

ROBERT RIDGWAY

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QUANTITATIVE RESEARCH | DATA SCIENCE

Driven and detail-oriented data professional with 5+ years of experience, specialising in data modelling using Python. Known for a strong background in physics and academic research, with experience presenting research and analysis around the world. Skilled in data analysis, software development, and simulation design and development.

TECHNICAL SKILLS

- **Tools:** Python (NumPy, Matplotlib, Scipy), Fortran, C# (.NET, SQLite), UNIX, Linux, Git, SVN, Microsoft Office (Word, Excel, Powerpoint)
- **Areas:** Numerical analysis, time series analysis, data visualisation, scientific writing, software development, data management, data analysis, high performance computing, research

Project Work

Python Coding: Experienced in creating scripts in Python to simulate and analyse impacts as part of several research projects related to planetary physics. Extensive knowledge of leveraging Python to automate and monitor submissions to a cluster.

Fortran Coding: Experienced in creating libraries in Fortran to describe complex physical behaviour as part of several research projects related to atmospheric physics and chemistry.

PROFESSIONAL EXPERIENCE

Doctoral Researcher, University of Exeter, Exeter, Devon, United Kingdom **2018 – 2023**

- Worked with a research group studying planetary climates to improve group ability to simulate other planets.
- Developed scripts and analysis pipeline to model star-planet interactions and analyse their effects on a planetary atmosphere
- Managed a data-driven project for five years, reporting and discussing findings with my supervisors and several external researchers.
- Collaborated with other researchers in Exeter, Edinburgh, Paris, and senior scientists at the Met Office
- Succeeded in research goal of creating simulations of star-planet interactions within a climate model; this resulted in one first-author publication, 6 co-author publications, two conference talks, and two conference posters

Graduate Researcher, University of Calgary, Calgary, Alberta, Canada **2015 – 2018**

- Developed software in Python that used the arrival-time of waves in the near-Earth plasma to construct models describing the environment.
- Developed scripts to download and process NASA satellite magnetometer data.
- Designed an iterative process using inversion modelling to perform a tomographic reconstruction of the plasma environment.
- Used Pearson's r to determine lag-time between data sources and provide a quantitative flag of data quality for filtering and improving model construction.
- Awarded two scholarships totalling \$14,400 for showing that the model could successfully construct an accurate model of the plasma environment without the need for ground-based stations.

Research Assistant, University of Calgary, Calgary, Alberta, Canada **2014**

- Used data obtained from a space-based telescope to work on determining hydrogen isotope ratios of star-forming regions.
- Performed analysis using Monte Carlo Markov Chains (MCMC) to determine physical characteristics of the star-forming region.
- Generated synthetic data using MCMC to determine physical characteristics which best matched the observed data.
- Showed that Deuterium amounts were much lower than expected, implying a low D/H in that area of space.

EDUCATION

PhD in Physics, University of Exeter, Exeter, Devon, United Kingdom **2018 – 2023**

MSc in Physics, University of Calgary, Calgary, Alberta, Canada **2015 – 2018**

BSc (Honours) in Astrophysics, University of Calgary, Calgary, Alberta, Canada **2011 – 2015**