Curriculum Vitae of Ryan White

Current as of September 10, 2025

PERSONAL & CONTACT INFORMATION

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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 Apep 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)

Book 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 Communication

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 Scholarships

Best Masters Poster, Australian Institute of Physics — 2025
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]).

Undergraduate Research Jun – Nov 2022
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, R, Matlab, Fortran
- *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 photo-realistic 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.
