Curriculum Vitae of Ryan White

Current as of September 11, 2025

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INFORMATION GitHub: https://github.com/ryanwhite1

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EDUCATION Master of Research

Jan 2025 – Nov 2025 (expected)

MACQUARIE UNIVERSITY

Topic: Radiative and Hydrodynamical Modelling of Colliding Wind Binaries

Supervisors: A/Prof Benjamin Pope and Prof Orsola De Marco

Bachelor of Science (Hons)

Jan 2024 - Nov 2024

The University of Queensland

Graduated with Class I Honours in Physics

Thesis Title: Geometric Modelling of Wolf-Rayet Binary Colliding Wind Nebulae

Supervisors: Dr Benjamin Pope (UQ) and Prof Peter Tuthill (USyd)

Bachelor of Science and Bachelor of Mathematics

 $Jul \ 2017 - Dec \ 2023$

THE UNIVERSITY OF QUEENSLAND Science: Extended Major in Physics

Mathematics: Major in Applied Mathematics

Teaching EXPERIENCE

School of Mathematical and Physical Sciences, Macquarie University

COMP2200 – Data Science

2025–Present

Ran group activity tutorials for computer science students.

PHYS1210 – Physics for Life Sciences

2025-Present

Ran laboratory sessions for first-year students.

SCHOOL OF MATHEMATICS AND PHYSICS, THE UNIVERSITY OF QUEENSLAND

Teaching evaluations are available on request.

PHYS3080 – Extragalactic Astrophysics & Cosmology

2023-4

Developed a simulated universe for use in the course, and taught weekly workshops.

PHYS3071 – Computational Physics

2024

Developed an interactive Python self-study tool, and tutored the course.

PHYS2082 - Space Science & Stellar Astrophysics

2022-4

Teaching workshops of ~ 60 students and moderated course delivery.

SCIE1000 – Theory & Practice in Science

2021 - 4

"Super tutored" the course for multiple offerings, and routinely taught classes of ~ 60 students.

Publications First author publications:

Ryan White, Benjamin Pope, Peter Tuthill et al., "The Serpent Eating Its Own Tail: Dust Destruction in the Appp Colliding-Wind Nebula" arXiv:2507.14610 (2025) — accessible summary

Ryan White, Tamara Davis, Geraint Lewis et al., "The Dark Energy Survey Supernova Program: Slow supernovae show cosmological time dilation out to $z \sim 1$." arXiv:2406.05050 (2024) — accessible summary

SELECT OTHER PUBLICATIONS:

Yinuo Han, Ryan White et al., "The formation and evolution of dust in the colliding-wind binary Apep revealed by JWST" arXiv:2507.14498 (2025)

Noel Richardson et al. (including Ryan White), "Carbon-rich dust injected into the interstellar medium by Galactic WC binaries survives for hundreds of years" arXiv:2505.11616 (2025)

Воок Chapters

Ryan White & Peter Tuthill, "Wolf-Rayet Colliding Wind Binaries" arXiv:2412.12534 (2024), for publication in Elsevier's Encyclopedia of Astrophysics

Talks

Astronomy Open Night, Macquarie University – Slides September 2025 Stars + Planets Research in Greater Sydney (SPRIGS), Macquarie University August 2025 SIfA Seminar, University of Sydney – Slides May 2025 CSIRO Co-learnium, CSIRO Marsfield – Slides January 2025 Stars in Brisbane Conference, University of Southern Queensland November 2024 Physics Club Honours Talks, University of Queensland October 2024 Mount Stromlo Student Seminars, Australian National University September 2024 UQ Science Undergraduate Research Conference, University of Queensland September 2024 Department Astronomy Seminar, University of Tasmania July 2024

OUTREACH AND COMMU-NICATION

Astrobites Writer – Paper summaries available on my author page

2025 - Present

Annotated Papers – accessible summaries of my papers

Media outreach – I have had media attention surrounding my research, including:

- a press-release program jointly facilitated by Space Telescope Science Institute (STScI), California Institute of Technology (Caltech), and Macquarie University, which is currently embargoed,
- an interview for an article covering White et al (2024) in Scientific American,
- and another interview for White et al (2025) in IFLScience.

Cosmology Talks – Accompanying video for White et al (2024) on Cosmological Time Dilation UQ Work Experience Program 2024 – Helped introduce high school students to astrophysics at UQ, involving programming projects, telescope demonstrations, and a "Meet the Researcher" talk Laura Street Festival 2024 - Ran a stall focusing on solar telescope viewing aimed at the public, fielding any questions

AWARDS AND

Best Masters Poster, Australian Institute of Physics 2025 SCHOLARSHIPS The Andy Thomas Space Foundation Uranus Scholarship (\$10k AUD) 2024 Best Science Talk, Mount Stromlo Student Seminars 2024 Student Publication Award Honourable Mention, University of Queensland, for White et al (2024) arXiv:2406.05050 2024 Honours Research Project Runner-Up, UQ Science Undergraduate Research Conference 2024 Dean's Commendation for Academic Excellence 2023, 2024 Outstanding Contribution Award, UQ School of Mathematics and Physics 2022

Further Research EXPERIENCE

CSIRO Undergraduate Vacation Scholarship

Nov 2024 – Feb 2025

Supervisor: Dr Andrew Zic

 The project included analysing and cleaning large volumes of interferometric ATCA and ASKAP radio data and developing a new pipeline to search for periodic pulses associated with long period radio transients. An academic paper is currently in preparation based on my work.

Swinburne CAS Vacation Scholarship

Nov 2023 - Feb 2024

Supervisor: Dr Simon Stevenson

• I devised the research question for this project which involved me developing N-body simulations in Python/C using the open-source code Rebound. We modelled binary black hole formation within active galactic nuclei accretion disks, and made available our code integrating approximate general relativistic effects into the open-source code.

University of Queensland Winter Research Scholarship

Jun - Nov 2023

Supervisor: Prof Tamara Davis

• Using data of ~ 1500 supernovae from the Dark Energy Survey (DES), I developed data-driven techniques to measure the time dilation of our expanding Universe, publishing a paper on our results (in White et al [2024]).

Jun - Nov 2022

Undergraduate Research

Supervisor: Dr Benjamin Pope

• Using high cadence time-series data from the TESS Space Telescope, I inferred analytic surface maps of the surfaces of stars. I found that one star in the DI Herculis system is a long-period variable, and our results are awaiting publication.

OBSERVING AND PROPOSALS

Primary Investigator:

• VLTI observing of the colliding wind binary Apep, ESO Period 114

2024/5

Co-Investigator:

• ATCA Observing of Long Period Radio Transients, ATNF Semester 2025APRS

2025

Observing:

• Australian Telescope Compact Array (ATCA), 24hr

2025

TECHNICAL SKILLS

- Programming Languages: Python/JAX, C/C++, Git/Bash, R, Matlab, WSL
- High-Performance Computing: I have frequently run code on the HPC systems OzStar (Swinburne) and getafix + Bunya (University of Queensland), using the Slurm scheduling language
- Misc. Skills: Proficient in LaTeX, VSCode/Spyder, Jupyter Notebooks, among other applications/environments
 - I was a self-taught, professional artist for 3 years (2017-2020, view here), specialising in photorealistic small scale landscapes in oil and acrylic media for which I won several statewide and local awards. I was represented in 19Karen Gallery for 2 years, and sold numerous artwork for thousands of AUD to collectors and via commissions. This experience is something I continue to bring into my work, e.g. my annotated paper summaries.