BENJAMEN SIMON

Data Scientist, PhD

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Languages & Aptitudes: `Python` | `R (R Studio)` | `Julia` | `SQL` | `git` | GitHub | AWS | `LaTeX` | `Jupyter Notebooks` | `Markdown`

Technical Skills: **Markov chain Monte Carlo** | **Bayesian Statistics** | **Parametric Modelling** | **Simulation** | **Exploratory Data Analysis** | **Hypothesis Testing** (inc. T-tests) | **Generalised Linear Modelling** (inc. Logistic Regression) | **Project Management** | **Data Pipeline** (Cleaning, Wrangling, Modelling, Visualisation, Interpretation)

EXPERIENCE

Data Scientist — Jan 2022 - Apr 2022

UK Health Security Agency

- Early career research intern specialising in modelling epidemics. Supported the Epi-Ensemble team who predict the reproduction number of COVID-19 and report weekly to a national body of shareholders to inform policy and the public.
- Redeveloped and improved the EpiBeds COVID-19 model using Markov chain Monte Carlo methodology to improve the reliability of the inference, automate the tuning process, and increase the speed of the code, saving 15 hours of work each week.
- Led meetings with external shareholders to investigate what models and methods could be on-boarded to improve the accuracy and scope of our predictions, leading to the onboarding of two new models.
- Suggested and led a workshop for new starters to discuss their challenges and uncertainties, creating an environment of openness and growth which saved months of confusion and unproductivity and helped them feel more confident in their role.
- Gained experience with docker & containers, command line, git, version control, cloud computing / Amazon Web Services, JIRA, Confluence, Sagemaker, Jupyter Notebooks, working in an AGILE environment, liaising with senior shareholders / members of staff, teamwork, project ownership, time management, and leadership.

EDUCATION

Statistics PhD | Lancaster University — Oct 2018 - Present

- Thesis title: "Big Data for Epidemics" - Modelling Bovine Tuberculosis across England and Wales using full-likelihood MCMC methods, accounting for the big data aspect through specific modelling choices and technical optimisation.
- Skills gained: Project management, Project ownership, Time management, Markov Chain Monte Carlo, R, Julia, SQL, PostgreSQL, Data Pipeline, Data Visualisation, Epidemic modelling, Statistical Report Writing, Communication.

Statistics MSc | Lancaster University | Distinction (80%) — Oct 2017 - Oct 2018

- Relevant modules: Statistics in Practice, Likelihood Inference, Bayesian Inference, Generalised Linear Models, Computationally Intensive Methods, Principles of Epidemiology, Environmental Epidemiology, Clinical Trials.
- Thesis title: "Approximate Bayesian Computation for Epidemics" - Utilised a range of ABC methods to make inference on a selection of epidemic data sets under different model constructions, with a main case study of Sugarcane Yellow Leaf Virus.
- NIHR Studentship (Full course fees and a £15,000 stipend), Postgraduate Statistics Centre Prize for 'Excellence in Learning' (highest cohort average), Royal Statistical Society Prize for 'outstanding performance on an accredited programme'.

Mathematics BSc | University of York | First with Distinction (85%) — Oct 2014 - Oct 2017

- Relevant modules: Statistics I & II, Bayesian Statistics, Applied Probability, Linear Algebra, Multivariate Analysis, Statistical Pattern Recognition, Survival Analysis, Stochastic Processes, Time Series.
- Thesis title: "Heavy Tails, Rare Events, and Infectious Diseases" - Simulated epidemics under different constructions and a selection of methods for modelling the concept of 'super-spreading' to investigate its influence on disease spread.
- Kathleen Ryan prize for outstanding performance in final year single subject BSc Mathematics (highest cohort average).

PROJECTS & LEADERSHIP

President, Teacher, and Community Leader — Oct 2018 - Present

Lancaster University Swing Dance

- Ran and organised the organisation, everything from weekly lessons to national 3-day events. Advanced from being a new starter to the primary teacher. Grew the organisation and community in every considered metric, and revived the scene post-lockdown to flourish even more than before.
- Through the introduction of data initiatives and market research, was able to enact a range of data driven changes to the organisation which directly led to a 100% increase in membership, a 500% increase in revenue, and a 100% increase in activity, including increasing the variety of events by 100%.
- Designed and spearheaded the post-lockdown relaunch campaign whilst managing a team of volunteers and training them to be self-sufficient, meanwhile also organised and trained a cohort of new teachers and developed a culture of constructive feedback and mutual growth within the group. By the end of the year member retention was up 150% compared to pre-lockdown rates, and the volunteer organising committee doubled.
- Awarded the "Hidden Hero Society of the Year" at the university awards (2022), nominated for the performance award and personally nominated for the greatest individual contribution award, across all societies at the university.