

## Education

### University of Edinburgh - MSc in Artificial Intelligence

Edinburgh, UK

Awarded maximal classification: Distinction

Sep 2022 - Aug 2024

**Machine Learning** Pattern Recognition • Probabilistic ML • Reinforcement Learning • Deep Learning

**Stats** Bayesian Statistical Models • Monte Carlo Methods • Missing Data & Imputation

### University of Warwick - BSc in Data Science

Coventry, UK

Awarded maximal classification: First-Class Honours

Oct 2017 - Jun 2020

**Maths** Linear Algebra • Multivariate Calculus • Real Analysis **Probability** Foundations • Stochastic Processes

**Stats** Parameter & Interval Estimation • Hypothesis Testing • Freq. Statistical Models **CS** OOP • Algorithms • Data Structures

## Work Experience

### FC Laboratories Ltd ⓘ HealthTech, early-stage start up, 5 employees

Edinburgh, UK

DATA SCIENTIST

Oct 2023 - Present

Leveraging Python development and analytics expertise to establish business' data ecosystem.

### School of Informatics, University of Edinburgh

Edinburgh, UK

PYTHON DEVELOPER

Jan 2023 - Apr 2023

Acting as project lead, gathered requirements and developed a bespoke Python library for the school's in-house data science consultancy.

- Conceptualised, implemented, and tested appropriate classes and methods. Python Poetry matplotlib networkX pytest Git
- Optimised by identifying and addressing performance bottlenecks through memory and time profiling.

### Account Technologies ⓘ FinTech, credit provider, £100mn revenue, 500k customers

London, UK

DECISION SCIENTIST

Oct 2020 - Jul 2022

Interacted with transactional, credit bureau, operational, financial, compliance, marketing, and customer data using Python to develop bespoke packages and the PyData stack to visualise data, train machine learning models, and report on business metrics. Docker FastAPI

- *Example Project 1.* Created a new credit limit increase strategy (log-reg model) to efficiently allocate credit line to the business's most profitable customers. Conducted EDA, feature engineering, predictor and dependent variable selection, imputation for missing data, and model training & evaluation. Model uplift from 29p to 33p of profit per £1 credit limit increase. EDA pandas plotly SQL scikit-learn
- *Example Project 2.* Increased profitability (£100,000s) by identifying populations of unprofitable customers and blocking their acquisition. Found populations using decision trees split on consumer spending habits with automated search over hyperparameter space. Tested statistical significance of populations through single-group z-tests. Airflow Hypothesis Testing Hyperparameter Tuning

### Internships at Thomas Miller & Prudential plc

London, UK

ACTUARIAL INTERN (TM) & NATURAL LANGUAGE PROCESSING INTERN (PRU) R ggplot2 Monte Carlo Sim.

Jul 2019 - Aug 2019 & Sep 2018

## Research Experience

### Mineral-X, Stanford University ⓘ Lab researching mineral exploration for critical metals

Palo Alto, USA & Edinburgh, UK

STUDENT RESEARCHER (MSC DISSERTATION) Advisor: Robert Moss Blog Code Thesis

Jun 2024 - Aug 2024

Thesis titled 'Intelligent Optimisation of Borehole Geophysics Planning for Critical Mineral Exploration'. Achieved 84%

- Implemented path planning for an agent exploring a mineral exploration environment by modelling data acquisition as a partially observable Markov decision process and using Monte Carlo methods for planning. Julia MCTS (PO)MDP Planning Probabilistic Modelling
- Demonstrated rapid learning by integrating a new domain, AI technique, and programming language, delivering results within twelve weeks.
- Received three weeks of in-person supervision from the Stanford Intelligent Systems Lab with a desk in their PhD lab on Stanford's campus.

### University of Warwick

Coventry, UK

STUDENT RESEARCHER (BSC DISSERTATION) Advisor: Ioannis Kosmidis Code Thesis

Oct 2019 - May 2020

Thesis titled 'Shrinkage-driven Unsupervised Learning with Clustering Applications'. Achieved 84% Class rank: 1<sup>st</sup>

- Defined a new family of regularised copula-based mixture models that overcome the limitations of Gaussian mixtures. EM Alg. Copula
- Implemented methods for model estimation (using ECM algorithm) and model selection (using silhouette width and BIC). R C++

## Volunteering

### University of Warwick Men's Football Club

Coventry, UK

DIRECTOR OF FOOTBALL & FIRST TEAM CAPTAIN

Mar 2019 - Mar 2020

- Listened to, motivated, and led a team of cross-cultural individuals whilst fostering a cohesive team environment.
- Enhanced club professionalism by restructuring the training programme, improving player-coach communication, and tracking attendance.