

Andreas D Campbell

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EXPERIENCE

FXEM Trading and Risk, Technology Associate, Morgan Stanley, London, England Aug 2023 – PRESENT

- Developing and maintaining a low-latency real-time risk engine calculating intraday risk and PnL for linear rate products, allowing traders to trade and hedge effectively in the largest global market.
- Constant interaction with remote Linux hosts/clusters globally via SSH, requiring a deep understanding of CLI tools for effective data retrieval and manipulation.
- Constant problem solving under time pressure, due to the critical nature of the risk engine within the bank.
- Monthly week-long on-call duties, being the first line of communication with the Strats/Quants and the Traders regarding all production issues and new models/portfolios/accounts required for trading. Whilst on-call, releasing upgrades for 3 code repositories globally (2x London plants, 2x New York plants, 3x Asia plants), as well as ensuring all start-of-day tasks pass, to ensure we are ready for trading.
- Development of monitoring tools to provide real time updates of server memory and CPU usage, as well as monitoring financial curves to ensure our models are ticking with the market.
- Regression testing and manual checks to ensure the risk is consistent or improved with each release.
- Developing in C++, Python, Bash and Perl.

Software Engineering Intern, Amazon Web Services, Cagliari, Italy June 2022 – Sep 2022

- Working on a high-performance remote display protocol almost entirely in C, that provides customers with a secure way to deliver remote desktops and application streaming from any cloud or data centre to any device within AWS.
- Implementing Windows to Linux file system redirection, allowing customers the ability to mirror their local file system to their remote desktop. Utilising multiple low level POSIX operations in C, as well as experience with Rust and Protobuf for data serialisation.

Technology Placement, Morgan Stanley, London, England June 2021 – June 2022

- Building a web application (Java, Spring, Angular, Typescript and MongoDB) with the goal of improving client engagement through shared ideas. The application utilises a variety of APIs to retrieve the latest financial and market data surrounding our clients. Our model detects trends, anomalies, and news before sending it to the appropriate banker. The web application is now live within the bank.
- Scrum master for two weeks where I led every daily standup and ran the retrospective at the end of the sprint.
- As part of my second rotation, I joined a new team where I used ETL tools to transform all options and futures data from the EUREX (European Exchange).
- Third in the London AI team competition where we were given the challenge of writing an algorithm that could play Ultimate Tic Tac Toe. I programmed the heuristics and the minimax algorithm we decided to use in Python.

Founder, BugHub, Newcastle, England Sep 2019 – Sep 2020

- Founding a startup focusing on free website security auditing for new companies that don't have the luxury of a tech team.
- I conducted security audits, finding vulnerabilities in client's websites which were then outlined in the 'BugHub report'.
- Completed audits for three companies in the UK with critical vulnerabilities found in each case (SQLI, CSRF, XSS).

Researcher, BugCrowd, Remote Jan 2017 – Sep 2019

- Identifying security vulnerabilities in partnered companies.
- Successful vulnerabilities identified and rewarded:
 - Confidential data exposure for Uber.
 - Unauthorised redirection for SkyScanner.
 - Unauthorised redirection for Under Armour.

Research Assistant, Lausanne Business Solutions, Remote July 2019 – Oct 2019

- Part of a team which generated data for an AI chatbot.
- Experience understanding machine learning biases and how CNN's process text/speech with reinforcement learning.
- This involved recording hours of conversations on various topics and transcribing them so that a chatbot can learn from the data.

EDUCATION

Newcastle University, Newcastle, England Sep 2019 – June 2023

1:1 First Class in BSc Computer Science with Industrial Placement

Projects include:

- Dissertation project titled "*Can mimicking human experiences, emotions and writing style lead to a more impactful experience with AI?*". Using a variety of techniques including, Gaussian distributions, error injection and real UK statistics as well as attempting to quantify emotions and their impact on the individuals personality. The results showed that 75.3% of those surveyed, incorrectly labeled my models outputs as written by a real human being.

- Building a Java Lottery Web Application with an Apache Tomcat Server and MySQL database focused on security. I implemented password hashing, encryption and created an SQL injection filter.
- C project to demonstrate different approaches to maintaining the integrity of an inter-process communication (IPC) application.
- Built in C, a Reliable File Transfer (RTF) protocol that works on top of UDP and guarantees reliable delivery of a file between a client and a server.
- Machine Learning project in Python which categorises banking expenses using a multinomial naïve bayes model. The program returned a graph with the categorised results. Scikit-learn, pandas and matplotlib were the most used libraries in this project.
- Deep Learning convolutional neural network image classification project where I conducted a wide range of experiments in order to maximise my CNN's performance. The dataset was the CIFAR-10 dataset, and the main libraries were Tensorflow and Keras.
- A program that extracts gene data from an online source and analyses the protein sequences to produce statistical graphs (pandas in Python).

George Heriot's School, Edinburgh, Scotland

Aug 2012 – July 2019

Advance Higher: Mathematics (B), Computer Science (C)

Higher: Mathematics (A), English (A), German (A), Computer Science (B), Physics (C)

SKILLS

Computer Languages: C++, Python, Java, C, Bash, Perl, Typescript, Rust, SQL

Familiar Technologies: Linux, CPS, Eigen, Boost, Redis, Kafka, Train, pandas, Keras, TensorFlow, Matplotlib, MySQL, Git, Virtual Environments, Django Framework, Spring, MongoDB, Apache Servers, Talend, Angular, Jira, Jenkins, Protobuf, AWS (EC2)

INTERESTS

Team Leader, Refuge Network International, London, England

September 2021 – June 2022

- Leading walking groups around Victoria handing out food parcels to the homeless.
- Operating the clothes and toiletries stand at our weekly food bank.
- Photography during the walking groups for the charity's social media.

Volunteer, Grassmarket Community Project, Edinburgh, Scotland

May 2018 – June 2019

- Working alongside homeless people with mental illnesses.
- Twice a week I was involved with group activities such as teaching IT classes, walking groups and working in the cafe.

Interests/Sports: Boxing / Ice Hockey / Open water swimming / Chess / Music Production