

James A. J. Rynn

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jamesrynn.github.io

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James Rynn

Numerical Analyst & Statistician

About me I have recently submitted my PhD thesis on efficient uncertainty quantification and am awaiting my defence. During my PhD I have developed capability in uncertainty evaluation, data analysis, and modelling, and improved my teamwork and communication skills. Solving challenging real world problems using contemporary technologies and methodologies is something I particularly enjoy. I am keen to use the problem solving and coding skills I have developed throughout my PhD in an exciting new opportunity in Data Science. The prospect of a rapidly developing work environment which regularly provides new challenges is one I feel both suited to and enthusiastic about.

Education

The University of Manchester (UoM), Manchester 2015 – present

PhD in Mathematics. Industrial CASE Award PhD studentship with the National Physical Laboratory (NPL).

- Thesis entitled ‘*On the Use of a Stochastic Galerkin Surrogate to Accelerate the Solution of PDE-Based Bayesian Inverse Problems*’ written which contributes a novel solution to an industrial inverse problem of interest to NPL as well as numerical demonstration of existing theoretical results, both implementing routines to solve certain problems orders of magnitude faster than conventional approaches.
- Research undertaken on the use of surrogate MCMC sampling approaches to solve Bayesian inverse problems.
- My research involved extensive use of MATLAB to develop my own bespoke (stochastic Galerkin) finite element code.
- Throughout my doctoral training I have developed my oral presentation skills. I have presented work at various prestigious conferences in the UK and abroad.
- I have developed my scientific writing skills in the preparation of my PhD thesis as well as the preparation of material for publication in a peer-reviewed scientific journal.
- I completed MSc modules on Scientific Computing, MCMC and Finite Element Approximation.

The University of Bath (UoB), Bath 2011 – 2015

MMath Undergraduate Masters in Mathematics. 1st Class (Hons).

- MMath Project: ‘*Fluid Mechanics Using a Serret–Frenet Frame*’.
- Completed modules on Probability, Statistics, Numerical Analysis, Programming and Discrete Mathematics, and Optimisation Methods of Operational Research.

Runshaw College, Leyland 2009 – 2011

A-Levels: Mathematics A*, Further Mathematics A*, Physics A* & ICT A.

Albany Science College, Chorley 2004 – 2009

GCSEs: 13 grade A*–A inc. Mathematics (A*) and English (Lang. A, Lit. A*).

Publications

J. A. J. Rynn, C. E. Powell, S. L. Cotter and L. Wright, *Surrogate Accelerated Bayesian Inversion for the Determination of the Thermal Diffusivity of a Material*, Metrologia, 56 (2019), p. 015018.

Technical Skills

- | | |
|----------------------------------|--|
| ○ MATLAB (Advanced) | ○ Python (Intermediate) |
| ○ Mathematica (Advanced) | ○ Git (Intermediate) |
| ○ LaTeX (Advanced) | ○ C++ (Past Experience) |
| ○ R (Intermediate) | ○ Julia (Past Experience) |
| ○ HTML (Intermediate) | ○ Familiarity with Windows, Linux and Mac OS operating systems |
| ○ Microsoft Excel (Intermediate) | |

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Work Experience

National Physical Laboratory

- **Summer Placements**, three 1 month placements developing my own solution of an industrial inverse problem and shadowing my industrial supervisor. Took an active part in the Data Science team, including giving seminars to non-mathematical colleagues. **Jun 2016, Aug 2017, Aug 2018**

The University of Manchester

- **Supervisor for undergraduate mathematics courses**, assisting with classes of up to 50 students. **Sep 2016 – Jun 2019**
- **Service course tutor**, leading classes of up to 30 non-mathematics students on undergraduate courses. **Sep 2016 – Jun 2019**
- **Lead demonstrator**, leading a computer lab class of up to 80 students learning Mathematica, marking coursework. **Feb 2017 – Jun 2017**
- **Exam marker and invigilator** for various undergraduate courses in mathematics. **Jan 2017 – Jun 2019**

The University of Bath

- **Tutor for undergraduate mathematics courses**, leading classes of up to 15 first year students, marking written work. **Sep 2013 – Jun 2015**
- **Maths and Statistics Help Tutor**, supporting first year students with their studies at weekly drop-in sessions. **Sep 2012 – Jun 2013**

Positions of Responsibility

- **Organiser** of UoM postgraduate 5-a-side football. Responsible for booking pitches, collecting money and allocating teams. **Jan 2016 – Jun 2019**
- **Co-organiser** of the 'Informal Applied' seminar. Responsible for chairing seminars, organising speakers and securing funding. **Sep 2017 – Jun 2018**
- **UoM Postgraduate Student Rep** for Mathematics. **Sep 2017 – Aug 2018**
- **Co-organiser** of Manchester Research Students' Conference 2016. Responsible for producing programmes, chairing sessions and organising evening social activities. **30 Sep 2016**
- **UoB Undergraduate Student Rep** for Mathematics (Elected). **Oct 2013 – May 2015**

Miscellaneous

Prizes

- 'Best Student Presentation' at NAConf 2017. **30 Jun 2017**
- 'Ralph Hope Prize for Mathematics' at Runshaw College. **12 Dec 2011**

Events Organisation

- Coordinated the UoM team for the UK Maths Postgraduate Football Championship 2017, £620 sponsorship for kits and travel obtained from the UoM mathematics department. **22 Jul 2017**
- Co-organiser of the UK Maths Postgraduate Football Championship 2016, £1000 sponsorship obtained from ATASS Sports. **30 Jul 2016**

Outreach & Charity

- Gave '*Mathematics: Degrees and Careers*' talk to over 60 local high school children as part of the Manchester Access Programme - UoM's flagship widening participation scheme. **3 Jul 2019**
- Ran the Bath Half Marathon as part of a group of 12 former teammates raising money for Rainforest Concern. **17 Mar 2019**
- Co-organiser of a UoM Staff v Students Charity Football Match raising money for Wood Street Mission. **26 May 2018**
- Climbed Mount Kilimanjaro, raised £3000 for The Children's Society (individual total). **Jun 2014**

Interests

Football, running, travel, badminton, film and live music.