

# Curriculum Vitae of Ryan White

Current as of August 30, 2025

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EDUCATION	<b>Master of Research</b>	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	SCHOOL OF MATHEMATICAL AND PHYSICAL SCIENCES, MACQUARIE UNIVERSITY	
EXPERIENCE	<b>COMP2200 – Data Science</b>	2025–Present
	<i>Ran group activity tutorials for computer science students.</i>	

<b>PHYS1210 – Physics for Life Sciences</b>	2025–Present
<i>Ran laboratory sessions for first-year students.</i>	

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](https://arxiv.org/abs/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](https://arxiv.org/abs/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	<b>Ryan White</b> & Peter Tuthill, “ <i>Wolf-Rayet Colliding Wind Binaries</i> ” <a href="#">arXiv:2412.12534</a> (2024), for publication in Elsevier’s <i>Encyclopedia of Astrophysics</i>	
TALKS	<b>Stars + Planets Research in Greater Sydney (SPRIGS)</b> , Macquarie University August 2025 <b>SifA Seminar</b> , University of Sydney May 2025 <b>CSIRO Co-learnium</b> , CSIRO Marsfield January 2025 <b>Stars in Brisbane Conference</b> , University of Southern Queensland November 2024 <b>Physics Club Honours Talks</b> , University of Queensland October 2024 <b>Mount Stromlo Student Seminars</b> , Australian National University September 2024 <b>UQ Science Undergraduate Research Conference</b> , University of Queensland September 2024 <b>Department Astronomy Seminar</b> , University of Tasmania July 2024	
OUTREACH AND COMMUNICATION	<b>Astrobites Writer</b> – Paper summaries available on my <a href="#">author page</a> 2025 – Present <b>Annotated Papers</b> – <a href="#">accessible summaries of my papers</a> <b>Media outreach</b> – I have had media attention surrounding my research, including: <ul style="list-style-type: none"> <li>• a press-release program jointly facilitated by Space Telescope Science Institute (STScI), California Institute of Technology (Caltech), and Macquarie University, which is currently embargoed,</li> <li>• an interview for an article covering White et al (2024) in <a href="#">Scientific American</a>,</li> <li>• and another interview for White et al (2025) in <a href="#">IFLScience</a>.</li> </ul> <b>Cosmology Talks</b> – <a href="#">Accompanying video for White et al (2024) on Cosmological Time Dilation</a> <b>UQ Work Experience Program 2024</b> – Helped introduce high school students to astrophysics at UQ, involving programming projects, telescope demonstrations, and a “Meet the Researcher” talk <b>Laura Street Festival 2024</b> – Ran a stall focusing on solar telescope viewing aimed at the public, fielding any questions	
AWARDS AND SCHOLARSHIPS	<b>Best Masters Poster</b> , Australian Institute of Physics 2025 <b>The Andy Thomas Space Foundation Uranus Scholarship</b> (\$10k AUD) 2024 <b>Best Science Talk</b> , Mount Stromlo Student Seminars 2024 <b>Student Publication Award Honourable Mention</b> , University of Queensland, for White et al (2024) <a href="#">arXiv:2406.05050</a> 2024 <b>Honours Research Project Runner-Up</b> , UQ Science Undergraduate Research Conference 2024 <b>Dean’s Commendation for Academic Excellence</b> 2023, 2024 <b>Outstanding Contribution Award</b> , UQ School of Mathematics and Physics 2022	
FURTHER RESEARCH EXPERIENCE	<b>CSIRO Undergraduate Vacation Scholarship</b> Nov 2024 – Feb 2025 Supervisor: Dr Andrew Zic <ul style="list-style-type: none"> <li>• 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.</li> </ul> <b>Swinburne CAS Vacation Scholarship</b> Nov 2023 – Feb 2024 Supervisor: Dr Simon Stevenson <ul style="list-style-type: none"> <li>• I devised the research question for this project which involved me developing <math>N</math>-body simulations in Python/C using the open-source code <b>Rebound</b>. 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.</li> </ul> <b>University of Queensland Winter Research Scholarship</b> Jun – Nov 2023 Supervisor: Prof Tamara Davis <ul style="list-style-type: none"> <li>• Using data of <math>\sim 1500</math> 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 <a href="#">White et al [2024]</a>).</li> </ul>	

- 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.

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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

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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 L<sup>A</sup>T<sub>E</sub>X, 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.