Smit Shah

Volatility Trader | Derivatives Strategist | Quantitative Researcher
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Professional Summary

Volatility-focused derivatives trader with 5+ years on an Indian proprietary desk, running systematic and discretionary books across NSE index and single-stock options. Proven track record of generating risk-adjusted alpha through disciplined Greeks management, implied-vs-realized analysis, and model-driven relative value. Research-led, Python/C fluent, and deeply read in Black-Scholes, local volatility, and stochastic volatility frameworks with a bias for clean execution, tight drawdown control, and market-neutral return generation.

Education and Courses

Year	Degree / Programme	Institution	Score / Focus
2025	BBA in Banking and Finance	Jain University	8.7
2025	B.Tech in Computer Science Engineering, Cybersecurity	Jain University	7.2

Work Experience

Volatility Trader, Proprietary Trading Desk
Arham Shares Pvt. Ltd. ***Nov 2023 – Present***

- Designed and managed volatility-focused equity strategies across NSE-listed options, index derivatives (NIFTY, BANKNIFTY, FINNIFTY), and single-stock options, spanning long/short volatility, dispersion, relative value, and tail-risk hedging; delivered **CAGR of 8%** (net of tax and interest) with **Sharpe 1.3**, **Sortino 1.8**, and **Max Drawdown of 5%**.
- Constructed multi-leg option portfolios (straddles, strangles, butterflies, ratio spreads, calendars, iron condors) guided by implied-vs-realized volatility, skew, and term-structure dynamics; sustained **Win Rate of 58%**, **Risk-Reward of 1:1.5**, and **Profit Factor of 1.6** with positive per-trade expectancy.
- Generated **Alpha of 4%** over Nifty 50 with portfolio **Beta of 0.2** and annualized **volatility of 6%**, evidencing market-neutral, vol-driven return generation across bull, range-bound, and correction regimes.
- Scaled personal book from sub-lakh notional to **mid-seven-figure notional exposure**, with capital allocation increases granted twice based on consistent risk-adjusted performance and adherence to desk risk limits.
- Developed volatility forecasting and skew-analysis models on historical surfaces, macro indicators, and event-driven catalysts (quarterly earnings, RBI MPC, Union Budget, US Fed); applied Black-Scholes, local volatility (Dupire), and Heston stochastic volatility for fair-value assessment and relative-value screening.
- Managed Greeks (delta, gamma, vega, theta, rho) via dynamic delta hedging and vega-neutral overlays; integrated systematic and ML-assisted signals through OMS/EMS platforms and exchange APIs in full compliance with SEBI regulations and NSE rulebook updates.
- Mentored 2 junior analysts on options research workflows, backtesting discipline, and execution hygiene; contributed to weekly desk-level strategy reviews and post-trade forensics on outlier sessions.

Event-Driven Track Record

- **2024 Lok Sabha Elections**: Structured pre-event long-volatility straddles on NIFTY and BANKNIFTY with calibrated vega budgets; captured **∼35% return on premium deployed** over the result-day gap-down and subsequent mean-reversion rally.
- **RBI MPC Cycles (2023–2025)**: Skew-based relative-value trades around policy announcements; delivered positive P&L in **7 of 9 MPC meetings** through pre-event IV ramp capture and post-event theta monetisation.
- **March 2023 Global Banking Stress**: Deployed tail-risk overlay via OTM index puts and long gamma; preserved capital through the drawdown window with **under 1.5% peak-to-trough** book impact.
- **2024 Yen Carry Unwind (Aug)**: Pre-positioned short-dated long vega ahead of cross-asset vol spillover; realised **∼2.1x** premium multiple within the three-session dislocation.

Skills

Volatility & Options Strategies: Long/short volatility, dispersion, relative value, tail-risk hedging, volatility arbitrage, gamma scalping; calendar, diagonal, ratio, and back spreads; implied vs. realized volatility, skew and term-structure trading, volatility carry, event-driven strategies.

Pricing & Volatility Models: Black–Scholes–Merton, Binomial/Trinomial trees, Dupire Local Volatility, Heston and SABR stochastic volatility, Variance Gamma, Jump-Diffusion (Merton, Bates); GARCH/EGARCH/HAR-RV forecasting; Monte Carlo simulation, finite-difference PDE solvers, volatility surface calibration (SVI, SSVI).

Programming & Research: Python (NumPy, pandas, SciPy, scikit-learn, statsmodels, PyTorch, QuantLib), C++, C, R, Pine Script, SQL; alpha research, systematic and discretionary strategy design, vectorized backtesting, walk-forward validation, machine learning and statistical modeling.

Execution & Platforms: OMS/EMS and exchange APIs via ODIN PRO, Greeksoft, XTS Algo, Symphony Presto, MetaTrader; market data via Kite Connect, Refinitiv, TrueData; analytics via TradingView, OpenBB, Bloomberg Terminal (basics).

Mathematics & Statistics: Probability, stochastic calculus (Itô, Girsanov), linear algebra, time-series analysis, convex optimization, Bayesian inference; applications in volatility modeling, portfolio construction, and risk management.

