





Geoff Nightingale: Full Stack Data Scientist

 Website  GitHub  LinkedIn  Email

Full stack data scientist with a proven track record across the Finance, Technology, Insurance, and Energy sectors. I bring a broad, end-to-end skill set spanning Data Engineering, Data Science and Machine Learning Engineering. I combine strong technical expertise with excellent stakeholder engagement, a commercially focused mindset, and a consistent history of delivering measurable business value. I excel in not only building models, but also in delivering them to production, advising model strategy and quantifying business impact.

Skills

- **Programming Languages:** Python, SQL, Bash, C#, Java
- **Data Science / ML Libraries:** Numpy, Pandas, ScikitLearn, PyTorch, Tensorflow, Keras, LightGBM, XGBoost
- **Data Engineering:** Snowflake, DBT, RedShift, Databricks, PySpark, Oracle, Feast
- **Data Visualisation:** Looker, Streamlit, Plotly, Matplotlib, Seaborn
- **MLOps:** Git, Github Actions, Docker, Terraform, FastAPI, AWS SageMaker, AWS ECR, AWS ECS, DataDog, Airflow, MLFlow, Flask, GCP CloudBuild, GCP CloudRun, Azure Repos, Azure DevOps, Azure ML Studio
- **Cloud Platforms:** GCP, AWS, Azure (I have commercial experience across all three)
- **AI Tools:** Langchain, Claude CLI, OpenAI API, Cursor

Experience

Data Science Lead - [Zilch](#), London | Jul 2024 - Present

At Zilch I lead AI and ML development across the Credit Risk, Fraud, and Collections domains.

- Worked closely with senior leadership and stakeholders to design Data Science roadmap aligned with stakeholder objectives and KPIs. Led regular updates to senior management and ExCo.
- Owned end-to-end model lifecycle, from design and model development through to production deployment and monitoring, utilising Github Actions, Docker, ECR, SageMaker Pipelines and Terraform.
- At Zilch I have delivered the following models:
 - **Customer Lifetime Value:** Designed a composite XGBoost model to predict customer lifetime value at onboarding using credit bureau data, with sub-models for approval-to-spend, expected spend, revenue, and losses. Used by the growth team to improve new customer targeting across channels such as Google, delivering 10%+ uplift in new customer profitability.
 - **In-life Credit Scoring:** Developed a LightGBM model to predict probability of default for existing customers using internal repayment behaviour, spending patterns, and Experian credit bureau data. Achieves a Gini of 0.80 (vs. 0.51 for Experian Delphi), enabling effective identification of low-risk customers for credit limit increases — delivering £10M+ in incremental credit limits per month with minimal impact on delinquency or loss rates.
 - **Transaction Fraud:** Developed a PyTorch deep learning model to detect fraudulent credit transactions, built on aggregate features across transaction, customer, merchant, and device entities using 30M+ transactions. Achieves precision of 0.50 and recall of 0.43 on a held-out test set, outperforming an NVIDIA GNN + XGBoost solution by more than 2x, and saving £100k+ in fraud losses per month in production.
 - **Collections Propensity to Pay:** Developed a LightGBM model to identify customers in collections likely to self-cure before DRA placement, enabling high-probability accounts to be filtered from costly collections activities such as dialler campaigns — saving £10k+ per month in operational costs.
- Supported Risk team in strategic implementation of models, by providing thought leadership on how models should be used in strategy to meet portfolio growth and risk objectives.
- Designed and implemented experimentation frameworks (A/B testing) to evaluate model-driven strategies (e.g. product allocation, credit policies), improving decision quality and enabling statistically robust optimisation.
- Established standardised model monitoring and governance frameworks, enabling scalable tracking of model performance, score stability and drift across models in production.
- Led integration of alternative data sources (Experian DCM, open banking) into model development and decisioning, unlocking significant commercial impact (£76M incremental credit limits and £12M GMV per month).
- Migrated model pipelines from RedShift to Snowflake, ensuring reproducibility, consistency, and continuity of model performance in production environments.
- Pioneered use of Claude CLI skills to increase velocity of updating production code boilerplate, greatly reducing time to market for new models.

Senior Consultant - [Contino](#), London | Apr 2022 - Jul 2024

Technical delivery of Data Science and Data Engineering projects across client engagements. Worked with Energy and Insurance clients to deliver models and tools to improve business performance.

