jQuery**, which synced in real-time across all students using **Django, React JS, HTML,CSS, SQLite,** and **CI/CD** pipelines, ensuring scalability of the web app.

Software Development Intern **June 2021 – Sep 2021**
Avaya Inc

- Developed **REST API** services Communication Manager, for Avaya Professional Services in **Spring Boot (Java)**.
- Automated report generation for Content Management Systems (**CMS**) and Open Database Connectivity (**ODBC**).

EDUCATION

Georgia Institute of Technology **Jan 2024 – May 2026**
Masters in Computer Science (Specialization: Computing Systems & Machine Learning), Graduate Teaching Assistant

Pune Institute of Computer Technology **Aug 2018 – May 2022**
Bachelor of Engineering in Computer Science

TECHNICAL SKILLS

- **Languages:** C++, C, Python, Golang
- **Systems & Infrastructure:** Linux internals, KVM/virtualization, storage systems, distributed systems, Kafka, gRPC
- **Cloud & Orchestration:** Kubernetes, Docker, Helm, Terraform, GCP, AWS
- **DevOps & Observability:** CI/CD, Prometheus, Grafana, Jenkins
- **Databases:** PostgreSQL, MySQL, Redis, MongoDB, Cassandra

PROJECTS

FileSync – Distributed File Synchronization System: Designed and built a low-latency distributed file synchronization system in C++ using gRPC. Implemented bidirectional streaming RPCs, incremental updates and anti-entropy repair for crash recovery.

Smart Tutor- Subject-Specific MoE LLM System: Built an agentic Q&A assistant using a Mixture-of-Experts architecture in big data systems, routing queries via a hard MoE router (98% accuracy) to one of three LoRA fine-tuned expert models with inference training. Integrated RAG pipelines with vector database retrieval for context-aware answer generation.

gRPC Key-value Store: Developed a high-performance microservice communication framework using gRPC and Protocol Buffers, demonstrating client-server architecture patterns and implemented bidirectional streaming for real-time data exchange.

RESEARCH PUBLICATIONS

Virtualization in Cloud: Shift from Hypervisor to Containerization by Rutuja.K, Ajay.K in ***International Journal of Current Science.***

Credit Card Fraud Detection Through Anomaly Detection by Rutuja.K, A.Jimoh: under ***The Emerging Tech Foundation.***