Maxime Antoine

Lead quantitative software engineer

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A highly motivated, self-starter and enthusiastic quant engineer with 14 years of experience in quantitative and trading application development for the financial industry.
I bring a passion for innovation and a track record of delivering high-performance solutions to complex financial challenges

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Experiences

Trading Engine & Quant Engineering

Bitmex - Since May 2024 - Singapore

- Building a next generation trading engine for the OG crypto derivatives exchange.
- Multi-asset margining, liquidation, ADL and insurance fund management in a high performance and low latency distributed environment with up to 250x leverage.
- Main technologies: Java, KDB/q, SQL.

Quant Engineering

Bullish - January 2023 to May 2024 - Singapore

- Bullish is a regulated digital asset exchange that delivers reliable, low-cost liquidity and enables customers to earn income from automated market making.
- Delivered complex projects in a high performance environment, leading virtual teams of up to 8 and mentored junior developers.
- Design and development from scratch of a single digit latency perpetual futures trading system, including auto market-making, handling >2.5bn/day at the time of leaving.
- Design and development from scratch of a margin trading model with peer to peer lending handling >40m/day notional at the time of leaving.
- Delivered improvements to the auto market maker at the core of the Bullish exchange and researched portfolio margining and options.
- Proof of concept of a RAG-enhanced ChatGPT instance that can use company knowledge as a side project (langchain, vertexAI).
- Main technologies: Java, Python, SQL.

VP - Global Markets - FX eTrading Strats

Nomura - September 2020 to January 2023 - Singapore

- E-Trading Strategy sits within Nomura's Global Markets division as part of the Digital Office, following a “strats” model rather than being a more traditional IT function.
  We are a user oriented team operating globally in Tokyo, Singapore, London and New York.
  We are responsible for all E-Trading platforms in the dealer-to-client and dealer-to-dealer spaces, including pricing, execution and price distribution, across cash and derivatives.
- Worked with a large team of consultants to deliver a successful rebuild of Nomura Live, Nomura's FX Single Dealer Platform.
  (Technologies: React, Openfin, Java, Caplin FX, LMAX disruptor, KDB, SQL).
- Designed, developed and successfully released a new desktop UI for traders to configure and stream FX curves.
  This greatly improved both traders control over the curves and streaming latency by ~80%.
  (Technologies: C# WPF, Tibco).
- Developed a fast historical blotter that can search, sort and filter millions of trades.
  (Technologies: Java, LMAX disruptor, Caplin).

AVP - Equity eTrading Technology

Credit Suisse - January 2019 to September 2020 - Singapore

- Design and development of components for the cash equity trading system following micro-services architecture principles, including:
- A client portfolio pricer for the equity financing desk using F# and React.
- A trading mandate system from scratch including the front-end in React, back-end in C#, Redis, SQL and a full coverage of unit and end-to-end tests.
- Promotion and implementation of agile methodologies (TDD/BDD, continuous integration, continuous delivery, containerization, ...) in the team.

Senior Quantitative Developer

Capitalab (BGC Partners) - December 2017 to December 2018 - Singapore

- CapitaLab is a quantitative financial technology
  group within BGC Partners, responsible for optimising portfolios of financial derivatives for large investment banks and buy-side clients.
- Tech lead embedded in the quant team I was responsible for the architecture, performance and scalability of the portfolio optimisation engine.

Skills

Languages

- French (native)
- English (fluent)
- Mandarin (basic)

Technology

- General programming (Java, Python, C#, C++))
- Functional Programming (F#)
- AI driven development (GitHub Copilot, LLMs)
- Web Applications (React, REST, web sockets)
- Algorithms and data structures
- OOP Design Patterns
- Domain Driven Design
- Microservices Architecture
- Low latency & high performance systems

Finance

- Structure, pricing and risk of standard derivatives
- Interest rate term structure modelling
- Linear optimisation in high dimensions
- Strategies back testing
- Monte Carlo
- Market microstructure

- Delivered exponential performance gains in the portfolio compression engine: from 2h30 to 3 mins through algorithmic complexity reduction and better use of data structures.
- Halved the memory used by the risk calculation engine by fixing memory leaks and improving the multi-processing implementation.
- Improved the test framework: 3x test cases for 25% of run time through better parallelisation.
- Optimisation of SQL queries joining tables with billions of lines through indexing.
- Coached the quants on clean code, system design and test automation principles.
- Main technologies: Python, SQL Server, F#, multi-processing.

Senior Software Engineer

eFront - October 2016 to November 2017 - Singapore

- eFront is the leading software provider for the alternative investments and risk management areas of the financial services industry.
- Design and development of enhancements and new functionalities for APAC FrontInvest clients (C#, Javascript, SQL) both in office and at client premises.
- Key clients include GIC, Temasek, Mac Quarie, Khazanah, ADIA, ...

Quantitative Developer - Fixed Income

BNP Paribas CIB - October 2011 to September 2016 - London, Hong Kong & Singapore

- In close collaboration with FIT trading desks, design and development of various trading & risk tools such as:
- yield curve & volatility surface models for pricing and risk applications (Excel/VBA, C#, SQL Server)
- An intraday PnL Forecast tool for Treasury APAC desks (Python).
- A service providing real-time transfer rates for internal clients + corresponding contribution tools for treasury desks - 800+ users across APAC region (AngularJS, C#, SQL Server, Windows service).
- Improved team development practices by promoting SOLID and agile principles, TDD and streamlining the development pipeline through better use of source control and CI/CD.
- Exposure to various FI derivatives across multiple markets (swaps, bonds, options, ...)

Software Engineer

Société Générale CIB - February 2011 to August 2011 - Paris

- Redesigned a tool aiming to predict end of day volumes across different parts of the company's SI.
- • Re-engineered and improved the proof of concept (VBA).
- • Designed and developed a new production version as a web application (PHP, Oracle).

Software Engineer

42 Capital - May 2010 to September 2010 - Paris

- Development of a position monitoring and risk management application for the company's trader (C# WPF, WCF, SQL Server).
- Back-testing of proprietary quantitative trading strategies with R.

Education

"Classes préparatoires aux Grandes Ecoles"

Lycée Claude Fauriel

September 2006 to June 2008

Intensive undergraduate studies in mathematics, physics and chemistry (MPSI & MP) in preparation for competitive entrance exams to the top French engineering schools.

Engineering degree - Master's degree in computer science

EFREI - Ecole Française d'Electronique et d'Informatique

September 2008 to August 2011

Major in computer science with minor in financial maths.