# Shaun C Read

Ph.D. Student

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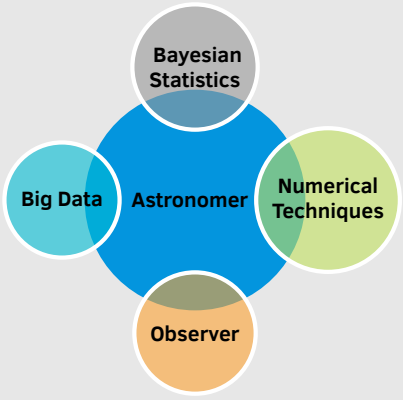
philastrophist


## Technical Skills

### Overview




### Programming

**Expert:**
Python
**Experienced:**
Shell • SQL • Matlab • LaTeX
**Competent:**
C • C++ • R • Ruby • IDL • html

## Education

**Ph.D., Astronomy**
University of Hertfordshire, UK
2015 - Present
Expected completion: 2019

**MPhys, Physics**
Durham University, UK
2010 - 2014
2:1 with Honours

## Affiliations

Fellow of the Royal Astronomical Society, *FRAS*

## Summary


I am a PhD student of 3.5 years at the University of Hertfordshire specialising in Bayesian statistical analysis on big data. My main interests are reverberation mapping and the interface between star-forming galaxies and AGN. I have worked with a diverse range of data including the latest releases from the LOFAR, SDSS, and H-ATLAS surveys and the Horizon-AGN simulations. My latest work combines the use of novel statistical Bayesian analysis with these large datasets in order to facilitate effective exploitation of the next generation of surveys.


## Experience

Oct 2015 – Present — **Ph.D. student** — University of Hertfordshire
Supervisor: Dr Daniel J.B. Smith
Thesis: Measuring the Physical Properties of Distant Galaxies and Black Holes in the Era of Surveys
- Studying the relation between the star-formation rate and radio luminosity of galaxies.
- Using new photometric time-series techniques to estimate quasar black-hole masses using reverberation mapping.
- Innovating new Bayesian methods to infer complete distributions from incomplete, noisy data in order to mitigate observational bias and explore large datasets.

Jun 2016 — **Observing** — William Herschel Telescope, La Palma

Jan 2016 – Present — **Programming teaching assistant & tutor** — University of Hertfordshire, UK
- Taught students Python and Matlab for scientific programming courses.
- Assisted students with programming exercises.
- Lead programming lectures and demonstrations.

Nov 2016 – Mar 2017 — **'Physics of stars' demonstrator** — University of Hertfordshire, UK
- Assisted students at the Bayfordbury teaching observatory.
- Instructed in the use of 16-inch telescopes and the reduction of data.
- Projects included PNe imaging and constructing open cluster HR-diagrams.

Jul 2014 – Jul 2015 — **Insight Analyst** — Linkdex, UK
Processing big data from raw consumer search patterns to an explanative format suitable for client business strategies.
- Big data processing with Python & sci-kit learn
- Communication with the backend team
- API design, visualisation, and automation development.

Jun 2013 – Aug 2013 — **Summer Student** — National Physical Laboratory, UK
Supervisor: Dr Alastair Sinclair
- Worked with the Time & Frequency Team.
- Analysed Gaussian beam quality for the strontium ion optical clock group.
- Developed analytical Matlab code and the optical bench setup required.

## Research Interests

- **Star-formation**: LOFAR, FIR, empirical relations, FIRC, MagPhys, SFG-AGN interface.
- **Reverberation mapping**: High redshift, photometric techniques, $t_{lag} - L_{5100}$, selection biases.
- **Big data & Bayesian analysis**: Large surveys, advanced Bayesian statistical inference, bias mitigation.

# Publications

## Published

- *The Far-Infrared Radio Correlation at low radio frequency with LOFAR/H-ATLAS*
  **Read, S. C.**; Smith, D. J. B.; Gürkan, G.; Hardcastle, M. J.; Williams, W. L.; Best, P. N.; Brinks, E.; Calistro-Rivera, G.; Chyży, K. T.; Duncan, K.; Dunne, L.; Jarvis, M. J.; Morabito, L. K.; Prandoni, I.; Röttgering, H. J. A.; Sabater, J.; Viaene, S. – 2018MNRAS.480.5625R
- *LOFAR/H-ATLAS: a deep low-frequency survey of the Herschel-ATLAS North Galactic Pole field*
  Hardcastle, M. J.; Gürkan, G.; van Weeren, R. J.; Williams, W. L.; Best, P. N.; de Gasperin, F.; Rafferty, D. A.; **Read, S. C.**; Sabater, J.; Shimwell, T. W.; Smith, D. J. B.; Tasse, C.; Bourne, N.; Brienza, M.; Brüggen, M.; Brunetti, G.; Chyży, K. T.; Conway, J.; Dunne, L.; Eales, S. A.; Maddox, S. J.; Jarvis, M. J.; Mahony, E. K.; Morganti, R.; Prandoni, I.; Röttgering, H. J. A.; Valiante, E.; White, G. J. – 2016MNRAS.462.1910H

## Submitted and in preparation

- *Highly Efficient Photometric Reverberation Mapping at High Redshift*
  **Read, S.C.**; Smith, D.J.B.; Jarvis, M.J.; Gürkan, G. – submitted to MNRAS
- *On the Causes of the Mass Dependency of the Star-formation Rate – Radio Luminosity Relation with LOFAR, Horizon-AGN, and CANDID*
  **Read, S.C.**; Smith, D.J.B.; Gürkan, G.; Hardcastle, M.J.; et al. – in prep.
- *A LOFAR-IRAS Cross-match Study: The Far-infrared Radio Correlation and the 150 MHz Luminosity as a Star-formation Rate Tracer*
  Wang, L.; Rowan-Robinson, M.; Gao, F.; Bonato, M.; Calistro-Rivera, G.; Chyży, K.T.; Duncan, K.J.; Farrah, D.; Gurkan, G.; Hardcastle, M.J.; McCheyne, I.; Prandoni, I.; **Read, S.C.**; Röttgering, H.J.A.; Sabater, J.; Shimwell, T. W.; Smith, D.J.B.; Williams, W.L. – in prep.
- *Galaxy Morphological Classification in Deep-Wide Surveys via Unsupervised Machine Learning*
  Martin, G.; Kaviraj, S.; Hocking, A.; **Read, S.C.**; Geach, J. – in prep.
- *Bias and Accretion Rate Dependency in the Reverberation-Mapped Lag-luminosity Relation*
  **Read, S.C.**; Smith, D.J.B.; et al. – in prep.
- *Low Mass Stars and Multiple Systems in Gaia*
  González-Egea, E.; Pinfield, D.; **Read, S.C.**; et al. – in prep.

# Presentations

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| April 2018 | **European Week of Astronomy and Space Science**<br>University of Liverpool, UK<br>poster | European Astronomical Society, *EAS* |
| July 2017 | **National Astronomy Meeting**<br>University of Hull, UK<br>contributed talk | Royal Astronomical Society, *RAS* |
| June 2016 | **National Astronomy Meeting**<br>University of Nottingham, UK<br>contributed talk, poster | Royal Astronomical Society, *RAS* |
| May 2016 | **The Cosmic FIR Landscape with H-ATLAS**<br>University of Lisbon, Portugal<br>contributed talk | H-ATLAS consortium |