## Curriculum Vitae of Jayde Willingham

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EDUCATION	Master of Research, Physics and Astronomy Macquarie University, Sydney Australia February, 2024 - December, 2025 (expected) Topic: Evolution of star formation and luminosity Supervisor: Dr Andrew Hopkins and Dr Tayyaba	y functions Zafar Year 1 WAM: 83.25
	<b>Bachelor of Mathematics</b> , Pure and Applied M University of Newcastle, Newcastle Australia February 2020 - November 2023	Mathematics Completion with Distinction
	<b>Bachelor of Science</b> , Physics University of Newcastle, Newcastle Australia February 2020 - November 2023	Completion with Distinction
RESEARCH EXPERIENCE	<ul> <li>CSIRO Studentship</li> <li>Supervisor: Dr Maxim Voronkov November 2024 - February 2025</li> <li>We investigated the hyperfine structures of methanol masers in observational radio data. Our work included simulating these structures, modeling the data, and applying statistical analyses to better understand these poorly characterized features and their potential implications.</li> </ul>	
	<ul> <li>Bachelor of Philosophy Research</li> <li>Supervisor: Professor Andrew Hopkins</li> <li>This study quantifies uncertainties, evaluat rate (SFR) calculations, and compares their highlighting areas for improvement within the</li> </ul>	2024 tes the robustness of star formation performance to model-derived SFRs, he field.
	<ul> <li>Bachelor of Philosophy Research</li> <li>Supervisor: Dr Tayyaba Zafar</li> <li>We explored the viability of using observat galaxies to constrain spectral energy distribution rameter estimation.</li> </ul>	2024 tional radio fluxes from star-forming ution models, enabling improved pa-
	<ul> <li>University of Newcastle Summer Research</li> <li>Supervisor: Associate Professor Karen Livesey</li> <li>A computational study of the properties of systems, involving the derivation of system MATLAB.</li> </ul>	2023 of multi-level antiferromagnetic spin a equations and their analysis using
	<ul> <li>Undergraduate Research</li> <li>Supervisor: Associate Professor Lachlan Rogers</li> <li>Here we investigate how the laser power d correlation time scales in the g<sup>(2)</sup>(τ) funct creating a rigorous model for analysing NV</li> </ul>	2022 lependence affects the photon auto- ion in order to make steps towards centres.
TEACHING EXPERIENCE	<ul> <li>Casual Academic</li> <li>PHYS1205 - Fundamentals of Engineering</li> <li>PHYS1210 - Advanced Physics I</li> <li>PHYS1200 - Introductory Physics for the I</li> <li>School of Information and Physical Sciences, Univ</li> <li>Taught physics problem-solving strategies to ing conceptual understanding, logical reason</li> </ul>	2023 - present Physics Life Sciences versity of Newcastle o classes of 15–40 students, emphasiz- ning, and mathematical techniques.

• Collaborated with the course coordinator to develop and tailor learning materials aligned with course objectives.

Laboratory Demonstrator 2022 - present **PHYS1205** - Fundamentals of Engineering Physics PHYS1210 - Advanced Physics I **PHYS1250 - MRS Physics and Radiation Protection** ENVS1002 - Physical and Chemical Environmental Systems School of Information and Physical Sciences, University of Newcastle • Led classes of 10–50 students through experimental procedures, providing clear explanations of fundamental physics and mathematics concepts. • Evaluated and graded lab workbooks and reports, ensuring consistent feedback to support student learning and improvement. Peer Assisted Study Tutor 2021-2023 **PHYS1250 - MRS Physics and Radiation Protection** MATH1800 - Mathematical Modelling STAT1300 - Fundamentals of Statistics MATH2310 - Calculus of Science and Engineering School of Information and Physical Sciences, University of Newcastle • Collaborated with course coordinators, lecturers, and students to design effective study materials aimed at enhancing student understanding and academic success. • Facilitated classes of 1–20 students, guiding them through problem-solving exercises both individually and in group settings. PUBLICATIONS J. Prathap, A. M. Hopkins, J. Afonso, M. Bilicki, M. Cowley, S. M. Croom, Y. Gordon, S. Phillipps, E. M. Sadler, S. S. Shabala, U. T. Ahmed, S. Amarantidis, M. J. I. Brown, R. Carvajal, D. Leahy, J. R. Marvil, T. Mukherjee, J. Willingham, and T. Zafar, "EMU/GAMA: A new approach to characterising radio luminosity functions.", PASA Under Review. AWARDS Research Excellence Scholarship, Macquarie University Jan - Dec 2025 Summer Research Scholarship, University of Newcastle Dec 2022 College Commendation List, University of Newcastle 2020 & 2021 **OUTREACH** 2023 & 2024**Children's University Educator** AND COMMU-**ExperimentFest Educator** 2024 NICATION HunterWISE Women in STEM Mentor 2022 UoN Undergraduate Project Colloqium, University of Newcastle October 2022 MQ BPhil Project Conference, Macquarie University May & October 2024 TECHNICAL Languages : Python, R, MATLAB, Mathematica, C. SKILLS **General**: Proficient in Microsoft/Google suites, Spyder and Jupyter notebooks, LATFX, github, report writing, audio/visual editing, graphic design, Windows Subsystem for Linux. CERTIFICATION Quantum Global Womanium 2023, Womanium 2023

Certificate III in Travel, Tourism & Events, Tafe NSW

2018