SAMIR KATTEL

BACKEND ENGINEER, TRADING SYSTEMS

MARKET DATA | EXCHANGE CONNECTIVITY | MARKET-MAKING INFRASTRUCTURE

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PROFESSIONAL SUMMARY

Backend engineer, 3+ years professional experience with 2+ years building quantitative trading infrastructure in Python, TypeScript, and Go: exchange connectivity, async market-making engines quoting 30+ pairs across 13 venues, and the Kubernetes control plane running 50+ live bots. Side projects span FPGA market-data hardware in SystemVerilog and full-stack platforms in Django and Next.js.

- Quoting live on 30+ pairs across 13 venues at 1,000 quote updates per second.
- Cut new-venue onboarding 3x (3 days to 1) and bot rollout 30x (15-30 minutes to 30 seconds).
- Zero position drift across 100+ restarts; 50+ trading bots live in cluster.
- Eliminated roughly 10 manual spread re-tunes per week by making quoting self-adjusting.

TECHNICAL SKILLS

Languages: Python, TypeScript, Go, SQL, SystemVerilog

Backend: asyncio, FastAPI, Django, Node.js, NestJS, Next.js, React, Celery, RabbitMQ, NATS, Redis, WebSockets, protobuf, hexagonal architecture

Data: PostgreSQL, TimescaleDB, PostGIS, H3 geospatial indexing, full-text search, MongoDB

Infrastructure: Kubernetes, Docker, Terraform, DigitalOcean, AWS, Linux, nginx, CI/CD

Domain: Market making, GLFT and Avellaneda-Stoikov quoting, inventory risk, exchange connectivity, order lifecycle and reconciliation

EXPERIENCE

Backend Engineer - QubitGlobal (Quantitative Trading and Analytics) *Oct 2024 - Present*

Dubai, UAE (remote) | Python, Go, TypeScript, FastAPI, Kubernetes, NATS, Redis, Terraform

- Replaced fixed-spread quoting with an async GLFT/Avellaneda-Stoikov grid market maker, live on 30+ pairs across 10+ venues.
- Made spreads adaptive by estimating volatility, order-flow intensity, and book depth online at 1,000 quote updates per second, eliminating roughly 10 manual re-tunes per week.
- Cut new-venue onboarding from 3 days to 1 by rebuilding the FastAPI gateway on hexagonal architecture, normalizing Bybit, MEXC, and BitMart REST, WebSocket, and protobuf feeds behind one API.
- Multiplexed many client API-key sets through one process, publishing market data over RabbitMQ behind a per-exchange circuit breaker and async rate limiting.
- Held exactly-once position accounting across 100+ restarts with zero drift using Redis-backed state, TimescaleDB persistence, and fail-stop reconciliation against exchange truth.
- Built a Go control plane for the bot fleet: Kubernetes/Docker deployment, a reconciler loop, RBAC, and a NATS control bus to bots.
- Cut bot rollout from 15-30 minutes to 30 seconds with a per-bot Go sidecar supervisor and the Kubernetes control plane; 50+ bots live.
- Provisioned reproducible environments with Terraform on DigitalOcean, including a static egress IP for exchange API allowlisting, deployed via GitHub Actions CI/CD.

Backend Developer - TokenPilot (Digital Asset Liquidity and Market Making) *Jan 2024 - Sep 2024*

Singapore (remote) | Python, asyncio, REST, WebSockets, PostgreSQL

- Integrated order management, market data, and reconciliation across 10+ exchanges (Binance, Bybit, MEXC, Gate.io, KuCoin, XT) at 100,000 orders per day, handling rate limits, request signing, and depth parsing.
- Handled live-flow failure modes: stale price detection, partial fill reconciliation, duplicate-request guards, and local-versus-venue state drift.
- Built scheduled Python profit-and-loss, exposure, and fill-rate reporting for 20 client accounts, plus a Telegram bot for position alerts.

Backend Intern - LancemeUp *Jun 2023 - Nov 2023*

Kathmandu | NestJS, PostgreSQL, TypeORM, Docker

- Built REST and GraphQL APIs with NestJS, PostgreSQL, and TypeORM plus a WebSocket layer for live updates, deployed with Docker, nginx, and PM2.

PROJECTS

GharBhada, Nationwide Rental Platform | *Django, Next.js, PostgreSQL, PostGIS, Celery, Redis*

ghar-bhada.com

- Built a 19-source scraping pipeline behind a plugin registry, normalizing listings from 3,000+ properties into one schema with URL/image dedup.
- Designed a worker-claimed review pipeline (pending to accepted/rejected) with crash recovery, plus LLM enrichment for classification, tagging, and text extraction.
- Built geospatial search on H3 hex indexing (resolutions 7-9) with PostGIS map clustering, weighted PostgreSQL full-text search, and a self-hosted geocoding fallback chain.
- Implemented a saved-search alert engine with multi-channel delivery (push, Telegram, Discord) and idempotent, deduplicated notifications.
- Shipped the landlord self-serve product surface: listing management, owner dashboard, direct-to-R2 uploads, and lifecycle email campaigns.
- Hardened the platform with Firebase/JWT auth, Turnstile bot gating, upload content-type validation, and per-endpoint rate limiting.
- Ran scheduled scraping, cleanup, and backup jobs on Celery beat, with automated Postgres backups to Cloudflare R2.

ITCH FPGA, NASDAQ ITCH 5.0 Hardware Decoder and Order Book | *SystemVerilog, Python*

github.com/probablysamir/itch-fpga

- Built a byte-serial SystemVerilog decoder and order book for NASDAQ TotalView-ITCH 5.0, covering 9 message types and 98% of session traffic.
- Designed a framer with dual length-source cross-checking and a direct-mapped order book with collision detection and price-ladder occupancy tracking.
- Verified against Python reference models on real NASDAQ session captures: 264M+ messages byte-identical, 0 frame errors, 0 length mismatches.

Chunk Store, Distributed Backup Utility | *Go*

github.com/probablysamir/chunk-store

- Go CLI splitting large files into AES-256-GCM encrypted, SHA-256-verified chunks distributed across multiple cloud providers, with round-robin allocation and manifest-based reassembly.

EDUCATION AND CERTIFICATIONS

BSc Computer Science and Information Technology, Madan Bhandari Memorial College, Kathmandu, 2026

AWS Certified Solutions Architect - Associate, Amazon Web Services, 2026