

# Alastair Hamilton

+44 0770 775 1450 | [alastair.amhamilton@icloud.com](mailto:alastair.amhamilton@icloud.com) | Dual British-Irish Citizenship

## SUMMARY

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I am a dedicated and innovative data science and machine learning professional with nearly a decade of experience in finance, risk, cybersecurity and sustainability. Over the past two years I have successfully built a robust data science function from the ground up at a successful start-up and am now keen to embrace a new challenge where I can continue to use my expertise in developing state-of-the-art machine learning solutions. In my spare time I enjoy playing my piano, gaming and whatever niche hobby I have at the time.

## TECH STACK

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**Languages:** Python, SQL, Terraform, Bash  
**Cloud:** AWS, GCP, Azure, Sagemaker, VertexAI, Azure Machine Learning  
**Packages:** pandas, NumPy, scikit-learn, Transformers, PyTorch, matplotlib, nltk, LangChain  
**Ops:** MLflow, Weights and Biases, Github, Github Actions

## EDUCATION

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**University of Edinburgh**

*BSc Theoretical Physics*

June 2017

2:1 (69%)

## EMPLOYMENT

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**Altruistiq** | Sustainability

May 2022 – Present

*Lead Data Scientist → Senior Lead Data Scientist*

- Automated our tagging process for incoming customer data using a custom search algorithm combining BM25 ranking, vector search, cross-encoder reranking and cluster-based reordering, where the embedding and cross-encoder models were fine-tuned SOTA LLMs hosted on GPU infrastructure. The algorithm had a top-1 accuracy of 11% and a top-30 accuracy of 34%, enabling our tagging process to become a review process, generating revenue through boosts in productivity.
- Semi-automated our PDF data extraction using a pipeline of models for clustering, grouping, multi-label multi-class classification and text extraction, with human-in-the-loop to safely deal with any corrections. The full process had a baseline KPI of ~50% accuracy and removed the need for technical engineers, saving the business ~£172,000/year.
- Coded all models, MLOps, DevOps, infrastructure and internal tooling for my team. This includes our MLOps architecture for model versioning, model release, data versioning, data pipelining, and model monitoring.
- Worked with product managers to break down complex data science and ML project requirements into a clear backlog that could be managed in sprint cycles by non-technical managers and be prioritised against other ongoing company projects.

**Lloyds Banking Group** | Financial Services

Sep 2018 – May 2022

*Cognitive Data Science Manager → Data Scientist*

- Developed a vector-based retrieval search engine as a replacement for an FAQ Risk chatbot, avoiding ~£300k in costs.
- Developed and embedded a topic modelling tool using unsupervised LDA topic models for identifying emerging themes in customer vulnerability documents, resulting in the successful identification of OOS climate change risks.
- Developed a novelty detection algorithm using the CluStream framework as part of the bank's insider criminal threat detection project.
- Authored and supported a Data Science Masters project at the University of Edinburgh, focusing on utilising Bayesian Neural Networks for anomaly detection.

## EMPLOYMENT *(Continued)*

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**BP** | Oil & Gas

*Sep 2017 – Jun 2018*

*Supply and Trading Market Intelligence Analyst (Graduate)*

## PUBLICATIONS

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Thompson, S., Teixeira-Dias, F., Paulino, M., & Hamilton, A.

*2022*

*Predictions on multi-class terminal ballistics datasets using conditional Generative Adversarial Networks.*

Neural Networks, 154, 425-440.

Thompson, S., Teixeira-Dias, F., Paulino, M., & Hamilton, A.

*2022*

*Ballistic response of armour plates using Generative Adversarial Networks.*

Defence Technology, 18(9), 1513-1522.