Joey Dwonczyk

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Quantitative Developer

Quantitative developer with expertise in designing and implementing sophisticated financial models for derivatives pricing, focusing on credit and structured equity products. Experienced in Python, C#, Flutter, Node and Web for quantitative analysis and financial engineering. Proven track record of working with trading desks to develop robust risk management solutions, pricing tools (VBA + Excel + Python + C#), and optimization strategies for financial instruments.

Technical Skills

- **Languages** : Python, Typescript + Javascript, HTML, CSS, SASS, Dart, C#, C++, R, VBA, Solidity
- **Frameworks** : Node.js, Flutter, React, Redux, Express.js, Firebase, Web3Auth
- **Libraries** : Flask, Pandas, Tensorflow, Keras, OpenCV, HuggingFace, YahooFinance, QuantLib *to name a few*
- **Financial Models** : CDS Pricing, Monte Carlo Simulations, PDE Solving, Vanilla Equity Options, Rate Swaps, OTC Eq. Options, IR Bonds, Inf-li Bonds, FX Swaps, Equity Basket Options
- **Cloud & DevOps** : AWS (EC2, S3, SES), Docker, GCP, Heroku
- **Databases** : Neo4j, SQL, MongoDB, PostgreSQL
- **Blockchain** : Fuse Blockchains, Solidity Smart Contracts

Experience

Founder, Joey's Jars — Jan 2024 – Present
London, UK — *Remote*

- Launched and scaled a health-focused food tech business, overseeing operations, sales, and app development for corporate wellness.
- Developed a Shopify platform with custom features and began building a fitness tracking app with smart fridge integration using a Flutter | Firebase | (GoogleAuth / OAuth) | Python FastAPI Back-end hosted on Heroku | CI CD Environment automated testing in git commit pipeline.

CTO, Founder, vegi — Summer 2022 – Dec 2023
Liverpool, UK — *Remote*

- Designed and developed a comprehensive eco-conscious debit card platform, implementing the full application suite from scratch with two PostgreSQL databases connected to a **NodeJS** EC2 hosted back-end for client data alongside a basic Sailsjs back-end for administrative operations. I then wrote and scaled a cross-native flutter (dart) application for clients to use to buy products on, for merchant businesses to administrate from and to facilitate the connection I built between the dart code stack and Ethereum layer 2 blockchain for piping payments. I built intricate algorithms for real-time cashback based on product eco-ratings which were rated using a python FastAPI fully async, multi-pool, back-end I hosted in a docker container to then run from a Heroku server which was the most cost effective solution for the engine. **The application I wrote from scratch was valued at £120,000 circa December 2022.**
- Dockerized complex Conda (**Python**) containers for machine learning algorithms and managed the entire AWS cloud infrastructure, lambda serverless functions, including S3, SES, and EC2 to host our PostgreSQL databases.
- Led the backend development with NodeJS and integrated Google authentication and experimenting with a Neo4j graph database for storing product embeddings.
- Responsible for communication of technology + payments infrastructure to all merchant clients to facilitate on-boarding and satisfy their technical requirements.
- Organised the second major fund-raise of £100K in end of 2022 building pitch assets and projections.

Senior Associate, Structured Equity Trading Desk — 2021 – 2022
River and Mercantile Derivatives (now Schroders Bank) — *London, UK*

- Executed OTC equity derivatives trades, live pricing against counterparties, and best price execution using platforms such as Tradeweb, Longview, Markitwire, and OTCX.
- Designed and structured equity strategies for pension schemes, balancing client risk preferences with market conditions, including hedging strategies and FX exposure management.

- Conducted risk management analysis, ensuring collateral sufficiency, MTM calculations, and autonomous client position checks using Risk01s and valuation time series.
- Managed portfolio structuring, strategy monitoring, and automation of client reporting, enhancing client diversification and reducing business risk.
- Supported prospective client pitches by preparing decks and presenting structured strategies based on market insights and client needs.

Senior Associate, Quantitative Engineering Desk 2017 – 2020
River and Mercantile Derivatives (now Schroders Bank) *London, UK*

- Developed and maintained financial curve builders used for discounting and projecting values in the valuation of financial products, including bonds and swaps.
- Built and maintained bond valuation models, adding new functionality to the VBA Excel add-in for communicating with internal systems via HTTP.
- Enhanced swap leg pricing by simplifying logic and updating statistical analysis processors for interest and inflation swaps, using correlation analysis of time-series data.
- Implemented a SignalR streaming service in a web API to process real-time ticks from Bloomberg, rebuild financial curves, and stream updates to clients.
- Utilized Python for time-series analytics, clustering, PCA, and client/counterparty actions, using tools like Scikit-learn, Numpy, and Pandas.

Education

University of Warwick 2011 – 2015
Integrated Master of Mathematics and Statistics *First Class Hons*

Fitch Learning 2019
Certificate in Quantitative Finance *Distinction*

Cambridge Spark 2020
Certificate in Applied Data Science *Distinction*

Projects

Basket CDS Pricer *Python, QuantLib, C++* Source Github

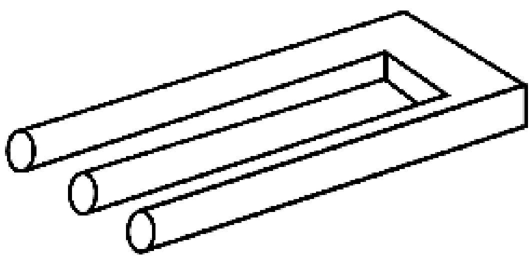
- Built a sophisticated pricing model for basket credit default swaps (CDS), employing Monte Carlo simulations and PDE solving for accurate pricing and risk assessments.

Structured Equity Pricing Tool *VBA, C#* *Proprietary*

- Developed an equity derivatives pricing tool to price and risk-manage exotic options and variance swaps, utilizing advanced financial modeling techniques.

Certifications

- Basic Solidity Smart Contracts Training
- Certificate in Quantitative Finance
- Certificate in Applied Data Science



Perspective