Paul Smith, Ph.D.

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https://pws3141.github.io/

PhD-trained Statistician with advanced expertise in R (including R Shiny, Quarto, `{data.table}`, `{mlr3}`) and a solid foundation in statistical modelling, data visualisation, and reproducible research. Experienced in designing interactive dashboards, conducting complex health interventions research, and collaborating across interdisciplinary teams to inform data-driven decision-making.

Employment History

2023 – · · · ·

Statistician, NHS Blood and Transplant.
In NHS Blood and Transplant, I perform statistical analysis using organ donation and transplantation data to help improve organ utilisation and help clinicians with statistical queries and hypotheses.
Duties involve:

- Utilise R and SAS to conduct in-depth statistical analyses on organ donation data, driving improvements in organ utilisation and patient care.
- Develop interactive dashboards with R Shiny and Quarto, providing real-time insights and supporting clinicians' decision-making.
- Collaborate with universities (Newcastle, Cambridge) on research aimed at expanding organ availability and improving transplantation outcomes.
- Champion reproducible workflows and transparent methodologies across analytic projects.

2023 - 2023

Statistician (Maternity Cover), Equality and Human Rights Commission.
In the Equality and Human Rights Commission (EHRC) I had a key role in developing the portfolio of analyses across varied high-profile equality and human rights issues.
Duties involved:

- Performed statistical quality assurance and analysis for high-profile equality and human rights reports.
- Modernised the commission's analytics platform by introducing R and Power BI for interactive dashboards, boosting public engagement.
- Worked closely with internal and external stakeholders on inquiries, investigations, and compliance relating to equality and human rights.

2020 – 2022

Mathematics Teacher, St Gregory's Catholic College, Bath.
From September 2020 until July 2021 I was at St Gregory's Catholic College four days a week whilst on the 'Researchers at Schools' placement scheme. I obtained Qualified Teacher Status (QTS) in July 2021.
Duties involved:

- Taught Mathematics at KS3, KS4 (GCSE), and KS5 (A-Level), honing communication and leadership skills in an educational setting.
- Developed and delivered bespoke revision tutorials to address learning gaps post-COVID lockdowns.
- Year 7 tutor: provided daily pastoral care to Year 7 students, fostering a positive learning environment.

Employment History (continued)

2017 - 2018 **Tutorial Teacher (Probability and Statistics),** University of Leeds.
During my PhD at the University of Leeds, I taught small-group tutorials to undergraduate students in the Maths Department.
Duties involved:

- Led small-group tutorials on foundational topics (probability theory, data analysis) for undergraduate students in the Mathematics Department.
- Provided feedback on assignments and supported students' understanding of complex statistical methods.
- Was responsible for marking undergraduate exam scripts.

2015 - 2016 **Investment Advisor (Pensions)**, KPMG LLP, London.
Duties involved:

- Researched and presented investment strategies for large pension funds, including monitoring assets and liabilities.
- Enhanced client-facing skills and stakeholder communication through reporting and presentations to senior leadership.

Education

2020 – 2021 **PGCE, University of Hull** in Teaching
To obtain the PGCE I studied teaching mathematics in a secondary educational setting, including:

- Epistemological perspectives with respect to mathematical teaching, for example, behaviourism and constructivism.
- The role of intrinsic and extrinsic motivation in the classroom.
- The use of assessment in the classroom: looking at formative, diagnostic and summative assessment. Considering the policies and the theoretical frameworks that drive assessment in my school and in mathematics more generally.

2016 – 2020 **Ph.D., University of Leeds** in Statistics.
Thesis title: Forecasting Complex System Using Stochastic Models for Low Dimensional Approximations.
Supervisors: Dr. Jochen Voss, Dr. Elena Issoglio, Prof. Alan Haywood.
My PhD research involved developing methodologies for forecasting complex systems by simplifying their outputs, modelling the simplified data using stochastic processes, and then projecting the simplified forecasts back to the original high-dimensional output. During the course of my research, I utilised machine learning techniques such as Principal Component Analysis, Independent Component Analysis, and k-means clustering, as well as stochastic differential equations to model low-dimensional data.

2011 – 2015 **MMath, University of Bristol** in Mathematics
First Class Honours.
Dissertation title: *Estimating the Rate of Convergence of Monte Carlo Markov Chains*.

2009 – 2011 **A Levels, The Minster School**
A* in Mathematics, Further Mathematics, and Physics; A in Geography.

Research Publications

Journal Articles

1. E. Issoglio, P. Smith, and J. Voss, "On the estimation of entropy in the fastica algorithm," *Journal of Multivariate Analysis*, vol. 181, p. 104 689, 2021.

PhD Thesis

1. P. Smith, "Forecasting complex systems using stochastic models for low dimensional approximations," 2020. URL: `https://etheses.whiterose.ac.uk/id/eprint/27955/`.

Skills

Coding	**Advanced:** R (5+ years, including R Markdown, Quarto, R Shiny, `{data.table}`, `{mlr3}`); LaTeX; SAS. **Proficient:** Python (NumPy, Pandas, scikit-learn, TensorFlow, Keras).
Data Viz.	**Advanced:** R Markdown, Quarto, R Shiny. **Proficient:** HighCharts (via R using {highcharter}), Power BI, Power Query.
Version Control	Git, GitHub

Miscellaneous Experience

Awards and Achievements

- **Grade 8 (Distinction)**, Tenor Saxophone
- **Grade 8 (Distinction)**, Clarinet
- **Grade 8 (Merit)**, Piano

References

Available on Request