ROWINA NATHAN

PhD Candidate

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Melbourne, Australia

rowina-n.github.io

COLLABORATIONS

Parkes Pulsar Timing Array

MeerKAT Pulsar Timing Array

International Pulsar Timing Array

OzGrav ARC

LIGO-Virgo-Kagra Scienfitifc Collaboration

SKILLS

Python

Machine Learning

Teaching

Scientific Writing

R

RESEARCH INTERESTS

Pulsar timing, gravitational-wave background, cosmic variance, bayesian inference, machine learning, pulsar glitches, physics education, data visualisation, graphic design.

EDUCATION

PhD in Astrophysics | Monash University | 2022 - 2025
Thesis due August 2025
Supervised by Paul Lasky, Eric Thrane and Greg Ashton
Dynamic pulse fitting, cosmic variance, gravitational-wave background sky-mapping

Honours in Astrophysics | Monash University | 2021
Supervised by Paul Lasky and Greg Ashton
Dynamic pulse fitting, profile domain timing, pulsar glitches
2021 Faculty of Science Dean's List Award

Bachelor of Science | Monash University | 2017 - 2020
Majors in Astrophysics, Minor in Mathematics
High Distinction Average

Bachelor of Commerce | Monash University | 2017 - 2020
Major in Business Analytics
High Distinction Average

EMPLOYMENT

Teaching associate | Monash University | 2022 - Present
Experience delivering workshops and labs for Introductory Astronomy (ASP1010), Astrobiology (ASP1022), Introduction to Astrophysics (APS2062), Observational Astronomy (ASP3231) and Relativity and Cosmology (ASP3051).

Social Media Coordinator | Monash Astrophysics | 2023 - Present
Responsible for running the Instagram, Facebook, Twitter, Linked-in and Bluesky accounts for Monash University Astrophysics.

Head Teacher | Code Camp | 2018 - 2022
Taught coding to children aged 6 to 13 in a classroom setting, managed conflict, broke down difficult concepts and helped them find a passion for STEM subjects from an early age.

Finance and Performance Intern | Deloitte Australia | 2019
Assisted on a project implementing Workday Financials at a tertiary institution. Adapted to new software quickly and created value adds for the client such as a self-checking financial reports and quick-view dashboards.

Short Term Staff | Kandersteg International Scout Center | 2018 - 2020
Worked in the remote Swiss Alps across 2 winter seasons with 35 people from over 20 different nationalities. Responsible for guiding guests on alpine skiing and survival activities as well as internal chalet operations.
https://www.kisc.ch/news/power-positivity-kisc

ROWINA NATHAN

EXTRAS

ABC News TV Interview
Gravitational-wave background discovery

Cosmos Magazine
Issue 102 scientist profile

Instagram and TikTok Science Communicator
3M+ views, 12K+ followers

OzGrav Education and Public Outreach Coordinator
Monash Node, 10+ school visits and outreach events

Women and Non-binary People+ in Physics and Astronomy
Committee Member and Mentor

Melbourne Region Rover Scouts
Treasurer and Secretary

Bentleigh Football Netball Club
Netball Player

PUBLICATIONS

Nathan, R. S., Miles, M. T., Ashton, G., Lasky, P. D., Thrane, E., Reardon, D. J., ... & Cameron, A. D. (2023). Improving pulsar-timing solutions through dynamic pulse fitting. Monthly Notices of the Royal Astronomical Society, 523(3), 4405-4412.

Tong, H., Guttman, N., Clarke, T. A., Lasky, P. D., Thrane, E., Payne, E., ... & Di Marco, V. (2024). Transdimensional inference for gravitational-wave astronomy with Bilby. arXiv preprint arXiv:2404.04460.

Zic, A., Reardon, D. J., Kapur, A., Hobbs, G., Mandow, R., Curyło, M., ... & Zhu, X. J. (2023). The Parkes Pulsar Timing Array Third Data Release. Publications of the Astronomical Society of Australia, 40, e049.

Reardon, D. J., Zic, A., Shannon, R. M., Di Marco, V., Hobbs, G. B., Kapur, A., ... & Zhu, X. J. (2023). The gravitational-wave background null hypothesis: Characterizing noise in millisecond pulsar arrival times with the Parkes Pulsar Timing Array. The Astrophysical Journal Letters, 951(1), L7.

Reardon, D. J., Zic, A., Shannon, R. M., Hobbs, G. B., Bailes, M., Di Marco, V., ... & Zhu, X. J. (2023). Search for an isotropic gravitational-wave background with the Parkes Pulsar Timing Array. The Astrophysical Journal Letters, 951(1), L6.

Sarin, N., Lasky, P. D., & **Nathan, R. S.** (2023). Missed opportunities: GRB 211211A and the case for continual gravitational-wave coverage with a single observatory. Monthly Notices of the Royal Astronomical Society, 518(4), 5483-5489.

Ashton, G., Lasky, P. D., **Nathan, R.,** & Palfreyman, J. (2020). Flickering of the Vela pulsar during its 2016 glitch. arXiv preprint arXiv:2011.07927.

WORKSHOPS AND CONFERENCES

International Pulsar Timing Array Science Meeting | 2024
Contributed talk

International Pulsar Timing Array Student Week | 2024
Invited Talk

European Pulsar Timing Array Science Meeting | 2024
Invited Talk

International Pulsar Timing Array Science Meeting | 2023
Contributed talk and Local organising committee

International Pulsar Timing Array Student Week | 2023
Organising committee

Gravitational Wave Physics and Astronomy Workshop | 2022
Poster

Astronomical Society of Australia Scientific Meeting | 2022, 2023
Contributed talk and Talk prize honourable mention (2023)

Australian National Institute of Theoretical Astrophysics Meeting | 2022, 2023
Contributed Talk and Summer School Session Assistant (2023)

OzGrav retreat | 2021 - 2023
Contributed Talk and Outreach Award Highly Commended (2023)