



Edward Antonian - CV

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My passion is using mathematics and software to solve real problems with tangible impact. I have experience in both technical research and deploying systems in production. I am ambitious, driven and work well in team environments.

Academic Experience



PhD Maths, Computer Science - Heriot-Watt/Natwest

September 2019 – August 2023

My thesis is on Bayesian machine learning methods for network processes. My supervisors are prof. [Gareth Peters](#) and [Mike Chantler](#), and I am sponsored by Natwest bank. As well as conducting independent research, I also work closely within a quant team at Natwest, applying these methods to areas including trading and stress testing.

Publications:

- *PyKronecker: A Python Library for the Efficient Manipulation of Kronecker Products* ([paper](#), [code](#), [docs](#))
- *Regression and Reconstruction on n -dimensional Cartesian Product Graphs* ([code](#))
- *Iterative Methods for Signal Reconstruction on Product Graphs with Arbitrary Missing Data* ([paper](#))
- *GLS Kernel Regression for Network-Structured Data* ([paper](#), [code](#))

Teaching (course assistant):

- F20/21DV - Data Visualisation and Analytics.
- F29OC - Operating Systems and Concurrency.

Industry Experience



Project Coordinator, The DataKirk, Edinburgh

April 2019 – Present

[The DataKirk](#) is a non-profit organisation which delivers training courses in coding, data analysis and data visualisation to BME communities in Edinburgh. I was a founding member and for ~2 years I had an active role running courses, organising events and handling administrative tasks. I delivered several 8 week courses teaching the fundamentals of Python for data science. Today I mainly have an advisory role on the board.



Data Science Intern, StatusToday, London

2018 - 6 months

[StatusToday](#) was a HR-tech startup providing AI-powered wellness and productivity insights for employees. I worked as a data scientist and back-end engineer creating ML pipelines in Python to clean and derive insight from large semi-structured datasets. I learned how to contribute to a large production-grade code base with continuous integration, as well as perform large-scale parallelised computation with Spark.



Quant Researcher Intern, Smartfolios, Singapore

2017 - 4 months

[Smartfolios](#) was a wealth management platform offering users managed portfolios. While I was there, the company was taking part in the fintech accelerator programme [StartupBootCamp](#). My primary role was to research and implement mathematical models for portfolio optimisation. My biggest achievement was to design Singapore's first live robo-advisor using CVaR optimisation which was [licensed for use](#) to a large local asset management firm Marvelstone Capital.



Analyst Intern, AIMS Asset Management, Malaysia

2016 - 2 months

[AIMS Asset Management](#) is a Malaysian hedge fund group. I worked in the Panah Fund which trades a range of instruments including equities, debt securities, currencies, commodities, futures, options, warrants and swaps. My main duty was to build a VBA pipeline for processing macro data pulled from Bloomberg. I also researched selected instruments and worked on the internal pricing model, adding a module for estimating valuation uncertainty.

Personal Projects

SportFolios

May 2020 – Present

SportFolios is a fantasy-football trading platform where users participate in a virtual stock market for players. We utilised academic research to create a real-time marketplace with user-driven price discovery. The final product comprised a mobile app built with Flutter, a live server to handle orders, and a trading bot which used incoming sports data to make automated trades. Our software was [licensed for sale](#) B2B via Edinburgh-based developers Incentive Games. Demo apps are available for [iOS](#) and [Android](#). The code is now mostly open source: ([app](#), [server](#))

MemeWallet

April 2021 – Present

MemeWallet was a platform for buying, selling and minting NFTs associated with memes. The idea was for meme content creators to monetise and cryptographically verify ownership of their work. Using a React front-end, users could upload memes and mint NFTs with one click, deploy them onto the Solana blockchain, and view them in a Phantom wallet. This was achieved using a Node server along with custom smart contracts written in Rust.

Education



MSc Artificial Intelligence - University of Edinburgh (Distinction)

September 2018 – August 2019

Courses covered a range of practical and theoretical skills in AI, machine learning and scientific computing. My [dissertation](#) built a Bayesian model to analyse the chemical environment of white blood cells in fruit flies.



Year Abroad - National University of Singapore

August 2016 – May 2017

Modules included mathematical finance, probability & statistics, computational physics and computer science.



BSc Physics - University of Durham (1st Class)

September 2014 – June 2018

Covered standard range of maths and physics including astronomy, quantum mechanics and laboratory work. Worked with EDF Energy in 3rd year industry project to improve design of gamma ray detector. Graduated in top 5% of the class.



Abingdon School

September 2009 – June 2014

A levels: Maths – A*. Further Maths – A*. Physics – A. Economics – A. GCSEs: 9 A*s, 2 As.

Tech Skills

- Python: **Fluent**. ~8y of experience with mathematics, data science, deep learning, web frameworks, AysncIO. Published packages to PyPI. Contributed to open source software.
- Rust: **Proficient**. Built servers and smart contracts on the Solana blockchain.
- Dart: **Proficient**. Written fully-featured mobile apps using the Flutter framework with async design patterns.
- Javascript, Typescript: **Proficient**. Worked on several front and back end projects. Comfortable with React, D3, Express, Node.
- Databases: **Proficient**. Comfortable with SQL, Redis, Firebase, (Py)Spark, MongoDB.
- Containerisation: **Proficient**. Comfortable using Docker and Kubernetes in production.

- C/C++, Java, Matlab, VBA, R: **Familiar**. Studied and used all of these in university courses.
- Julia, Swift, Go: **Beginner**. Used all of these for small personal projects.

Character

- Organised and take obligations to others seriously.
- Competitive but collaborative and trusting.
- Calm and even-tempered under pressure.

Interests

- Following and playing football (Arsenal fan!)
- Chess
- Maintaining maths/programming [blog](#).