Tom Blain

I am interested in researching in the computational statistics and machine learning field. I have strong skills implementing ML algorithms in Python, with experience in both Bayesian and frequentist inference and a solid foundation in mathematical and statistical principles. I am passionate about solving challenges based on the limitations of current ML algorithms, with a focus towards application to solve real world issues.

Proficient in *R, Python, JAGS, C#, LaTeX*

Skilled in pandas, Scikit-learn, PyTorch - Experience with gradient boosting, random forests, ANN, NLP and many modern ML approaches with experience implementing these in research based kaggle competitions.

EDUCATION

University of Bristol *Sept 2019 - Jun 2023*
MSci in Mathematics

Relevant units including Markov Chain Monte Carlo Methods, Data Science, Bayesian Modelling, Theory of Inference, Artificial Intelligence, Mathematical Programming, Stochastic Optimisation, Statistics and Probability, Complex Networks, Multivariate Analysis.

PREVIOUS PROJECTS

Variational Inference Research Project Sept 2022 - May 2023
· Large research project on Variational Inference techniques used for modern data science
· Study into Meanfield VI, Automatic Differentiation, Reparameterization trick, Current research areas

Porto Seguro's Safe Driver Prediction (Python/R) - Kaggle Oct - Dec 2022
· Bayesian optimization of LightGBM boosting algorithm to predict probability of driver filing an insurance claim
· Exploratory data analysis to deal with difficult to work with big data

Bayesian analysis of sleep onset and duration (R) Apr 2022
· Gibbs sampling MCMC analysis (JAGS)
· Fitted posterior with Highest posterior density intervals for parameters

Automatic Playlist Continuation on the Spotify platform (Python) Jan - Apr 2022
· Extracting features from a large dataset using Spotify API and NLP vectors.
· ANNOY Approximate Nearest Neighbours Model with an angular distance metric.

Code Breaking with Statistical Physics (Python) Jan - May 2021
· Analysing frequency of n-grams in various languages
· Metropolis–Hastings MCMC Algorithm to solve difficult given ciphers

EXPERIENCE

Airbus Oct 2018 - Jan 2019
· Designing and developing an AI system for frequency allocation with a professional team.

House of Lords Nov 2018
· Participating in a discussion on the future of cybersecurity in the modern world led by industry professionals.

BAE systems Jun - Jul 2019
· Taking part in a work experience scheme with the cybersecurity department.

PREVIOUS ROLES

Front of house Jun - Nov 2021

· Worked with an acclaimed chef to design a social enterprise community supermarket to support local producers, funds for the project are being raised from selling a restaurant cookbook which I helped edit and photograph. As the only member of the waiting team, I improved my design making under pressure and gained valuable skills communicating with guests.

Supercell/The Diana Award Youth Board 2016-2019

· Working closely with charity The Diana Award, I visited Helsinki on numerous occasions to work with popular gaming company Supercell on safety measures for children in the online world. During this role I also worked with MP's to promote UK wide anti-bullying campaigns, and worked with Facebook as part of a small focus group launching a national campaign with aims to decrease online bullying on Facebook platforms.

A level Mathematics (A*), Further Mathematics (A) and Computer Science (A)