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Academic Experience

2021-2024 **Research Fellow** Institute for Cosmology and Gravitation, University of Portsmouth
- Research Fellow in gravitational-wave astrophysics.

2020-2021 **Teaching Fellow (Science):** Royal Holloway, University of London
- Teaching Fellow in the Centre for the Development of Academic Skills (CeDAS).
- Lecturer, Foundation Year Mathematics (Calculus, Linear Algebra, Probability and Statistics).
- Engaging students in a blended learning environment by introducing flipped-classroom methods.
- Supervised two BSc undergraduate research projects in Astrostatistics.

2018-2020 **Assistant Lecturer:** School of Physics and Astronomy, Monash University
- Researcher in gravitational-wave astronomy, neutron-star astrophysics, and Bayesian Inference.
- Supervised 1 PhD student and four undergraduate research projects.
- Assistant Lecturer for first-year physics PHS1011 (Classical Physics and Relativity) and PHS1022 (Fields and Quantum Physics) with over 250 students enrolled per year.
- Developed a flipped-classroom approach, delivered 1/3 of the course, and engaged in all aspects of course administration.
- Level 1 Graduate Research Supervisor Accreditation.

2016-2018 **Research Scientist:** Albert Einstein Institute, Hannover
- Researcher in neutron-star astrophysics and the search for gravitational-waves.
- Specialised in the analysis of large datasets, Markov-Chain Monte-Carlo methods, and distributed computing.

Education

2012-2016 PhD in Mathematics from the University of Southampton (GB) and Albert Einstein Institute (Hannover, DE). Thesis title: *"Timing variations in neutron stars: models, inference, and their implications for gravitational waves"*. Awarded 29th July 2016.

2008-2012 MPhys, 1st class (Hons), University of Southampton (GB).

Grants and Awards

- Secured a seed-funding grant from the Institute of Physics South East branch for a 1 year prototype of Quokka (forum.quokka.careers). This new online distributed-mentorship platform connects international researchers directly with future scientists from disadvantaged backgrounds.
- Awarded the 2020 USERN prize for Physical and Chemical Sciences.
- One of three project leads on the successful 2021 Compute Canada Enabling New Gravitational-Wave Discoveries allocation totalling 1.2 million GBP.
- Awarded grants totalling 32k GBP to develop GWCloud (gwcloud.org.au/bilby): a cloud-based gravitational-wave analysis tool, one of three projects in the AUD 2.8M Australian Gravitational-Wave Data Center.
- Runner-up: Monash University's Faculty of Science 2020 Research Excellence by an Early Career Researcher.
- Special Breakthrough Prize in Fundamental Physics (2016) for "the detection of gravitational waves" (shared with the LIGO founders and 1012 other LIGO-Virgo collaborators).
- Best student talk prize at the 2016 NewCompStar Annual Meeting (Istanbul, TR).
- Runner-up student talk prize at the 2014 BritGrav annual meeting (Cambridge, GB).

Leadership and Community Roles

2021-	**Elected Co-chair** of the LIGO Compact Binary Coalescence (CBC) group which studies collisions between black holes and neutron stars. I coordinate ~ 200 international group members, plan the scientific direction, and direct research and development across all aspects of the data analysis.
2020-2021	**Appointed Co-chair** of the LIGO Parameter Estimation group comprising ~ 50 members responsible for the physical characterisation of every observed gravitational-wave signal. I coordinated the research and development of new data analysis approaches and the production of scientific results.
2020-	**Scientific Advisor** for GWCloud, a cloud-based platform to access gravitational wave astronomy data with an intuitive, fully managed job system.
2019-2020	**Co-chair** of the LIGO Bilby development group comprising 30 members responsible for the development and deployment of Bilby, the next-generation Bayesian inference library adopted by the LIGO collaboration for the analysis of all CBC signals.
2018-2020	**Co-chair** of the OzGrav Inference program. This is one of seven research themes in OzGrav, the Australian Research Council's Centre of Excellence for Gravitational Wave Discovery. I coordinated cross-node interactions and developed workshops and seminars to facilitate collaboration.
2019-2020	**Member** of the OzGrav Equity & Diversity Committee. I helped support the committee's efforts across the Centre for Excellence to foster equity and diversity.

Research Supervision

2021	Thomas Saunders and Dharumvir Maharaj, Bsc research projects (PH3110), Royal Holloway, *Developing novel methods for gravitational-wave astrophysics.*
2018-2021	Nikhil Sarin, PhD candidate, Monash University, *The observational consequences of neutron star post-merger remnants.* Together, we have published eight articles, with Nikhil first-author on four of these.
2020	Rowina Nathan, PHS2360 Physics and Astronomy Introductory Research Project, Monash University, *Analysing radio pulsar pulses using machine learning.* (Co-authored two papers together).
2019	Kshipraa Athar, 2019 Vacation Scholarship, Monash University, *Optimising tools for gravitational wave astronomy.* (Co-authored one paper together).
2019	Tushar Nagar, PHS2360 Physics and Astronomy Introductory Research Project, Monash University, *Glitches in the Vela Pulsar: A Bayesian approach.*
2018	Chandana Anand, PHS2360 Physics and Astronomy Introductory Research Project, Monash University, *Magnetospheric switching in PSR B1828-11.*

