COREY PRITCHARD

Junior Quantitative Trader | First Class MMath, University of Southampton
London | British citizen | corey.pritchard2003@gmail.com
linkedin.com/in/coreyjpritchard | github.com/coreyjpritchard | coreypritchard.com

PROFILE

Front-office junior quant trader at Exinity: pricing, skew and PnL risk, with independent research in options and volatility. First Class MMath, Southampton; won the AmplifyMe statistical arbitrage challenge with Morgan Stanley.

EXPERIENCE

Exinity | Junior Quantitative Trader, front office | Retail FX, CFD and crypto broker — Oct 2025 – Present

- **PnL impact analysis:** answer the desk's "what happens to PnL if…" questions on changes to pricing, skew, hedging or LP setup, using tick, order-flow and execution data (Python, SQL). Set skew manually in the desk's Excel pricing sheet.
- Built and maintain the desk's ranking of spread performance across 25–30 LPs, used to route flow and choose providers.
- Made the case for AI at a firm resistant to it and secured Claude access through my manager; now widely adopted across the desk and wider teams. Building a Power BI project that masks sensitive data so it is safe to connect to AI tools. Proposed an MCP server to give AI tools governed access to internal data.

Clearing | Product Development Intern — Summer 2024

- Identified inefficiencies in the business's manual processes in the first week and moved from product development into automation, building Python browser and Excel automation (Selenium, BeautifulSoup) for non-technical teams and saving 10+ hours a week.

EDUCATION

University of Southampton | MMath (MMORSE) Operational Research, Statistics and Economics — Sep 2021 – Jun 2025

- **First Class Honours.** Dean's List Award for Outstanding Achievement, received 5 times.
- **First place,** AmplifyMe Quantitative Statistical Arbitrage Challenge with Morgan Stanley (Oct 2025).
- Year 4 dissertation (Jun 2025): volatility models in Monte Carlo pricing of S&P 500 options (SPY data), benchmarking GBM, GARCH(1,1) and regime-switching GARCH, with deep learning (CNN-LSTM) explored. Year 3: portfolio optimisation via linear and quadratic programming.
- Modules: Probability and Stochastic Processes, Linear Algebra, Optimisation, Machine Learning, Quantitative Finance.

Bristol Grammar School | A-levels: Mathematics A*, Further Maths (AS) A, Economics A, Physics A — Sep 2019 – Jun 2021

PROJECTS

Rough Volatility | Python — github.com/coreyjpritchard/rough-volatility

- Estimated the Hurst exponent of S&P 500 realised volatility at H = 0.148 (Monte Carlo SE 0.010; Gatheral-Jaisson-Rosenbaum on Oxford-Man 5-minute realised variance, 2000-2022), against 0.5 for Brownian volatility; the SPX implied-skew route gives 0.167. Built rough Bergomi (hybrid scheme): simulated ATM skew slope -0.41 against the theoretical -0.40.

Deep Hedging | Python, PyTorch — github.com/coreyjpritchard/deep-hedging

- Neural hedge (Buehler et al. 2019) of a short 30-day ATM call in a Black-Scholes market with a 50 bp proportional cost: on 20,000 fresh paths, mean P&L -0.83 against -1.37 for delta hedging (premium 2.29), and entropic risk 1.05 against 1.54; the network learns a soft no-trade band around delta.

Volatility Surface and Pricing Library | Python — github.com/coreyjpritchard/volsurface

- Options library with Black-Scholes Greeks (five engines), Heston (COS), SABR, Dupire, SVI, arbitrage-free SANOS and a rough Bergomi plug-in, fitted to an SPX chain. SPX at-the-money skew follows 0.305 T^-0.333 from 10 hours to one year, while Heston follows it only with its vol-of-vol on the bound, and then gives a 10-hour ATM vol of 5.6% against the market's 15.1%. The SANOS surface has 0 static-arbitrage violations, against 2,246 for raw SVI.

Zero-Intelligence Limit Order Book Simulator | Python

- Smith et al. (2003) zero-intelligence continuous double auction calibrated to Binance BTC/USDT and ETH/USDT Level 2 order flow. After burn-in the simulated spread is about 1 tick, close to the real one, and average depth matches; inside quotes are much thinner than real.

SKILLS

Programming: Python (NumPy, SciPy, pandas, scikit-learn, statsmodels, Matplotlib), SQL, C++ (object-oriented), Excel, Power BI, shell scripting; Linux, Git, Jupyter, QuantConnect, Interactive Brokers, Claude, MCP and agentic coding tools

Quantitative: probability, stochastic processes, statistics, time-series analysis, Monte Carlo simulation, optimisation (linear and quadratic programming), machine learning

Markets: options theory and volatility modelling (Black-Scholes, Heston, Greeks), volatility surfaces, skew and PnL impact analysis, order book microstructure, execution quality and LP analysis, strategy backtesting; FX, CFDs, futures, options, crypto