Karl Kareem Melaimi

Email | +447960906826 | LinkedIn | Website

Education:

Imperial College London **2018 - 2022**

MEng Electronic and Information Engineering (Computer Engineering) **Grade 2:1**

Key Topics: Probabilistic Inference, Stochastic Processes, Mathematics for Machine Learning, Statistical Signal Processing, Knowledge Graphs and inference, Deep learning, Decentralised Finance

Wembley High Technology College **2010 - 2017**

- A-Levels: Mathematics (A*), Further Mathematics (A*), Physics (A), AS-Economics(A)

Key Skills: KDB, Python (PyTorch, NumPy, Pandas, Matplotlib, etc.), C++, F#, C & Arm Assembly

Relevant Work Experience:

Aspect Capital, Quant Researcher, Execution Research **May 2022 - Dec 2023**

- Aspect, trying to diversify it's business has shifted it's focus toward higher frequency strategies, I was an initial developer/researcher of a greenfield build of **KDB+** infrastructure tasked with producing code that could seamlessly aggregate tick data into higher frequencies (1-5 Mins)
- Gained valuable experience in implementing **vectorised databases** alongside a deep understanding **functional programming in Q** to manipulate such DBs; strides were made in the optimisation of data retrieval, using creative methods for partitioning data on disk, as well as structuring our **KDB+** processes to enhance freedom of usage for researchers playing in the sandboxes we provisioned
- Focused on **statistically cleaning quote/trade data** for Futures, FX, FX forwards, Indices & LMEs, applying asset class specific transformations to serve research teams with high quality data
- Understanding **market microstructure** was paramount, the intricacies of different asset classes needed to be understood to build great software/statistics. My implementation of how we apply adjustments to futures given a roll schedule; calculating a better mid price using volume weighted medians for aggregation in certain asset classes or **spinning up dashboards** to analyse the distribution of quotes/ volume at different times of the day for **algo development** are examples of my work in **Q**

Aspect Capital, Investment Solutions & Quant Research Intern **March 2021 - Oct 2021**

- Notable projects: Built a simulation environment for the **Investment Solutions** team in **Python**, integrated with **PowerBI**. It applied various **vectorised** methods to transform the PnL timeseries input into key statistics (**VaR**, **CARR**, **Drawdowns** etc) and graphical visualisations in an **interactive dashboard**.
- Developed a low touch framework for **multivariate regression**, enabling colleagues to run regressions of macroeconomic variables against returns without looking at any code (**Python**, **SQL**).
- Built intraday reporting tools for the **Volatility Research** team in **MATLAB** which attributed PnL to **first** & **second order Greeks**, granting a more thorough understanding of the underlying market dynamics affecting our positions.
- Gained familiarity with the nuances of option pricing as well as experience with productionising code (**Jenkins**, **Docker**, etc)
- Worked with **Systematic Global Macro** researchers to prepare a signal for a **research review**, this is IP sensitive so no details for you!

Tudor Investment Corp, Quant Risk Analyst **July 2019 - Sept 2019**

- Developing a range of tools for the Risk team in Python (Significant Bloomberg API use) used by ~10 people across £10B AUM
- Acted as Full Stack Developer managing successful firmwide deployment across business (2k lines of production code live)

- Aiding traders in performing market analysis by providing statistical analysis and data visualisation to their workflow

Bloomberg, Global Data Analyst, Economics **Sept 2017 – Sept 2018**

- Carrying out data analysis within **Python**, using Pandas/NumPy/Matplotlib
- Created a script used in monthly meetings to provide insights into stale tickers
- Data manipulation within **Excel/VBA** and internal Bloomberg tools for parsing data
- **100%** of client queries answered within Service-Level agreement time

Other Experience:

Jane Street, Electronic Trading Competition **October 2020**

- Developed a novel trading strategy in a simulated market maintaining top 10 PnL rank… It all went wrong when I replicated code without changing the trade direction, causing me to buy a certain instrument without selling, incurring roughly 300k of debt. I have learned my lesson!

IMC, Quantitative Trading Workshop **October 2020**

- Learned the basics of Option theory and implemented a few interesting strategies, including delta-one hedging

Facebook, Analytics Academy 2020 **October 2020**

- Performed basic statistical analysis to discover insights about user habits from multiple datasets using Python, (NumPy, Pandas, etc), and present these to a panel at Facebook

Citadel, Trading Simulation Challenge **November 2020**

- A comprehensive introduction into the roles of a hedge fund and market maker; challenges included manual market making to get to grips with the concept and then an automation challenge in Python

Projects:

- Built a **MIPS1 CPU simulator (C++)**, a **C90 to MIPS Compiler (C++)** and a **C90 to Python translator (C++)**
- Built the backend (**RESTful API in Python**) of an app for identifying & aiding the recycling of rubbish on the street, **winning** the 2019 **Google BGN Hackathon**
- Developed real-time traffic sign detection software with a **Xilinx PYNQ-Z1 FPGA**, using **Vivado HLS & C**

Skills and Interests:

- Frequently practice Judo (Brown belt), competing regularly in national competitions
- Member of the **Amos Bursary** which aims to enhance the professional careers of young black men through the provision of knowledge alongside academic, cultural and professional events
- Lover of improving health through exercise; level 3 Personal Trainer, Spin cycle/Boxercise/Strength & Mobility instructor teaching classes multiple times a week after work
- Lover of all music!! This includes RnB, Grunge, House, Soulful house, Rock, Neo-Soul, Jungle, DnB, Funk, etc… Ask me for a Spotify playlist :)