

EDWARD PEARCE

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EDUCATION

The University of Sheffield, PhD in Mathematics

October 2016 - Present

Supervisor: Dr. Paul Johnson

University of Warwick, MMath Master of Mathematics

October 2012 - July 2016

First Class Honours. 92.8% overall; top 2% in a class of ≈ 300 .

EXPERIENCE

Health Data Insight

July 2019 - September 2019

Cancer Data Analyst

Cambridge, UK

- Using Python and SQL for data extraction, automating statistical tests, visualization
- Building a framework to analyse synthetic datasets of patient tumour records
- Presenting results to HDI board members and Public Health England stakeholders
- Chairing Analysts East team meeting; organising social events (group meals, punting)

STFC AI&ML Summer School UCL

July 2018

- Lectures from ASI Data Science on machine learning algorithms in theory and practice
- Practical labs using cloud computing with Intel (Devcloud), Amazon (Web Services), Nvidia
- Case studies on applications in industry and physics from Dell, Mellanox, LIGO, SKA
- Poster session presenting; volunteering for an outreach event to teach secondary school children about decision trees and deep learning using LHC data.

TAS Services Ltd

July 2016 - September 2016

Research Analyst

Hong Kong

- Using Python for web scraping, data analysis and interfacing with SQL and mongoDB
- Automating data comparison across multiple sources for accurate data management
- Linking databases and preparing data for statistical modelling
- Discovering a new culture through international work experience

Warwick Maths Society

February 2014 - April 2016

President (2015/6) & Sponsorship Officer (2014/5)

University of Warwick

- Managing a team of 15 exec members, chairing meetings, and organising events of varying sizes for our 900-strong membership, including external trips, summer BBQ
- Secured two new sponsors for the society, increasing sponsorship funds by 100%
- Presenting at the Warwick Imperial undergraduate conference on my URSS summer research project.
- Delivered a revision lecture on linear algebra to over 200 of my peers

PROJECTS

Sporadic Finite Subgroups of $SL(3, C)$ and their McKay Quivers

July 2015 - September 2015

Funded by grant through the Undergraduate Research Scholarship Scheme, supervised by Professor Miles Reid, University of Warwick. Source code: <https://github.com/edwardmpearce/urss-project>

Presented at Warwick Imperial Autumn Meeting (Uni. of Warwick, Nov. 2015)

Personal Website Spring 2019 - Present
Website for online resume, teaching material, mathematical puzzles, web development practice.
Written with Hugo (static site generator). Continuous Integration with Travis CI.

Partitions Lab Spring Semester 2019
Tutorial website about integer partitions, with interactive code cells using SageMath computer mathematics software. Written with Hugo, LaTeX, TikZ, HTML, JavaScript.

Artificial Intelligence and Earth Observation for the Prediction of Malaria Outbreak Risk May 2019
Data science project for isardSAT using satellite data on soil moisture and land temperature.
Source code: <https://github.com/edwardmpearce/cardiff-study-group-ai-in-healthcare>
Presented at Innovate UK AI in Health & Care Study Group with Industry at Uni. of Cardiff.

Simulacrum Test Suite July 2019 - September 2019
Software for calculation and visualisation of statistical tests comparing a synthetic dataset with its training set, written using Python, SQL. Presented at HDI Symposium (Cambridge, Nov. 2019)

Physics Simulation: n-body system Spring Semester 2020
Extracurricular course assignment for COM4521 Parallel Programming with GPUs. Comparing performance of serial and parallel programming techniques using C, OpenMP, and CUDA.
Source code: <https://github.com/edwardmpearce/COM4521>

PyParti: Python for Partitions July 2020
Python/SageMath package for integer partitions, combinatorics calculations and visualization.
Automated testing with GitHub Actions workflow. Cloud-hosted notebooks with Docker and Binder.
Source code: <https://github.com/edwardmpearce/pyparti>

TEACHING EXPERIENCE

Graduate Teaching Assistant October 2016 - December 2020
University of Sheffield: Face-to-face and online teaching experience leading tutorials on topics including: MAS110/1 Mathematics Core 1/2; MAS114 Numbers and Groups; MAS140 Engineering Mathematics; MAS115 Mathematical Investigation Skills; MAS212 Scientific Computing and Simulation; MAS222 Differential Equations; MAS6024 MSc Statistical Data Science in R.
Class sizes of around 20 for programming labs, 15-35 for mathematics tutorials, 40 for engineering mathematics tutorials and MSc computer labs.

Supervisor October 2015 - July 2016
University of Warwick: Small group supervisor for 2x5 1st year mathematics students plus marking.
Modules covered: MA132 Foundations, MA133 Differential Equations, MA136 Introduction to Abstract Algebra, MA131 Analysis I and II, MA106 Linear Algebra, MA134 Geometry and Motion.

Poster presentations
Hilbert schemes of Cyclic Quotient Surfaces, Géométrie Algébrique en Liberté XXVI (Uni. of Strasbourg, June 2018), STFC Summer School in AI&ML (UCL, July 2018)
Fabulous Fractions and Musical Scales, Faculty of Science Graduate Student Showcase (Uni. of Sheffield, April 2018)

ADDITIONAL SKILLS

Computer Languages	Python (pandas, scikit-learn, Tensorflow, Plotly), SageMath, C (OpenMP, CUDA), R, Java, Matlab, Mathematica, Magma
Databases	MySQL, Oracle SQL, mongoDB
Tools	LaTeX, git, Unix shell (bash), Hugo
Languages	English (native), Mandarin Chinese (Limited working proficiency)
Interests	Chinese films, Hot Yoga, Theatre (Shakespeare), Hiking (Peak District)