Dr. Hayley Elizabeth Louise Stagg

Personal Data

Place and Date of Birth: United Kingdom | 12 June 1993
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Education

July 2022 **Doctor of Philosophy - Mathematics**, Newcastle University
Thesis Title: "Constraining Models of Collective Motion in Biological Systems"
Supervisors: Dr. Andrew Baggaley, Dr. Colin Gillespie

July 2016 **PgDip - Cloud Computing for Big Data**, Newcastle University

July 2015 **MMath - Mathematics**, Newcastle University
First Class Honours
Project Title: "Collective Animal Behaviour: Fish Schools"

Aug 2011 **A-Level**
Mathematics: A*| Further Maths: A* | Physics: B | Chemistry: B

Aug 2009 **GCSE**
10 GCSEs A*-B | Including A* in Mathematics and
A's in Physics, Chemistry, Biology and Spanish.

Work History

2022–Present | Senior Information Analyst at North East Ambulance Service Trust
Working alongside other senior analysts and the information manager in developing reports and dashboard systems, monitoring Trust performance and the development of service level agreements, and providing high quality information to help the Trust to achieve its business objectives.
Facilitating the modernisation of the Trust business analytic services by migrating reporting to PowerBi and taking the lead on improving accuracy and ensuring consistency of data quality though the migration process.
Assisting research colleagues in analysing and interpreting complex clinical data sets ensuring that the conclusions drawn are presented in an accessible and clear way for publication.

2019–2022 | Information Analyst at North East Ambulance Service Trust
Undertaking data analysis, interpretation and data quality monitoring to ensure the Trust is able to use appropriate high quality information. Supporting the information manager and senior analysts in developing information systems and ensuring accessible, accurate and timely responses to data requests.

2016–2022 | PhD Researcher at Newcastle University
Research included developing a semi-supervised machine learning model utilising computer vision, then comparing the movements of animals in aerial footage with numerical simulations of several mathematical models of collective motion in biological systems.

Sept–Dec 2018	Research and Development Intern at North East Ambulance Service Trust Analysing 999 and 111 call data to investigate whether predictions could be made on if patients seen by ambulance staff will be conveyed to hospital, based solely on data available during the call; such as age, location, category of response etc.
2016–2019	Undergraduate Assignment Marker at Newcastle University Marking undergraduate assignments in the School of Mathematics and Statistics at Newcastle University. Responsibilities also included teaching undergraduate level mathematics to students who requested assistance in tutorials or computer practicals.
2013–2015	Undergraduate Summer Projects at Newcastle University Creating statistical resources for psychology and engineering undergraduates outside of the School of Mathematics and Statistics at Newcastle University. This included editing a wiki to include full methods, worked examples and online tests. Researching what effects factors; such as rain, light, speed limit, have on the probability a road accident occurring. Creating maths resources for A level students for tutors to use. This included writing lots of worksheets with methods and worked examples.

Skills Summary

Programming	Extensive knowledge of querying complex databases using SQL, with data visualisation in SSRS and PowerBI. Implementing standard statistical tests in SQL to display in reports. Extensive knowledge of programming with Python and R. Academic research utilising the NumPy, SciPy, OpenCV and Sklearn packages, with data visualisation using the matplotlib and PyPlot packages. Clinical statistical analysis in R utilising the Tidyverse, forecast and prophet packages, with drafts of exploration written in R markdown. Experience working in DAX and PowerQuery for PowerBI reporting. Adept at writing publication-quality documents with LaTeX. Knowledge and experience of working with Matlab and Bash scripting.
BI	4 years experience in providing datasets to the wider NHS, including daily covid monitoring, and building complex reports for internal Trust BI. Working with multiple data sources as information flows through data warehouse pipelines. Experience working with real time data, such as telephony and clinical data, to ensure up to date BI. Forecasting service demand based on time series models of highly seasonal data.
Research	5 years academic experience in mathematical research, including computational mathematics, computer vision, numerical analysis and data visualisation. 6 years experience in clinical research, including numerical and statistical analysis.
IT Skills	Familiar with several operating systems including Microsoft Windows, OS X, and GNU/Linux. Experience with the Git/Github version management tools and familiar with Makefiles and Unix shell scripting. Extensive knowledge of Microsoft Office 365 and other Microsoft data software, such as SSMS, SSRS and PowerBI.
General	Proven public speaking, collaboration, and communication skills. Fast learner with excellent problem solving skills, enthusiastic and hard working individually or in a team. Good time management skills, working efficiently to deadlines.

Scholarships and Awards

Sept 2015	CDT for Cloud Computing and Big Data Doctoral Training Grant, EPSRC
July 2015	Best Applied MMath Project Poster, Newcastle University
July 2015	Student Contribution, Teach First

Publications

2023 Rural versus urban out-of-hospital cardiac arrest outcomes in the North East of England from 2018 - 2019; A retrospective analysis
Owen Finney and Hayley Stagg
Pending (expected September 2023)
British Paramedic Journal

The clinical effectiveness of a falls rapid response service, and sex differences of patients using the service: a cross-sectional study in an English ambulance trust
Karl Charlton, Hayley Stagg and Emma Burrow
June 2023
British Paramedic Journal, 8(1), pp. 28-33(6)
https://doi.org/10.29045/14784726.2023.6.8.1.28

2022 Prognostic value of lactate in out-of-hospital cardiac arrest: a prospective cohort study
Karl Charlton and Hayley Stagg
April 2022
Journal of Paramedic Practice 14(4):138-145
http://dx.doi.org/10.12968/jpar.2022.14.4.138

Predicting conveyance to the emergency department for older adults who fall
Karl Charlton, Hayley Stagg and Emma Burrow
April 2022
Journal of Paramedic Practice 14(4):162-168
http://dx.doi.org/10.12968/jpar.2022.14.4.162

2021 Incidence of emergency calls and out-of-hospital cardiac arrest deaths during the COVID-19 pandemic: findings from a cross-sectional study in a UK ambulance service
Karl Charlton, Matthew Limmer and Hayley Moore
April 2021
Emergency Medicine Journal 38(6):emermed-2020-210291
http://dx.doi.org/10.1136/emermed-2020-210291

2020 Intravenous versus oral paracetamol in a UK ambulance service: a case control study
Karl Charlton, Matthew Limmer and Hayley Moore
May 2020
British Paramedic Journal 5(1):1-6
http://dx.doi.org/10.29045/14784726.2020.06.5.1.1

References

Available on request.