

SIDDHANT ABHIJIT RAJE

Software Engineer | Agentic AI Systems | Backend & Workflow Automation

San Jose, CA | (669) 325-7432 | siddhantraje11@gmail.com | LinkedIn | GitHub | Portfolio

Work Experience

San Jose State University

Nov 2025 – May 2026

Research Assistant

San Jose, CA

- Built a FastAPI document-processing backend with asynchronous conversion workers, PostgreSQL/pgvector metadata and MinIO object storage to convert unstructured enterprise documents into AI-readable Markdown.
- Designed a reliability-focused PDF extraction pipeline using typed OCR controls, output validation and repair loops, improving Qwen OCR benchmark performance from 52.3% to 72.8% on olmOCR-Bench.
- Developed tool-calling AI agents over processed PDFs and files using hybrid retrieval, citation grounding, and retrieval evaluation to answer document-specific questions with traceable source context.

Tata Consultancy Services Ltd.

June 2022 – July 2024

Software Engineer

Mumbai

- Owned backend modules for a Real-Time Income service on a public-sector platform, implementing Kafka producers/consumers and REST endpoints to process income and household-status updates.
- Optimized 20+ REST APIs by adding caching and reducing redundant downstream service calls, lowering p95 latency from ~750 ms to below 500 ms while supporting 200–500 RPS production traffic.
- Added OpenTelemetry tracing and correlation IDs across distributed service-to-service and Kafka workflows, enabling faster root-cause analysis of cross-service production failures and reducing MTTR by 10%.
- Added unit and integration tests for core backend workflows, validating critical business logic in CI/CD pipelines and reducing regression risk during production releases.

Resolute AI Software Pvt. Ltd.

July 2020 – July 2021

Machine Learning Engineer Intern

Remote

- Developed Python audio-processing pipelines leveraging LSTM and Transformer models to analyze sentiment in 1,000+ customer voice interactions per month.
- Integrated Kafka-based asynchronous processing into a TensorFlow object-detection pipeline, improving processing efficiency by 25% and reducing blocking work in the inference flow.

Projects

ProcureOps AI: Governed Supplier Order Digital Worker | *FastAPI, LangGraph, React, PostgreSQL*

GitHub

- Built a governed AI procurement digital worker to process X12 855 supplier confirmations through semantic interpretation, PO matching, risk assessment, approval routing, ERP updates, supplier notification, and audit tracing.
- Implemented bounded LangGraph workflows with LLM-assisted risk investigation, tool-use planning, execution traces, human-in-the-loop approval gates, idempotent ERP writes and retry handling.
- Validated workflow behavior across 17 scenario-based evaluations covering exact matches, risky supplier changes, malformed EDI, duplicate replay, unsupported qualifiers, currency changes and retry/failure recovery paths.

Agent Reliability Platform | *Python, FastAPI, SQLAlchemy, PostgreSQL*

GitHub

- Built a multi-tenant control plane for reliable AI workflow execution, supporting workflow versioning, run submission, tool-call logging, approval requests, trace spans and execution-state tracking.
- Designed SQLAlchemy models for workflow runs, tool invocations, approval states, trace spans and evaluation metadata, enabling auditability, failure analysis and reproducible agent debugging.
- Implemented scoped RBAC across organizations, projects, workflows, and runs to govern access to workflow authoring, execution traces, approval operations and reliability data.

Technical Skills

Programming Languages: Python, Java, C++, SQL, JavaScript, TypeScript

Agentic AI Systems: LangGraph, LangChain, Tool Calling, Approval Gates, Workflow Orchestration, Agent Evaluation, MCP

Backend Frameworks and Tools: FastAPI, Pydantic, Django, Flask, Node.js, pytest, REST APIs, Git, Linux

Retrieval and Data Systems: PostgreSQL, pgvector, FAISS, BM25, MongoDB, Redis, Cassandra, SQLite

Cloud and Observability: AWS, GCP, Docker, Kubernetes, Kafka, CI/CD, Jenkins, OpenTelemetry, Grafana

Education

San Jose State University, *M.S., Software Engineering*

May 2026

Don Bosco Institute of Technology, *B.E., Computer Engineering*

May 2022