

Jugal Gajjar

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SUMMARY

Software Engineer with an M.S. in Computer Science (GWU, GPA 3.88, May 2026) and production experience building scalable backend services, distributed systems, and full-stack platforms. Operates projectmmap.com: Python/FastAPI + Next.js 16/React 19, PostgreSQL + Redis + Qdrant, Docker, Kubernetes, Terraform, GitHub Actions CI/CD, Prometheus/Grafana observability. Strong in Python, Java, TypeScript, and C++17; pytest/vitest/Playwright/Catch2 testing discipline; AWS, GCP, cloud-native deployment. 6 peer-reviewed publications. STEM OPT starting June 22, 2026; work-authorized through mid-2029 without sponsorship.

SKILLS

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

Frontend: React 19, Next.js 16 (App Router), TailwindCSS, Zustand, TanStack Query, SSE Streaming, WebSockets, Vite, Angular

Backend & APIs: FastAPI, Flask, Node.js, NestJS, REST APIs, gRPC, SQLAlchemy 2 async, Alembic, Celery, arq, Redis, OpenAPI, Microservices, OOP Design Patterns, Nginx

Data & Storage: PostgreSQL, MySQL, MongoDB, Qdrant, Neo4j, OpenSearch, Redis, Pandas, NumPy, Kafka, SQLite

Infra & DevOps: Docker, Kubernetes, Terraform, AWS, GCP, Vercel, HF Spaces, Cloudflare R2, GitHub Actions CI/CD, CMake

Testing & Observability: pytest (unit + integration), vitest, Playwright (e2e), Catch2, Google Test, Selenium, TDD, Prometheus, Grafana, OpenTelemetry, Structured JSON Logging

EXPERIENCE

Graduate Assistant – Big Data & Analytics, The George Washington University

Sep 2025 – Dec 2025

- Designed Python and big data analytics assignments and built Python automation to evaluate 20+ student outputs against ground-truth datasets.
- Guided students through distributed systems and cloud data architecture concepts during office hours.

Teaching Assistant – Software Testing, Navrachana University

Jan 2024 – May 2024

- Developed TDD curriculum and automated testing tooling for 80+ students in Python and Java; conducted weekly code reviews with structured feedback on correctness, API testing, and coverage; maintained course infrastructure with clear documentation.

Freelance Software Developer, Shubhlaxmi Mfg. Co.

Jun 2023 – Jul 2023

- Gathered requirements from the client, designed a Python/MySQL application, and shipped it end-to-end with full ownership, delivering a 50% operational efficiency improvement through clean, tested, well-documented code.

NVIDIA Jetson AI Project Coordinator, Navrachana University

Mar 2022 – Jun 2022

- Coordinated NVIDIA Deep Learning Institute AI workshops for 20+ students on Jetson Nano hardware, mentored 5+ student projects from initial setup through production deployment, and built documentation for all sessions.

PROJECTS

Multimodal AI Intelligence Platform: Full-Stack Production System (Live Website)

projectmmap.com

- Built a production platform live at projectmmap.com with a Next.js 16/React 19 TypeScript frontend featuring real-time SSE streaming, a Python 3.12/FastAPI async backend running arq distributed workers, and a full data layer spanning PostgreSQL (SQLAlchemy 2 async, Alembic), Qdrant Cloud, Neo4j AuraDB, Upstash Redis, and Cloudflare R2.
- Security stack includes JWT, RBAC, bcrypt, rate limiting, CSP/HSTS, and prompt injection protection. LangGraph handles multi-agent RAG orchestration, GitHub Actions CI/CD runs nightly Playwright e2e tests, and Prometheus, Grafana, and OpenTelemetry provide full observability.

TaskForge: Distributed Job Processing & Observability Platform

github.com/JugalGajjar/TaskForge

- Built a horizontally-scalable distributed backend using Python/FastAPI with four priority queues, exponential-backoff retries, dead-letter routing, and idempotency keys. The data layer uses SQLAlchemy ORM, Alembic migrations, and PostgreSQL, with dual auth (JWT and API key), RBAC, and a Redis rate limiter.
- Shipped with a full pytest suite, versioned REST API with OpenAPI docs, Docker Compose, GitHub Actions CI/CD, Prometheus/Grafana/OpenTelemetry observability, and a React 18/TypeScript frontend with real-time WebSocket updates.

OrderBook++: High-Performance C++17 Order Matching Engine

github.com/JugalGajjar/OrderBookPlusPlus

- Built a high-performance C++17 order matching engine using priority queues and ordered maps with custom comparators for price-time priority matching, covering limit orders, market orders, partial fills, and cancellations.
- Optimized for sub-millisecond latency under concurrent load, with Catch2 unit tests, Google Test performance benchmarks, pybind11 Python bindings for cross-language integration, and a CMake build system.

EDUCATION

M.S. in Computer Science · The George Washington University · GPA: 3.88/4.0

May 2026

B.Tech. in Computer Science and Engineering · Navrachana University · CGPA: 9.39/10

May 2024

AWARDS & PUBLICATIONS

6 peer-reviewed publications on LLM agents, RAG, trustworthy AI, and software security · ACL 2026 · CVPR 2026 · IEEE BigData 2025 · GW SEAS Dean's Award Scholarship · Sustainability Award, Complex Networks 2025 · NVIDIA-Certified Associate: Generative AI LLMs · Architecting with Google Compute Engine (Coursera) · AWS Academy Graduate: Cloud Foundations