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PROFESSIONAL EXPERIENCE

Lead Machine Learning Engineer/Scientist, Abingdon Health **Jan 22-Present**
Machine Learning Engineer/Scientist, Abingdon Health **Feb 21-Jan 22**

- Designed/implemented a two-stage deep learning system for detecting/reading rapid diagnostic tests.
- Achieved 0.99 AUROC on a blood antibody test used to prove-out the algorithm (company update).
- Trained/evaluated image classifiers with TensorFlow and Python; used W&B for experiment tracking.
- Trained object detection models and processed datasets with the TensorFlow Object Detection API.
- Set up/maintained Linux Nvidia GPU workstations for DL workloads/production training pipelines.
- Deployed the end-to-end system via a Python web API/app for model verification/stakeholder demos.
- Deployed prediction models to an SDK for on-device inference; used TF Lite for model compression.
- Evaluated algorithm performance in real-world clinical studies; used analysis to drive improvements.
- Created high-quality medical image classification datasets through custom built labelling pipelines.
- Delivered technical presentations; worked with the CEO to launch the final product (AppDx® SDK).

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-Feb 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® 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® valuation methodology.
- Won research commissions from senior Portfolio Managers and expanded the Apollo® user base.

Apollo® Intern, Libra Investment Services **Jun 13-Aug 13**

- Completed a rotational internship in Apollo® analytics and sales, receiving a full-time Analyst offer.

EDUCATION

MSc Artificial Intelligence, Imperial College London (Merit) **Oct 19-Oct 20**

- Core content: 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 a reinforcement learning product for medical imaging applications using industry software engineering techniques (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**

- Core 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

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

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

CFA Program, Level II **2018**
CFA Program, Level I **2015**
CISI Capital Markets Programme **2014**

VOLUNTEERING

A-Level Mathematics Tutor, The Access Project **2021**
Financial Education Analyst, Cedro Alto Coffee Collective **2019**

COMPUTING SKILLS

- **Programming:** Python, Bash, LaTeX, MATLAB, HTML
- **Frameworks/tools:** TensorFlow 2, TensorFlow Lite, PyTorch, Weights & Biases, Docker, Git, Azure
- **Libraries**: NumPy, Pandas, Scikit-learn, Matplotlib