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UK

Jonathan Holdship

Astrophysicist and healthcare researcher specializing in numerical modelling, statistical inference and machine learning.

Education

2014 - 2017, PhD, Astrophysics, University College London

- I was awarded the Jon Darius Memorial Prize for outstanding postgraduate physics research in Astrophysics for my thesis
- Published three first author papers
- I was the PI of a successful telescope proposal

2010 - 2014, MSci, Physics, First class, Imperial College London

Dissertation Project: Reduction and analysis of photometric data, identifying high redshift galaxies from their emission in different wavelength bands.

Research Experience

2020 - Current, Senior Post Doctoral Researcher, Leiden Observatory

- I was the only named PDRA on an advanced ERC grant
- Developed a thermochemical model and statistical emulator as a tool for including complex chemistry in hydrodynaminal simulations
- Analysed data from ALMA as part of an international collaboration using numerical models and Bayesian inference
- Invited to multiple international collaborations for my expertise in data intensive science
- Supervised four BSc and MSc research students doing machine learning and astrochemistry projects
- Managed and advised the research group's London based students particularly on their use of machine learning and my chemical model
- Led a successful JCMT observing proposal

2017-2018, Post Doctoral Researcher, UCL

- Created a simplified chemical model for Bayesian parameter inference and adapted for HPC use
- Worked with laboratory chemists to produce an improved astrochemical model
- Created a pipeline to reduce a large observational dataset and infer key physical parameters of observed objects
- Published four first author papers in reputable journals

Industry Experience

2019 - Current, Senior Data Scientist, Guys and St Thomas NHS Foundation Trust

- Worked as a Co-PI with clinical partner on a research grant application for a sepsis prediction study
- Working with large datasets to provide operational insights and to predict risk of negative patient events
- Produced industry leading models for outpatient attendance
- Training and mentoring data analysts moving into data science roles
- Working with clinical leads to support direct care through data analysis

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2019, Data Scientist, Meganexus

- Created course recommendation systems for education software in UK prisons
- Developed python web apps to deliver recommendations and a reporting dashboard
- Trained neural networks to learn user preferences and then suggest relevant courses

Teaching Experience

ORBYTS Project Co-ordinator, Blue Skies Space

- Managed a programme in which 17 secondary schools took part in ongoing astronomical research
- Responsible for hiring and managing 20 tutors, each delivering their own original research projects
- Taught my own research project which resulted in a publication for the students

Project Consultant, Mayor's Fund for London

- Worked with Russian astronomers to produce an after-school astronomy course suitable for children starting UK secondary school
- Delivered the course both as an after-school club and full day project
- Trained science teachers at multiple schools to deliver the course with minimal support

Technical Skills

Programming

- Proficient in Python and Fortran, using it regularly for research projects.
- Completed projects in other languages such as C++ and Java.
- Current projects on `https://github.com/jonholdship`

Other Computing

- Experience in cloud computing services such as AWS and use of high performance computing (HPC) facilities

Conferences and Courses

2021, *Invited Speaker*, Lorentz Center Workshop

Invited to attend an international workshop (The Dynamic & Chemical Connection: understanding the newest observations of protoplanetary disks) with leading experts on disk chemistry to share my neural network based approach to chemical modelling

2020, *Invited Seminar*, Chalmers University, Sweden

Invited to give a seminar on machine learning in astrochemistry and healthcare to the astrophysics group at Chalmers University.

2020, *Invited Seminar*, University of Cologne

Invited to give a seminar to the hydrodynamics research group at the University of Cologne.

2020, *Oral Presentation*, Astrochemical Frontiers

Presented recent work on emulating chemical models.

2019, *Invited Speaker*, EWASS Lyon

Invited to present work on parameter inference in astrochemistry for a session on machine learning at an international conference.