

Paul Sharkey | Curriculum Vitae

I am an ambitious Data Scientist and Statistician with a proven track record of applied statistical modelling in both research and commercial environments. I am experienced with processing and synthesising large amounts of data to produce insights and communicating these effectively to clients and project stakeholders.

Previous Employment

- BBC** **Manchester, UK**
○ *Data Scientist* *2019 – present*
Providing specialist knowledge of statistical modelling and machine learning to multiple stakeholders from BBC News, with the aim of optimising content based on user interaction and engagement with the broadcaster. Primary focus on segmentation and NLP.
- JBA Consulting** **Skipton, UK**
○ *Statistician/Data Scientist* *2018 – 2019*
Statistics lead for an environmental engineering consultancy dealing with multiple national and international clients on projects relating to coastal and fluvial flood risk assessment. Provided expert guidance on use of extreme value methods and developed project management skills.
- Lancaster University** **Lancaster, UK**
○ *Graduate Teaching Assistant* *2014-2017*
Leading tutorial sessions for undergraduate students at all levels in Mathematics, Statistics and Management Science courses including Calculus, Probability, Bayesian inference and Business Analytics.

Education

- Lancaster University** **Lancaster, UK**
○ *PhD Statistics and Operational Research (STOR-i)* *2014–2018*
Thesis title: Statistical Models for Extreme Weather Events
Supervisory team: Prof. Jonathan A. Tawn (Lancaster University), Dr. Simon Brown (Met Office), Dr. Hugo Winter (EDF Energy).
- Lancaster University** **Lancaster, UK**
○ *MRes Statistics and Operational Research (STOR-i), Distinction* *2013–2014*
Modules taken include Bayesian inference, computer intensive methods and optimisation.
- University College Dublin** **Dublin, Ireland**
○ *BSc (Hons) Mathematical Science, First class honours* *2009–2013*
Consistently high achiever in a range of topics across the mathematical sciences, including Quantum Mechanics, Differential Equations, Complex Analysis, Monte Carlo Inference and Survival Analysis.

Technical and Personal skills

- **Statistical modelling:** Wide experience of extreme value methods, Bayesian inference, time series analysis, forecasting and optimisation, among other topics.
- **Machine learning:** Knowledge of the statistical theory underpinning modern machine learning techniques, including supervised (linear/logistic regression, decision trees, random forests, etc.) and unsupervised (k-means, spectral, DBSCAN clustering). This includes some practical experience with natural language processing tools, including topic modelling, document embedding and language models.

- **Software/Technology:** Strong proficiency in R and comfortable with Python and MATLAB. Regular user of various SQL dialects for big data technologies (Spark, Amazon Redshift, S3). Dashboarding skills in Tableau and Shiny. Git user. Strong knowledge of Windows, Linux and MacOS. Proficient in MS Office, LaTeX and Markdown.
- **Teaching and training:** Three years of experience leading undergraduate tutorials in the mathematical sciences. Involved in leading an intensive introduction to R course for undergraduate interns. Supervised and mentored an undergraduate student on a summer research project during my PhD studies. I led JBA's training course on stochastic event set methodologies aimed at both new starters and clients. I have also delivered intermediate SQL and R training courses at the BBC.
- **Project management:** Experience with handling interests of project stakeholders in the long-term as part of my PhD research. More recently, I have been project manager for two projects as part of role at JBA, as part of which I was responsible for coordinating inputs from team members, liaising with clients and handling financial administration and reporting.
- **Communication and presentation:** Presented at numerous international conferences and workshops in the last 5 years. All my roles to date have involved liaising with experts from different disciplines in the environmental sciences, media and marketing, thus requiring effective communication of statistical concepts to non-statistical audiences. I interact regularly with senior stakeholders in BBC News as part of my current role.
- **Research:** Published six papers (three as lead author) in internationally recognised scientific journals and conference proceedings.

Publications and Technical Reports

- Sharkey, P., Tawn, J.A. and Brown, S.J. (2020). A stochastic model for the lifecycle and track of extreme extratropical cyclones. Submitted.
- Sharkey, P., Tawn, J.A. and Brown, S.J. (2020). Modelling the spatial extent and severity of extreme European windstorms. *Journal of the Royal Statistical Society Series C (Applied Statistics)*. In press.
- Environment Agency (2019). Coastal flood boundary conditions for the UK: update 2018. Technical Report.
- Faulkner, D., Warren, S., Spencer, P. and Sharkey, P. (2019). Can we still predict the future from the past? Implementing non-stationary flood frequency analysis in the UK. *Journal of Flood Risk Management*. e12582.
- Warren, S., Faulkner, D., Sharkey, P., Spencer, P., Longfield, S. and Tawn, J.A. (2019). Towards incorporating physical covariates in nonstationary flood frequency analysis in the UK. *Proceedings of the 4th IMA Flood Risk conference, Swansea, September 2019*.
- Sharkey, P. and Winter, H.C. (2019). A Bayesian spatial hierarchical model for extreme precipitation in Great Britain. *Environmetrics*. 30(1):e2529.
- Barlow, A., Rohrbeck, C., Sharkey, P., Shooter, R. and Simpson, E.S. (2018). A Bayesian spatio-temporal model for precipitation extremes - STOR team contribution to the EVA2017 challenge. *Extremes*. 21(3):431 - 439.
- Sharkey, P. and Tawn, J.A. (2017). A Poisson process reparameterisation for Bayesian inference for extremes. *Extremes*. 20(2):239 - 263.

Other

- I am a Fellow of the Royal Statistical Society since 2015 and have previously served as committee member of the Lancashire and East Cumbria Local Group.
- I am a former secretary of the UK Extreme Value Theory reading group (2015 - 2017).

- I was part of a team of researchers who took second place in an international competition for extreme rainfall prediction as part of the Extreme Value Analysis (EVA) conference in 2017.
- I was involved in organising committees for two academic workshops during my time at Lancaster University.

Interests

- I enjoy running short and long distances, completing three half-marathons and aiming to run my first marathon in October!
- I enjoy hiking in the Lake District and Yorkshire Dales whenever I can.
- I like to read fiction; currently I am enjoying making my way through several titles by Margaret Atwood.

References

- Available upon request