

## PROFESSIONAL EXPERIENCE

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### Lead Machine Learning Engineer/Scientist, Abingdon Health

**Jan 22-Present**

### Machine Learning Engineer/Scientist, Abingdon Health

**Feb 21-Dec 22**

- Designed/implemented a two-stage deep learning system for detecting/reading rapid diagnostic tests.
- Achieved 0.99 test AUROC on a blood antibody test used to prove-out the algorithm ([company RNS](#)).
- Collaborated with the CEO to ship the deep learning project and patented AppDx<sup>®</sup> algorithm/SDK.
- Annotated object detection datasets for training custom models with the TF Object Detection API.
- Curated image classification datasets using custom built software and a bespoke labelling workflow.
- Developed a Python codebase for productionizing CNN-based image classifiers, using TensorFlow for model building/training, Weights & Biases for experiment tracking, and Flask for prediction serving.
- Researched/incorporated state-of-the-art research methods on ML systems design into the product.
- Deployed the end-to-end system via a dockerized Python web API for inference/stakeholder demos.
- Compressed prediction models with TF Lite for use on-device and deployment to a smartphone app.
- Evaluated algorithm performance on real-world clinical study data to assess model generalizability.
- Set up/maintained Linux Nvidia GPU workstations for DL workloads/production training pipelines.

### Equity Research Analyst, Product Management, Exane BNP Paribas

**Feb 17-Aug 19**

- Managed the Exane BNPP research pipeline, collaborating with 100 analysts and a global salesforce.
- Curated and chaired the European Morning Meeting; co-chaired the Investment Review Committee.
- Collaborated with equity strategists and sector teams in the production of department-wide reports.
- Monetised Exane's flagship investor conference in Paris (attended by 100 corporates/700 investors).
- Published independent analysis on European earnings season trends in strategy-themed reports.
- Updated financial models for the Real Estate equity research team during annual reporting season.

### Product Management Associate, Exane BNP Paribas

**Sep 16-Jan 17**

- Supported the Product Management team and Quality Control analysts in daily research activities.

### Equity Analytics Analyst, Libra Investment Services

**Sep 13-Sep 16**

- Established a distinguished track record of Apollo<sup>®</sup> trading views as part of a best ideas portfolio.
- Won Man Group's top broker award for Europe trade idea performance in 2015 (£400k cash prize).
- Delivered portfolio advisory services and provided education on the Apollo<sup>®</sup> valuation methodology.
- Won research commissions from senior Portfolio Managers and expanded the Apollo<sup>®</sup> user base.

### Apollo<sup>®</sup> Intern, Libra Investment Services

**Jun 13-Aug 16**

- Completed a rotational internship in Apollo<sup>®</sup> analytics and sales, receiving a full-time analyst offer.

## EDUCATION

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### MSc Artificial Intelligence, Imperial College London (Merit)

**Oct 19-Oct 20**

- Core studies: symbolic AI; foundational ML; Python programming; software engineering; AI ethics.
- Electives: mathematics for ML: deep learning; ML for imaging; computational optimization; NLP.
- Project highlight: collaboratively developed an RL product for medical imaging applications using industrial software engineering techniques (Agile, Git for VC, testing, CI); awarded 81%.
- Coursework highlight: implemented/evaluated modern deep learning architectures (CNN, RNN, GRU, LSTM, VAE, GAN) using PyTorch on problems in vision and language (88% average grade).

### BSc Physics, University of York (First Class Honours)

**Oct 10-Jul 13**

- Course content: fundamental and theoretical physics; mathematics; experimental labs; computing.
- Top scoring electives: Intro. to Quantum Computing (88%); Special & General Relativity (85%).
- Research achievement: final-year dissertation awarded 80% and nominated for best BSc/Msc project.

## RESEARCH PROJECTS

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### Neural Network Verification, MSc AI Individual Project

2020

- Developed a MILP optimization algorithm for verifying high-dimensional neural networks using input splitting techniques to reduce the search space ([paper](#)); achieved a x3 certification speedup on MNIST.
- Designed/built a distributed system for sharing verification subproblems over a network of CPUs.
- Lab: Verification of Autonomous Systems (supervisor: [Alessio Lomuscio](#)).
- Tools: Python, Gurobi optimizer, Python multiprocessing.

### RL for Medical Imaging, MSc AI Group Project & Software Engineering Practice

2020

- Designed/built a GUI for performing 3D landmark detection with reinforcement learning agents ([demo](#)).
- Implemented a variation of the Deep-Q-Network algorithm using GUI-collected demonstration data.
- Lab: Biomedical Image Analysis (BioMedIA).
- Tools: Python, PyQT, TensorFlow 1.

### Plasma Diagnostics, BSc Physics Individual Project

2013

- Used plasma spectroscopy to model core electron conditions during laser-driven fusion experiments.

## PROFESSIONAL & ACADEMIC PRIZES

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### Top Europe Contributor, Man AHL Ideas Platform (£400k prize)

2016

### Winner, Instructus Markets Student Finance Competition

2013

### Shortlist, Goodwin Project Prize, York Physics Dept.

2013

## PROFESSIONAL QUALIFICATIONS

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### CFA Program, Level II

2018

### CFA Program, Level I

2015

### CISI Capital Markets Programme

2014

## VOLUNTEERING

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### A-Level Mathematics Tutor, The Access Project

2021

### Financial Education Analyst, Cedro Alto Coffee Collective

2019

## COMPUTING SKILLS

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- Programming: Python, Bash, LaTeX, MATLAB, HTML, Prolog
- Frameworks/tools: TensorFlow, TensorFlow Lite, PyTorch, Scikit-learn, W&B, Docker, Git, Azure