Risk & Regulation: SEBI regulations, NSE/BSE derivatives framework, SPAN and peak margining, stress testing, VaR/CVaR, scenario analysis, operational risk controls.

Infrastructure: MongoDB, PostgreSQL, SQLite, Redis; Git, GitHub, Docker, Kubernetes (basic); AWS, GCP, Linux.

Professional: Analytical thinking, execution discipline, decision-making under uncertainty, collaboration, mentorship.

Projects

Smart Order Execution Logic (Pseudo-OMS/EMS)
Algorithmic Cloud-Based Execution *(Live)*

- Deployed a Python-based, AWS-hosted execution engine ingesting TradingView webhook signals and routing validated orders to MetaTrader 5; implemented volatility-aware order selection (market vs. limit) based on real-time spread and short-term price dynamics.
- Designed execution risk controls including price tolerance bands, slippage constraints, partial-fill handling, cancel/replace logic, and capped retries; reduced average slippage by **∼22%** vs. baseline and improved execution reliability in low-liquidity regimes.

Options Pricing & Volatility Surface Framework
Python Quantitative Library *Research Project*

- Built a library implementing Black-Scholes, Binomial/Trinomial trees, Dupire local volatility, and Heston/SABR stochastic volatility models for pricing, calibration, and full Greeks computation on NSE index and single-stock options.
- Calibrated implied volatility surfaces (SVI parameterisation) and conducted skew and term-structure analysis to identify rich/cheap strikes and tenors, feeding a relative-value screener for systematic option selection; surface-fit RMSE held below **0.3 vol points** on liquid tenors.

Volatility Regime Classification & Forecasting Model
Systematic Volatility Research using Python *Research Project*

- Developed a rule-based and ML-assisted regime model combining realized volatility, GARCH-family forecasts, HAR-RV features, and rolling time-series signals to classify NIFTY and BANKNIFTY into low-, medium-, and high-volatility states.
- Backtested regime-conditional option overlays across 2015–2024 with **CAGR 12%**, **Sharpe 1.6**, **Sortino 2.0**, **Max Drawdown 7%**, and **Hit Ratio 61%**, validated out-of-sample with walk-forward cross-validation and no curve fitting.

Dispersion & Tail-Risk Hedging Strategy
Index vs Single-Stock Volatility Research *Research Project*

- Designed a dispersion strategy trading index volatility against a basket of constituent single-stock volatilities, using implied correlation and vega-weighted sizing to capture relative-value mispricings.
- Overlaid a tail-risk sleeve via OTM index puts and VIX-style proxies,tested across 2008, 2020 COVID, event-driven shocks, achieving **Alpha of 5%** vs Nifty 50, **Profit Factor 1.7**, and **Risk-Reward 1:1.6** at controlled carry cost.

Statistical Arbitrage Basket (Nifty 50 Pairs)
Cointegration & Mean-Reversion Research *Research Project*

- Screened Nifty 50 pairs via Engle-Granger and Johansen cointegration tests; constructed a rolling 8-pair market-neutral basket with Ornstein-Uhlenbeck entry/exit bands. Out-of-sample backtest delivered **Sharpe 1.4**, **Max Drawdown 4%**, and low correlation ($|\rho| < 0.2$) to the volatility book – designed as a diversifying overlay within a PM portfolio.

Research & Thought Leadership

- **Author**, www.thesmitshah.com – weekly research notes on NIFTY/BANKNIFTY volatility regime, skew dynamics, and event-vol positioning; archive of 40+ published posts.
- **Research note**: "Implied Correlation as a Dispersion Signal in Indian Equity Options" – empirical study of NIFTY vs constituent vol relationships across 2019–2024.
- **Research note**: "Regime-Aware Vega Budgeting for Retail-Scale Option Books" framework for adaptive vega sizing conditional on realised-volatility regimes.
- **Guest contributor**: internal market-outlook write-ups for desk partners; quarterly pre-budget and pre-election volatility previews.

- CFA Level I Candidate (Upcoming)
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- NISM Series I: Currency Derivatives
- NISM Series VIII: Equity Derivatives
- NCFM Algorithmic Trading
- NISM Series XV: Research Analyst (In Progress)
- Red Hat Certified System Administrator (RHCSA)
- Microsoft Azure Administrator Associate
- Microsoft Certified Trainer (MCT)

Achievements & Leadership

- **President**, 200+ member Trading Community (Fundamental & Derivatives Analysis), Forex Academy – curriculum design, weekly options research sessions, and peer-mentorship programme.
- **Head Volunteer**, CyberCrime Cell (CID) – led digital-forensics awareness drives and incident-reporting workflows for public outreach.
- **Speaker / Panelist** at college finance symposia on "Indian Volatility Markets" and "Systematic Options Trading for Retail & Prop Desks".
- **Top-decile** performer in multiple inter-college trading simulations and derivatives case competitions.
- Competitive Rifle Shooting – state-level participant; translates to the focus, routine, and pre-shot discipline that underwrite trading execution.