

PARTH PAREKH

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EXPERIENCE

Quantitative Developer

Jul 2024 – Present

Endovia Wealth, Mumbai, India

- Architected and deployed a **greenfield algorithmic trading platform** from scratch, building the complete stack from market-data ingestion and signal computation to backtesting and automated execution across **NSE, BSE, NFO, BFO, and MCX**.
- Built a **production multi-client OMS** serving **20–30 clients** across 5 broker APIs (Zerodha Kite, Motilal XTS, IBKR, Nuvama, JLite) with automated login, real-time position tracking, and order routing achieving **10–20ms latency on co-location** and 80–500ms over the internet.
- Designed **high-throughput market-data infrastructure** tracking **~40,000 instruments daily**, ingesting **15K–20K ticks/second** from **NSE co-location feeds** with Kite WebSocket fallback, distributing via **Redis** and storing **300–600M ticks/day** in **ClickHouse**.
- Built a **real-time option chain construction engine** with live Greeks computation across strikes and expiries, enabling systematic strategy evaluation and supporting multi-broker derivatives workflows.
- Contributed to development and deployment of **8 production strategies** — participating in ideation, backtesting, paper trading, and live execution for **multi-symbol overnight stock options** and **intraday index options**.
- Engineered **multi-leg options backtesting engine** supporting spreads, straddles, and butterflies with transaction-cost modeling, slippage simulation, and walk-forward evaluation on historical ClickHouse datasets.
- Designed **execution-monitoring and post-trade forensics tooling** analyzing Level-2 (Top-5) order-book snapshots for liquidity state, execution quality, and order-book replay across equities and derivatives.
- Served as **front-line risk manager** during live market hours — performed real-time troubleshooting of abnormal market events, margin calls, position breaches, and broker-side failures to **ensure zero disruption to live trading** across all client accounts.
- Designed the **distributed data and execution architecture**: ClickHouse for minute-level spot/futures/options data and tick storage with replica failover; **MongoDB for real-time order audit**, live tradesheets, and asset-by-strategy tracking; NSE/BSE scraping for corporate actions and lot size history; **RSS feeds for desk intelligence** — with failure recovery and service isolation across systems.
- Built a **unified broker abstraction layer** over 5 heterogeneous broker APIs (REST + WebSocket), normalizing order placement, position queries, and market-data streams into a single interface — enabling strategy code to run broker-agnostic across co-location and internet execution paths.
- Developed **paper trading and simulation infrastructure** mirroring the production OMS and execution pipeline, allowing new strategies to be validated end-to-end with realistic order-book simulation before going live on client capital.

Quant Developer Intern

Jun 2023 – Aug 2023

Anived Portfolio Managers Pvt. Ltd., Mumbai, India

- Managed and analyzed daily trade data from CSV files, applying data transformation and preprocessing techniques to facilitate timely and accurate trade execution across equity portfolios.
- Developed an **automated trade execution system** using the IBKR Python API to place buy/sell trades based on algorithmic output, reducing trade execution time by **40%** and improving efficiency by **25%**.
- Implemented **logging and scheduling systems** ensuring fully automated operation with accountability tracking and error recovery.

PROJECTS

Market Observatory | Python, ClickHouse, Kite Connect | [GitHub](#)

- Implemented an **execution observability platform** separating market-data capture/normalization, analytics computation, and delivery/UI, enabling desk-style monitoring of liquidity state, execution risk, and post-trade forensics.
- Architected for **replay vs live parity** so research replays and production runs share identical pipelines, improving debugging, incident replay, and metric reproducibility. Built on **ClickHouse-backed storage** with modular services for high-throughput order-book snapshots and fast retrospective queries.

DeskMetrics | Python, FastAPI, Streamlit, WebSockets, ClickHouse | [GitHub](#)

- Implemented a **metrics platform** separating data ingestion/normalization, metric computation, and delivery (FastAPI services + UI), mirroring real desk architectures where execution, risk, and analytics are independent but integrated.
- Added **production-grade release hygiene** (DB migrations, service health checks, deterministic dev environment) to support safe iteration on metric logic and rapid onboarding of new team members.

Deep ITM Regime Hedge | Python, ClickHouse, Pandas, Pytest | [GitHub](#)

- Built an **event-driven strategy platform** with clear separation between market data pipeline (ClickHouse), regime/signal generation, execution/backtest engine, risk controls, and performance analytics — matching institutional quant platform boundaries.
- Implemented a **CLI-driven orchestration layer** (`run.py`) for repeatable backtests/validation and standardized report outputs (metrics + regime attribution), supporting research-to-production workflows.
- Added **operability primitives**: centralized logging, configurable risk limits/position sizing, trade/signal audit logs with export hooks — improving debuggability, monitoring, and recovery during iterative development.

EDUCATION

Dwarkadas Jivanlal Sanghvi College of Engineering

2021 – 2024

B.Tech in Computer Engineering | CGPA: 9.58, Mumbai, India

- **Coursework**: Mathematical Statistics, Machine Learning, Algorithms Analysis, Database Management, Computer Networks, Operating Systems, Business Analytics, Data Structures

TECHNICAL SKILLS

Languages: Python, SQL **Exchanges**: NSE, BSE, NFO, BFO, MCX **Brokers**: Zerodha (Kite), Motilal XTS, IBKR, Nuvama, JLite

Trading Systems: OMS/EMS, Co-location Feeds, Market-Data Pipelines, Execution Engines, Backtesting Frameworks, Post-Trade Analytics

Infrastructure: ClickHouse, MongoDB, Redis, ZeroMQ, FastAPI, Django, Docker, Git, Linux

Protocols & Integration: REST APIs, WebSockets, Pub/Sub (ZeroMQ), RSS Feeds, Broker APIs, Web Scraping, Binary Protocols

Quantitative: NumPy, Pandas, Scikit-Learn, Options Pricing, Greeks Computation, Statistical Modeling, Market Microstructure