Dr. Jennifer **Owen**

Senior Data Scientist

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Professional Summary

I am a data scientist who is passionate about providing innovative solutions to data problems. I deliver business-driven data science solutions to Credit Risk problems at Tesco Bank with an emphasis on explainability and model Fairness. Before joining Tesco Bank, I successfully lead data science projects at Nationwide Building Society, winning multiple awards for my commitment and innovation. Prior to this, I completed my PhD in computational biology where my statistical modelling lead to breakthroughs in cell biology, evidenced by publications in high-impact journals. This combination of technical expertise and flexibility sets me apart from other data scientists.

Relevant work experience

Present – May 2022 | Senior Data Scientist | Tesco Bank

- Successfully developed four novel Machine Learning (ML) models for credit card and loan applications, each estimating to reduce bad debt by approximately 20% in their respective areas.
- Support the live implementation of ML models by assisting MLOps teams to swiftly troubleshoot any issues, ensuring quick and successful utilisation of ML models.
- Ensure the business stays ahead of new ML regulation as designated Fairness champion, by developing the banks model Fairness methodology and acting as a knowledge point for ML Fairness and Explainability.
- Mentor and provide technical leadership to junior members of the team including supervising an internship project of a PhD student which lead to the implementation of a novel Fairness metric for pricing.
- Communicate with audiences with varying technical capability, from engaging credit risk stakeholders with model developments in demos, collaborating with other data scientists as part of hackathons and BAU, to presenting our new fairness methodology to 200+ colleagues at the national Tesco Data Science Conference 2023 in London.
- Remain at the forefront of emerging technologies by attending important data science and credit risk conferences such as the Open Data Science Conference 2023 in London and the Credit Risk Conference 2023 in Edinburgh.
- Proactively keep up-to-date with new research in the field of data science and when relevant explore potential business benefit either independently or in collaboration with other data scientists *e.g.* exploring the potential of transformers.
- Certified as an agile safe practitioner and experienced with agile ways of working.

R | R markdown | Python | SAS/SQL | Git | SAFe Agile | Azure Databricks

May 2022 – Feb 2021 | Senior Risk Analyst - Advanced Analytics | Nationwide Building Society

- Worked within the risk community, developing, documenting and delivering advanced analytic tools across Credit Risk and Financial Crime.
- Developed prototype ML models in Python and then implemented them in SAS and/or Python.
- Proactively engaged senior stakeholders with developments, including non-technical audiences.
- Trained, coached and mentored junior members in the application and best practise of data science, including leading data science workshops.
- Line managed one risk analyst, developing their soft and technical skills.

Awards

- Winner : “Have a go” quarterly award for the creative approach I took to develop a new model for assessing Prime Mortgage applications. The approach dramatically improved upon the existing model and is estimated to save Nationwide millions of pounds each year.
- Winner : “Employee of the Quarter” for excellent work ethic and commitment to always ‘going above and beyond’. I analysed a high profile Fraud case at pace, requiring my expertise in advanced analytics. This highly successful project was presented to the Chief Risk Officer.
- Runner up : “Fresh Perspective” annual award for implementing a novel technique in Python for interpreting ML models.

Python | SAS/SQL

2020 – 2019 | Research Associate (6 months) | University of Bristol with the World Health Organisation

- Delivered a bespoke data-driven statistical model to answer an open-ended question regarding health care testing.
- Provided recommendations to key stakeholders based on model outputs that informed 2021 guidelines.
- Communicated results through presentations and a peer-reviewed publication.

Python

2020 2019 | Data Analyst Intern (3 months) | Public Health England

- Communicated data-driven insights into the spread of E-coli across the UK.
- Developed an automated data visualisation tool in R markdown using complex health data.
- Delivered a statistical model for the spread of measles infection in R utilising data from multiple sources.

R | R markdown | SQL

2016 and 2015 | Risk Analyst Intern - Model Risk Oversight (2 x 3 months) | Nationwide Building Society

- Provided recommendations to senior stakeholders about implementation of forecasting models.
- Delivered an interactive dashboard and developed metrics that categorised and ranked twitter comments.

SAS/SQL

Academic Qualification and Achievement

2020 2016 | PhD | Computational Biology | University of Bath

- Applied expertise in mathematical modelling and computation to a unique and complex problem in biology.
- Performed statistical analysis, hypothesis testing and experimentation in an iterative process to generate a robust mathematical model implemented in Python and Matlab.
- Produced high quality original research, recognised by publications in top international journals.
- Collaborated with academics across multiple fields including mathematics, genetics and cell biology.
- Elected doctoral representative for my PhD cohort for two consecutive years at the University of Bath, acting as a point of contact for all Bath students and influencing important decisions in committee meetings.
- Awarded the New England Biolabs prize for best PhD talk in 2017 and best poster in 2016 for good communication.
- Shortlisted for the 2021 Godfrey and Sue Hall Postgraduate Research Student Prize for the best research student.

Teaching and Mentoring

2014 – 2020 Teaching Assistant, *Mathematics Department, University of Bath.*
2018 - 2019 Mathematics Tutor (GCSE), Bath - student received an A*

Python | MATLAB | Git

2016 2012 | First class (Hons) MMath | Mathematics | University of Bath

Thesis in mathematical biology (82%). Modules included scientific computing, op. research and probability.

Teaching and Mentoring

2015-2016 Teaching Assistant, Mathematics Department, University of Bath.
2014-2015 Peer mentor, Mathematics Department, University of Bath - won peer mentor of the year.

2012 2010 | A-Levels | Farnham College, Surrey

Maths : A*, Chemistry : A*, Biology : A, AS-Levels : Further Maths : A, Psychology : A.
Received an award for academic excellence in 2012 for my exceptional exam results as well as the Graham Blunt Award for Outstanding Achievement in Science.

Relevant Skills

Programming languages and tools

- R and R markdown (5+ years), for building statistical models and generating data insights
- Python (5+ years), including scikit-learn, statsmodels, pandas, NumPy and PyTorch
- SAS/SQL for data extraction (5+ years)
- Git for version control (3+ years)

Machine Learning

- Standard Machine Learning techniques including logistic regression, decision trees and ensembling (including xgboost)
- Machine Learning processes and best practices (e.g. validation, choosing appropriate evaluation metrics)
- Machine Learning explainability and Fairness
- Application of techniques for handling class imbalance problems such as SMOTE and undersampling
- Unsupervised Machine Learning algorithms for outlier detection

Agile working

- Certified Agile SAFe® 5 Practitioner (July 2022)

Personal Interests

I am enthusiastic about exercise and enjoy climbing, running and CrossFit in my spare time.