- Developed time-series ML models in Python using PyTorch and GRUs to forecast reservoir water levels over a 24-hour period. These models were used to optimise power generation and manage flood risk in a network of hydroelectric power stations. Input data included historical weather data, tributary flow rates, reservoir levels, weather forecasts and power generation schedules. The developed models were accurate to within an average of +/-0.5 ft over the forecast window, significantly outperforming the existing excel-based hydrological models.
- Designed ML feature stores using Snowflake and Feast enabling acceleration of Data Science model development, inference and monitoring.
- Lead project migrating large codebase (200k+ lines of code) from SAS to Oracle. Developed Generative AI tooling to automate code translation using Python, Langchain and OpenAI API. These tools saved hundreds of migrating and testing code manually.
- Prepared and presented educational sessions to the wider organisation on ML topics including MLOps and Large Language Models. Mentored team members on Git and SQL best practices.

Data Science Manager / Lead Data Scientist - [Vanquis Bank](#), London | Dec 2017 - Apr 2022

Hands-on manager responsible for leading Machine Learning projects across the bank.

- Redeveloped SAS scorecard development tools using Python, reducing scorecard development time from days to less than 10 minutes.
- Pioneered MLOPs frameworks, leveraging Git, Azure DevOps, Azure Repos and Azure ML Studio to automate model builds and deployments.
- Built machine learning models across the business including:
 - Application Fraud model using gradient boosting. Results from A/B testing indicate reduced fraud losses of £278k per year.
 - Collections contact model to predict the best time to call customers, increasing right party contact rates by 25%.
 - Application of NLP methods to categorise CRM notes from customer interactions, providing valuable insight to Operations.
- Automated ML model monitoring reporting to update dashboards in sync with changes to source data.
- Lead and mentored a team of 3 Data Scientists.
- Prepared and presented workshops to introduce ML concepts and the use of Git across the organisation.

Senior Consultant - Euristix, London | Sep 2016 - Dec 2017

Responsible for leading model development and data science projects.

- Developed IFRS9 model to forecast expected credit losses for Mortgage book. Methodology used roll-rate driven Markov decision process linked to economic indicators.
- Developed debt pricing models using decision trees and regression models to provide pricing estimates to debt collection agencies.
- Implemented novel modelling approaches using trigonometric functions to model time-series data.
- Lead and mentored a team of 3 analysts, managed objectives and career progression.

Credit Risk Manager - ANZ, Auckland | Jun 2013 - Sep 2016

Optimisation of new business and existing customer credit risk strategies using quantitative methods.

- Developed a new credit limit assignment strategy using decision trees and k-means clustering. This work was expected to generate a \$1M p.a. profit uplift and one-off capital savings of \$3.5M.
- Analysed and improved policy rule set for credit cards increasing approval rates from 73% to 80%.
- Developed profitability model for credit cards utilizing transaction level data. Model was used to design score cut offs and limit assignment strategies to achieve target RoE of 25%.

Credit Risk Analyst / Graduate Analyst - GE Capital, Auckland | Apr 2010 - Jun 2013

Responsible for the optimisation of credit risk collections strategy for credit cards and personal loans.

- Used linear regression to predict total payments to be recovered on charged-off debt in the following 12 months. This model was used to rank and prioritise collection accounts. A/B testing results showed a recoveries uplift of 22% over 6 months when using this model vs control.
- Responsible for producing monthly Credit Scorecard monitoring reports for Credit Cards.
- Conducted A/B testing of various contact channel combinations in order to formulate improved contact strategies.

Education & Certifications

MSc Artificial Intelligence (Distinction) - University of Bath | 2020-2023

BSc Economics & Finance (Honours) - University of Waikato | 2005-2009

Snowflake SnowPro Core Certification - Snowflake | 2024

Deployment of ML Models - Udemy | 2021

Deep Learning Specialization - Coursera | 2019

Machine Learning - Coursera | 2015

Projects and Interests

- [Multi-Agent Reinforcement Learning for Capture The Flag](#): Agents learn to play Capture The Flag using multi-agent reinforcement learning.
- [Book Recommendation System](#): A book recommendation system using similarity of book review embeddings.
- [Markets Dashboard](#): Dashboard for tracking market movements and correlations across multiple asset classes.
- [Portfolio Optimisation](#): Optimises allocation of a set of assets using classical portfolio theory.
- [Meal Deal Optimiser](#): Optimises a Sainsbury's meal deal according to the user's nutritional goals.
- [Running Calorie Calculator & Meal Planner](#): Calculates the calories burned and generates a meal plan based on the user's activity level.

Interests

Outside of work I enjoy recreational programming, running, cycling, swimming, reading (mostly non-fiction), and making music.