Teaching Experience

- **Teaching Fellow in Mathematics** at Royal Holloway, University of London. I develop and deliver the Foundation Year Mathematics (FY1005 and FY1006) course with over 140 students enrolled. I create flipped-classroom teaching materials, coordinate support, and deliver the content in a blended learning environment.
- **Assistant Lecturer of Physics** for Monash University's physics units PHS1011 and PHS1022. These units utilize the *studio physics* model of teaching; an evidence-based student-centric pedagogy. Responsible for coordinating and delivering workshops, laboratories, and assessments.
- **Data Science and Computational Bayesian Inference**: I have delivered three workshops in computational Bayesian inference and helped deliver Monash University's Applied Data Science module (developing projects using Google maps API to study travel times).
- I have significant experience developing teaching materials, including traditional lectures along with Panopto and YouTube videos introducing and reviewing concepts and examples aimed at first-year students.
- Awarded "You're Valued!" by the Student Union at Royal Holloway. Students said "*Greg is inclusive, [we] feel very welcome in his class and have felt more confident with maths because of him*".
- Students at Royal Holloway rated their Overall Satisfaction with my teaching as 1.77 (1 being strongly agree and 5 being strongly disagree) while at Monash University, I achieved Student Evaluation of Teaching Units scores averaging 4.6/5.0.

Organisation of International Workshops and Meetings

Aug 2020	*Parameter Estimation for Gravitational waves*: lead organizer, invited by the LIGOIndia community to train 60+ astrophysicists (virtual).
May 2020	*LIGO-Virgo Collaboration GW Open Data Workshop #3*: co-organizer, invited to write and coordinate the Parameter Estimation tutorials for 100 students (virtual).
Feb 2019	*LIGO-Virgo Collaboration Parameter Estimation Meeting*: Local organizer
Nov 2018	*Towards O3*: lead organizer, 20 national participants, software development sprint.
Aug 2018	*Introduction to Inference*: lead organizer, 33 international participants trained in software development and Bayesian inference.

Invited Presentations

Feb 2021	*Flickering of the Vela pulsar*, Nicolaus Copernicus Astronomical Center (Warsaw, PO).
Jan 2021	*The deepening mystery of the Vela glitch*, Department of Physics, Bar-Ilan University (Bar-Ilan, IL).
Nov 2020	*Turning wiggles into science*, Royal Holloway High-Energy Physics (London, UK).
Jul 2020	*Transient Gravitational-Wave and Multi-messenger Astronomy*, UCL Astrophysics (London, UK).
Jun 2020	*Maximising the science of gravitational-wave observatories* Stockholm University Astrophysics (Stockholm, SE).
Dec 2019	*Bystander Awareness Training*, OzGrav Annual Retreat (Melbourne, AUS).
Sep 2019	*GW190425: A Binary Neutron-Star Coalescence observed by LIGO and Virgo*, plenary talk on behalf of the paper writing team, LIGO/Virgo meeting, invited (Warsaw, PO).
Jul 2019	*Introduction to Bayesian Data Analysis*, Masterclass in Relativistic Fluid Dynamics, University of Southampton, invited (Southampton, GB).
Oct 2018	*Astrophysical inference and transient gravitational wave astronomy*, Astrophysics Colloquium, University of Melbourne (Melbourne, AU).
Apr 2018	*Continuous wave parameter estimation and non-standard signal follow up*, INT-18-71W, Institute for Nuclear theory (Seattle, US).
Dec 2017	*Neutron stars as continuous gravitational wave emitters*, 11th Neutron Star workshop (Bonn, DE).
Jun 2017	*Continuous gravitational waves*, Aspen Center for Physics (Aspen, US).
Mar 2017	*Statistical characterization of pulsar glitches and their potential impact on searches for continuous gravitational waves*, invited seminar, Glasgow University Physics Colloquium (Glasgow, GB).

Public Engagement

Apr 2021	Delivered Python for Science to Royal Holloway's Astrophysics Residential, Particle Physics residential, and Girl Into Physics 2021. I developed programming tutorials to inspire students from disadvantaged school to follow careers in STEM.
Oct 2020	Work highlighted in the Australian Research Council's 2020 research highlights.
Jan 2020	Adelaide Five aa radio station interview: the second binary neutron merger ever observed
Aug 2019	Featured in the national Australian newspaper The Age: Patient astronomers crack the code of super-dense spinning stars along with follow-up online articles in PhysicsWorld CNET, The Register, and other sites.
Aug 2019	Behind the paper article, *Understanding the rotational evolution of the Vela pulsar during the 2016 glitch* written for Nature Astronomy Community blog.
2015-2020	Delivered several outreach talks on gravitational-wave astronomy at 'Pint of Science' and 'Skeptics Society' meetings.
2015-2019	Regular contributor to open days and public outreach at Monash University, Leibniz University, and the University of Southampton.
Feb 2015	Invited article in the Institute of Physics Gravitational Physics Group 2015 Newsletter: *The effect of timing noise on continuous gravitational wave searches.*