Sarthak Agrawal

BACKEND SOFTWARE ENGINEER

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SUMMARY

Backend engineer with 4+ years building production services, real-time data pipelines, and durable workflows in Go, Node.js/TypeScript, and Python. Own a Go financial-planning backend validated against 96 years of market history, built a Kafka stock-data pipeline that scaled from 15K to 200K DAU, and cut workflow failures by 90% with Temporal.

EXPERIENCE

Vault Wealth (Peak XV-backed) | Software Engineer — Feb 2025 - Present

- Built and own the Go financial-planning backend for the UAE and Saudi markets, from its API and scheduled jobs to the projection, recommendation, and data-import engines below.
- Built the retirement and goal projection engine, validated against 68 rolling 30-year S&P 500 periods (1928–2024) to within 2% of an independently written simulation; merged three diverging engine versions into one.
- Built a recommendations engine that precomputes every option's what-if result, so the numbers always match what the client sees on click: 0 mismatches across 1,416 options on real accounts, at 18 ms per account. It replaced a 20-type system in which only 7 types ever fired.
- Built a pre-merge safety net that replays every planning-engine change against a copy of all client profiles and diffs it with production, plus a 50,000-case randomized test that money is never created or lost; together they caught bugs unit tests missed, including a seven-figure double count of retirement savings.
- Integrated Lean open banking for the UAE and Saudi Arabia with signed webhooks and Temporal sync jobs, and built an in-house transaction-categorization pipeline for accurate spending analysis.
- Migrated critical workflows to Temporal, eliminating 90% of unexpected failures and freeing about 3 engineering hours per day.
- Cut the release end-to-end test gate from about 80 minutes (it timed out on every release) to about 7, with 315 tests passing after fixing 48 already failing on main; made the local suite 12.8× faster (30 to 2.5 minutes) and freed about 363 CI minutes a day.

Front.Page (YC S'21) | Software Engineer — Jan 2022 - Jan 2025

- Built a real-time stock-data pipeline with Go, Kafka, and Protocol Buffers, supporting product growth from 15K to 200K DAU in 14 weeks.
- Built RAG assistants on OpenAI APIs for support, learning, and general help; the moderation bot reduced human intervention in support queries by 90%.
- Built a personalized-feed pipeline using BERT embeddings, Milvus, GPT calls, and real-time BigQuery events for richer user vectors, increasing home-feed engagement by 40%.
- Added queue-based batching and granular session controls, reducing session-refresh database calls by 92%.
- Designed real-time stock-tick delivery over Socket.IO with room-based, in-memory, and Redis-backed subscription modes, connected to web clients through window events.
- Integrated Razorpay payments in Node.js, opening a new revenue stream and contributing to a 50% increase in overall revenue.

SELECTED PROJECTS

PostTrainLLM | Mac-first LLM factory, runtime, and evaluation platform — github.com/PostTrainLLM/posttrainllm

- Implemented a KV-cached multi-turn agent runtime over OpenAI tool schemas with bounded steps, per-tool timeouts, output limits, and JSONL audit transcripts.

CodeVetter | Local-first verification layer for agent-generated code — github.com/Codevetter/codevetter

- Built a read-only Rust MCP server with scoped graph/history tools, versioned resources, concurrency limits, secret filtering, bounded responses, and audit history; ~2.2 ms p50 steady queries on a 10K-event fixture.

TECHNICAL SKILLS

Languages: Go, Python, TypeScript/JavaScript, Rust, C/C++

Backend & Data: REST APIs, microservices, Kafka, Protocol Buffers, Temporal, MySQL, PostgreSQL, SQLite, Redis, Elasticsearch, ClickHouse, BigQuery, Milvus

AI: RAG, embeddings, OpenAI APIs, MCP

Infrastructure: Linux, Docker, Kubernetes, AWS, GCP, Cloudflare Workers, Prometheus, GitHub Actions

EDUCATION

Manipal Institute of Technology | B.Tech, Computer Science and Engineering — Aug 2018 - Jul 2022