Ryan **Hannam, PhD**

Researcher · Data Scientist · Tech Nerd

London N4, UK

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Skills

Programming	Python, C/C++, Mathematica, R, MATLAB, Bash, SQL, LaTeX, Git
Graphics	Inkscape, Photoshop
Operating Systems	Linux, MacOS, Windows

Work Experience

Postdoctoral Research Associate
London, UK

London Institute for Mathematical Sciences — *Since Jul. 2020*

- Collaboration with bit.bio to study cell programming & reprogramming using network models, and network inference of transcription factor candidates for direct reprogramming from iPSC states.

Research Associate
London, UK

King's College London & ClickSymptoms — *Jan. 2020 - Jul 2020*

- Developed an algorithm to diagnose musculoskeletal conditions from patient symptoms, using Bayesian inference & bipartite network theory. The algorithm was tested, documented and built into a python package.

Data Science Intern
London, UK

FNA (Financial Network Analytics) — *Apr. 2018 - Jul 2018*

- Exploratory analysis, cleaning and wrangling of large amounts of text data for a client project in the legal sector
- Remote collaboration: documentation and presentation of project work with colleagues based around the globe.

Graduate Teaching Assistant
London, UK

Department of Mathematics, King's College London — *2017 - 2018*

- Computational Methods in Complex Systems (Lectured and tutored computer lab sessions);
- Probability & Statistics II, 5CCM241A/6CCM241B;
- Introduction to Dynamical Systems, 4CCM131A/5CCM131B;
- Theoretical modelling of non-equilibrium systems research project, 7CCMNE07.

Education

PhD in Applied Mathematics
London, UK

King's College London — *Oct. 2015 - Jun. 2019*

- 50,000 word original thesis on an interdisciplinary topic: "Cell states, fates and reprogramming: insights from neural networks, graphical and computational approaches." Supervised by Dr A. Annibale & Prof. Reimer Kühn.
- Collaborative and transferable skills developed in the Cross disciplinary Approaches to Non-Equilibrium Systems (CANES) Centre for Doctoral Training (CDT) - Participation in group research projects, journal clubs, seminars and annual retreats.
- Industrial research exposure through interaction with CDT partners including Microsoft Research, Unilever, Citibank, Fios Genomics, etc.
- Scholarship funded by the Engineering and Physical Sciences Research Council.

Lake Como School of Advance Studies
Como, Italy

School on Advances in Complex Systems — *Jul 2017*

- International school focused on interdisciplinary approaches to tissue regeneration, chromatin conformations and telomers, bio-inspired materials, protein aggregation and complex networks in health sciences.

Winter School on Quantitative Systems Biology
Trieste, Italy

International Centre for Theoretical Physics (ICTP) — *Dec. 2016*

- Physical and biological principles of the development of multicellular organisms, with a main focus on morphogenesis.
- Presented a research poster on my PhD topic at the end of the school.

Systems Biomedicine Graduate Programme
London, England

Institute of Mathematical and Molecular Biomedicine — *Sep. 2015 - Sep. 2016*

- Introduction to Systems Biomedicine for quantitative researchers.

MSc in Non-Equilibrium Systems: Theoretical Modelling, Simulation and Data Analysis
London, England

King's College London — *Sep. 2014 - Sep. 2015*

- Engineering and Physical Science Research Council (EPSRC) funded training programme with focus on interdisciplinary research methods.
- Modern research topics: Complex systems theory, statistical learning & inference, rare events & large deviation theory, game theory.

BSc Physics 1st Class Honours

Dundee, Scotland

University of Dundee

Sep. 2010 - Jul. 2014

- Original Honours project including 25,000 word thesis.
- Awards: James Durham Prize for outstanding final year students; 1st year class medal for highest preforming student.

Communication

Oral Presentations

Spoke on various research topics at the following international events

- Statistical Mechanics of Complex, Glassy & Non-equilibrium Systems (CGNeS), King's College London, UK, 2017;
- Winter Workshop on Complex Systems 2017 (WWCS2017), Petnica Science Centre, Serbia, 2017;
- CONES: Conference on Non-Equilibrium Systems, Goodenough College, UK, 2016;
- CANES Centre for Doctoral Training Annual Retreat, London, UK, 2016.

Poster Presentations

Presented research posters at the following international events

- CONES: Conference on Non-Equilibrium Systems, King's College London, UK, 2018;
- Mathematical Innovation for Biomedicine Conference, King's College London, UK, 2017;
- StatPhys26: International Conference on Statistical Physics, Lyon, France, 2016;
- CONES: Conference on Non-Equilibrium Systems, Goodenough College, UK, 2016;
- CANES Centre for Doctoral Training Annual Retreat, Cumberland Lodge, UK, 2015.

Publications

Percolation in bipartite Boolean networks and its role in sustaining life

R. Hannam, R. Kühn and A. Annibale, J. Phys. A: Math. Theor. 52 334002 *2019*

- Article selected for the "Disordered serendipity: a glassy path to discovery" special issue of the Journal of Physics A: Mathematical and Theoretical from the Institute of Physics.

Cell reprogramming modelled as transitions in a hierarchy of cell cycles

R. Hannam, A. Annibale, and R. Kühn, J. Phys. A: Math. Theor. 50 425601 *2017*

- Article selected for the "Highlights of 2017" issue of the Journal of Physics A: Mathematical and Theoretical from the Institute of Physics.

Organisation

Workshop Founder

London, UK

Quantitative Systems Biology 2017 *Nov. 2017*

- Founder and co-host of the QSB workshop held at King's college London, which has gone on to become a successful annual workshop series.
- Website design and creating promotional material; liaising with sponsors, speakers and attendees; event management (venues, catering and programme design).

Student & Staff Liaison Committee member

Dundee, Scotland

University of Dundee Physics department *Sep. 2010 - Sep. 2014*

- Acted as a point of call between students and research staff for internal affairs in the department.
- Sat on committee meetings taking minutes and discussing departmental activities, outreach opportunities, etc.

Outreach

Paths to Utopia

London, UK

Exhibition at Somerset House *2016*

- Video interview discussing the benefits of scientific work for an exhibition at Somerset House.

Printing the moon - NASA Space Apps Challenge

Edinburgh, Scotland

Collaboration between the Universities of Dundee & Northumbria *2013*

- Worked as part of a team to successfully 3D print a moon crater from open source data. The aim of the project was to provide high school students with a physical object to interact with when studying astronomy.
- Presented work at the Late lab of the 2013 Edinburgh Science Festival.

Dundee Science Festival

Dundee, Scotland

Lab tour guide and demonstrator *2012*

Dundee University Physics Society

Dundee, Scotland

PR officer *2011 - 2013*

- Managed the societies social media accounts, advertised society events and recruited new members.