

EDUCATION

University of Cambridge *September 2018 - September 2021*
PhD in Astronomy


- Applied Bayesian methods to correct selection bias in *Gaia*, a telescope observing 2bn stars, and infer Galaxy structural parameters.
- co-PI of the Completeness of the Gaia-verse project: gaiaverse.space
- Awarded Murdin Prize for best publication by a PhD student.

University of Oxford *September 2013 - July 2017*
Bachelor & Master of Physics

- Specialised in Astrophysics and Theoretical Physics.
- Thesis: The origin of streams in our Solar neighbourhood.

PROGRAMMING

Python (6 years) -
NumPy, pandas, sklearn, PyTorch,
PyStan, emcee, multiprocessing
Bash (5 years)
R (2 years)
MATLAB, GNU Octave, C++ (1 year)
Open source:

-  [aeverall](https://github.com/aeverall), [gaiaverse](https://github.com/gaiaverse)
- [kaggle](https://www.kaggle.com/aeverall)

WORK & RESEARCH EXPERIENCE

Institute of Cancer Research, London, Research Fellow *October 2021 - Present*

- Transitioned to genetics research to solve problems with direct societal impact.
- Decomposed mutation rates in 10k tumours using non-negative matrix factorisation.
- Developed a conditional randomisation method to reduce the rate of false positives from 42% to 0.1%.

University of Cambridge, Undergraduate Supervisor *April 2019 - June 2021*

- Taught 3rd year physics undergraduates complex concepts from stellar dynamics to galaxy structures.
- Tutored gravitational and electromagnetic fields for 1st year natural sciences students.

University of Oxford, Theoretical Physics Dept., Assistant Researcher *October 2017 - April 2018*

- Received Oxford University and ERC funding for full time research in Galactic Dynamics.
- Built [seestars](https://github.com/seestars/seestars), a Python repository which automatically analyses selection bias of stellar spectrographs.

Susquehanna International Group, Dublin, Trading Internship *June - August 2017*

- Produced a Python desktop application for exotic option classification from text information using NLP.

Deutsche Bank, London, Summer Analyst *June - August 2016*

SELECTED FIRST AUTHOR PUBLICATIONS

- [Repertoire of mutational signatures in 10,983 whole-genome sequenced cancers](#). *Submitted*, June 2023
- [The photo-astrometric vertical tracer density of the Milky Way - II. Results from Gaia](#). *MNRAS*, April 2022
- [The photo-astrometric vertical tracer density of the Milky Way - I. The method](#). *MNRAS*, April 2022
- [Astrometry and radial velocity sample selection functions in Gaia EDR3](#). *MNRAS*, February 2022
- [The astrometry spread function of Gaia DR2](#). *MNRAS*, April 2021

I have 14 papers published in high-impact journals, 6 as first author, with over 500 citations
https://scholar.google.com/citations?hl=en&user=4z9ZaTwAAAAJ&view_op=list_works

SELECTED INVITED TALKS

- The Paul Murdin Prize Talk, Institute of Astronomy, University of Cambridge *January 2022*
- LAMOST and Other Leading Surveys, China Three Gorges University, Yichang, China *October 2019*
- Lunch Talk (Virtual), University College London *December 2020*

OTHER SKILLS, INTERESTS & EXPERIENCE

- [Kaggle Kore competition](#). Built an agent to play the adversarial simulation game Kore *April - July 2022*
- Treasurer, Hughes Hall Boat Club, University of Cambridge *July 2019 - 2020*
- Rowing Coach, Lady Margaret Hall Boat Club, University of Oxford *January - April 2017*
- Sailing Instructor, Bewl Valley Sailing Club, East Sussex *June - September, 2011 - 2014*