

Chetan Kumar Tyagi

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PROFESSIONAL SUMMARY

Backend Engineer with 5+ years building high-reliability financial data systems, execution pipelines, and AI-powered tooling. Specializes in Python-based data engineering, broker API integration, and multi-agent LLM systems. Combines deep trading infrastructure experience with practical AI engineering — building agentic workflows, CLI harnesses, and LLM-integrated backends. Proven track record delivering deterministic, auditable systems on AWS for both backtest and live environments.

TECHNICAL SKILLS

Languages: Python (expert), Rust (performance modules), SQL, Bash

AI & LLM: Multi-agent orchestration, prompt engineering, LLM harnesses, Vertex AI (Gemini), Claude API, OpenAI API, Ollama, MCP, subagent pipelines

Data Engineering: ETL/ELT pipelines, Airflow, Pandas, Polars, NumPy, Parquet, data validation, deduplication, tick/OHLC data

Backend: FastAPI, Django, Flask, WebSockets, Socket.IO, AsyncIO, REST APIs, AMQP, MQTT (RabbitMQ, Mosquitto)

Databases: MySQL, PostgreSQL, MongoDB, CrateDB, Redis, SQLite

Infrastructure: AWS (EC2, EKS, S3, Lambda, RDS, CloudWatch, SNS, SQS), Docker, Git, CI/CD, Ubuntu

Trading Systems: Broker API integration, Order routers, Execution modules, backtest/live parity, event-driven systems

PROFESSIONAL EXPERIENCE

Software Development Engineer | *QuantInsti Quantitative Learning Pvt Ltd* | Mumbai, Maharashtra, Jul 2024 – Present

- **Data ingestion pipelines** Built and maintained
- Built production-grade data ingestion pipelines for OHLC, tick, and fundamental data across equities, futures, options, and indices — spanning 1-minute to quarterly frequencies on the Blueshift platform.
- Designed ETL/ELT systems parsing data from APIs and flat files, applying transformation, validation, and deduplication — improving dataset reliability and reducing manual correction cycles.
- Implemented sanity-check modules ensuring data integrity across live trading datasets; caught upstream API inconsistencies before they propagated to strategy execution.
- Optimized the options data ingestion pipeline, reducing end-to-end ingestion time from ~90 minutes to 25–30 minutes — a 65%+ improvement — through core library refactoring and parallelization.
- Orchestrated data workflows via Airflow, cronjobs, and internal schedulers ensuring fault-tolerant, timely updates across environments.
- Built and maintained broker integration libraries standardizing APIs between brokers and Blueshift, bridging execution and research layers.
- Implemented SABR and Black-Scholes options pricing models, extending the platform's quantitative analytics capability for derivatives data.
- Refactored core ingestion library improving reliability, maintainability, and execution speed across multiple data pipelines.
- Deployed and monitored production systems on AWS (EC2, EKS, S3, CloudWatch) under Ubuntu — maintained uptime and reduced manual intervention.

Senior Software Engineer | *Neam Caps Pvt Ltd (sharpely / finpeg)* | Thane, Maharashtra, Oct 2023 – Jun 2024

- Optimized database queries and refactored legacy systems, achieving 80% faster query results and 50% reduction in resource usage.
- Conducted large-scale backtesting for equity trading strategies using QuantConnect Lean (Python) on local infrastructure; collaborated with market researchers to surface actionable signals.
- Extended live trading engine to support full execution beyond paper trading, including custom margin models for capital efficiency.
- Built data scraping, cleaning, and ingestion pipelines integrated into databases for seamless strategy access.
- Automated ETL processes using Python and shell scripts with cronjob scheduling on EC2.

Software Engineer | *WealthWisers Technologies Pvt Ltd* | Noida, Uttarpradesh, Apr 2021 – Oct 2023

- Engineered TradeTez — a multi-broker, multi-account trading backend supporting NSE and NYSE markets across brokers (IIFL, SMC, Zerodha, 5Paisa).
- Built end-to-end trading bots covering backtesting, optimization, and live execution using broker APIs; system handled concurrent multi-account order routing reliably.
- Designed real-time data pipelines and REST APIs with Django/Flask for market data ingestion and routing.
- Developed a publish-subscribe system using WebSockets and Socket.IO for live trade distribution across clients.
- Led ETL development for clients' contract note ingestion using AWS Lambda, RDS, EC2, and Flask APIs.

HIGHLIGHTED PROJECTS

Multi-Agent Trading Research System (Personal)2024 – Present

- Built a multi-agent orchestration system using Google Vertex AI (Gemini) and Claude as intelligent orchestrator, with DAG-based task routing and fallback model chains — applied to trading strategy research and signal analysis.
- Designed CLI harnesses supporting Claude, Gemini, OpenAI, and local models via Ollama; built cost-aware model routing with subagent pipelines for parallel workloads.

Automated Scalper (Personal)2022 – 2024

- Fully automated trading engine with three modules — Data Adapter, Position Manager, Executioner — using Kotak Neo APIs and AMQP-based messaging for distributed real-time execution.
- Implemented logic-based portfolio manager handling individual and paired trade management across positions.

TradeTez Backend (WealthWisers)2021 – 2023

- Multi-broker unified execution backend across NSE/NYSE; asynchronous APIs with high-speed data routing and webhook-triggered order execution backed by Redis state management.

EDUCATION & CERTIFICATIONS

Bachelor of Computer Applications — CCSU, Meerut, UP (2021)

- Deep Learning Specialisation — deeplearning.ai / Coursera
- SQL for Data Science — University of California, Davis / Coursera
- HackerRank 5-Star ratings — Python & SQL
- Cloud Computing (Azure) & Big Data Hadoop with Python — CETPA Infotech