

Arash Bahramian

Astrophysicist and Data Scientist

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Summary

Senior lecturer at Curtin Institute of Radio Astronomy working on astrophysics, statistics and data science. With more than a decade of experience in data analytics and statistical techniques, my current research is focused on bridging the gap between theoretical and observational understanding of black holes in our Galaxy.

Experience

Curtin Institute of Radio Astronomy, Curtin University

2023 - Present

Senior Lecturer

Perth, Australia

My main responsibilities over the past few years have involved conducting research in data science and astrophysics, line management of junior academics and supervision of undergraduate and HDR students in interdisciplinary research in the areas of astronomy, computer science and statistics.

Curtin Institute of Radio Astronomy, Curtin University

2018 - 2023

Research Associate

Perth, Australia

My main responsibilities involved conducting research in the area of astrophysics and astrostatistics, particularly on the topic of black holes in the emergence of data-intensive astronomy, and supervision of undergraduate and HDR students.

Center for Data Intensive and Time Domain Astronomy, Michigan State University

2016 - 2018

Research Associate

East Lansing, MI, USA

My work involved conducting research on multi-wavelength observations of black holes in our Galaxy and carrying out astronomical observations with world class observatories such as CTIO/SOAR.

Education

University of Alberta

2011-2016

PhD in Physics and Astrophysics

Edmonton, AB, Canada

 [PhD Thesis](#)

The focus of my PhD thesis was on statistical analysis of astronomical data collected by X-ray satellites to model behavior of exotic astronomical phenomena such as black holes and neutron stars.

Awards

Research and Engagement Award

2022, 2023, 2024

Curtin University

I have been awarded for publishing highly impactful research in prestigious journals such as Nature and Science, for the past three years in a row.

Andrew Stewart Memorial Graduate Research Prize

2016

University of Alberta

Awarded for world-leading research as a PhD student.

Publications

Peer-reviewed publications

 [Publication list on NASA Astrophysics Data System](#)

Since 2012 I have had a total of 105 peer-reviewed publications, including an invited book chapter for the handbook of X-ray astronomy, 11 articles as the first-author, 16 as second author, 8 led by my PhD students, 4 published in Nature, Nature Astronomy and Science journals. These publications have accumulated more than 3500 citations, and an H-index of 30 (as reported by the NASA Astrophysical Data System by April 2025).

Invited talks (selected)

I have been regularly asked to talk at conferences and give colloquia at universities around the world. Over the past 5 years I have given 10 talks at various universities and conferences.

Frascati Workshop on Multifrequency Behaviour of High Energy Cosmic Sources	2025
Invited planetary talk	Palermo, Italy
Stellar black hole and formation workshop	2025
Invited talk	Kyoto, Japan
University of Maryland Baltimore County	2023
Invited talk	Maryland, USA
University of Manitoba	2023
Invited Talk	Winnipeg, Canada

Engagement with industry partners

Since joining Curtin, I have engaged with partners in the industrial sector as a data science consultant on two occasions. These activities ran for fractional workload allocation for periods a few months. In both cases, I engaged in analysis of data provided by the industry partner to develop and deliver analytical frameworks, results and advice documents to industry partners.

University of Nottingham & Google Inc.	2020
Data Science Consultant	

As part of a Translation and Impact project at Curtin Institute of Radio Astronomy, over a period of 3 months at 0.25 FTE, I engaged with the teams at University of Nottingham and Google on spatial and temporal analysis of data on the COVID-19 pandemic.

Wesfarmers Chemicals, Energy & Fertilisers	2018
Data Science Consultant	

As part of a Translation and Impact project at Curtin Institute of Radio Astronomy, over a period of 3 months at 0.25 FTE, I engaged with the team at Wesfarmers on data analytics techniques with regards to assessment of new technologies.

Outreach and Media engagement

I have regularly engaged in outreach activities and with media outlets. In 2024, I was invited to several media interviews in Australia and abroad following our discovery of a black hole in the center of a nearby star cluster. This media engagement led to 130 media articles on our results with a potential reach of 235,000 people and an Advertising Sales Revenue of 225 million AUD.

Astronomers produce most sensitive radio image of a globular cluster ever taken	2024
Popular Science	
A Cosmic Jekyll and Hyde	2020
NASA	
Donor star breathes life into zombie companion	2018
The European Space Agency	
MSU contributes to merging neutron star discovery	2017
MSU Today	
Star in Record-Breaking Close Orbit around Black Hole	2017
Scientific American	
Clandestine Black Hole May Represent New Population	2015
Chandra Observatory Press Room	

Certifications

Mental Health First Aider
Mental Health First Aid Australia

2020 (renewed in 2023)

Training for providing initial help to a person developing a mental health problem or experiencing a mental health crisis.

Giving voice to values
Curtin University

2024

A masterclass for responding to and dealing with ethically challenging situations in the workplace.

Mentoring and Supervision

Since starting at Curtin University, I have been line manager and mentor for junior academics (3), lead and co-supervisor for HDR students (8), and supervisor for undergraduate students (12; 3rd year, honours, summer internnship).

Aligned with my passion and goal to engage in cross-disciplinary research and mentoring, these have been students across the fields of astronomy, statistics, data science, actuarial sciences, and computer science.

Line manager and mentor for junior academics
Dr. Susmita Sett, Jinguo Xu, Dr. Steve Prabu

2022 - present

Lead supervisor for 4 HDR students
Alessandro Paduano, Shih Ching Fu, Angiraben Mahida, Cobus Labuschagne

2018 - present

Co-supervisor for 4 HDR students
Pikky Atri, Tyrone O'Doherty, Callan Wood, Ben Burridge

2018 - present

Undergraduate supervisor
3rd-year, honours, summer internship and capstone project

2019 - present

I have been a supervisor for 12 undergraduate students and 2 undergraduate capstone project groups across the disciplines of physics, statistics, data science, actuarial sciences and computer science.

Student achievements and awards

- Total of 6 Awards for research presentations at national and international conferences (Alessandro Paduano, Tyrone O'doherty, Callan Wood, Shih Ching Fu).
- Prestigious scholarships and grants (Forrest scholarships by Callan Wood and Tyrone O'doherty, and Statistical Society of Australia Golden Jubilee Travel Grant by Shih Ching Fu)
- Secure competitive positions, prestigious fellowships, permanent employment:
 - Employment at ARC Centre for Maintenance: Jinguo Xu
 - Women in Science Excel Fellowship: Pikky Atri
 - Australian Bureau of Meteorology: Alessandro Paduano

Accepted Observatory/Funding Proposals

I have led 13 successful proposals requesting competitive observing time and funding at large international astronomical observatories and have been a contributor to further 30 successful proposals as a co-investigator. These successful proposals have secured over \$500k USD in funding.

Professional Service

Member of the Australia Telescope National Facility Time Allocation Committee	2023 - present
Member of the Australian Academy of Science Decadal plan for Astronomy Working group	2024
Member of the working groups on Time Domain Astronomy and computation	
Australian Research Council proposal reviewer	2023, 2024, 2025
Detailed assessor	
Federal grant reviewer (The Dutch Research Council - NWO)	2023
Expert reviewer	
Member of NASA observatory time allocation committees	2017, 2021, 2022
NuSTAR and Chandra observatories	
Contribution to white papers for the Canadian Astronomical Long Range Plan on Astro-statistics	2020
In our white paper we performed a survey of the astronomical community and their engagement in cross-disciplinary research in Canada. We argued that jargon is a significant barrier for students and researchers to engage in such research and we proposed several suggestions for educational activities to break such barriers.	
Astro Morning Tea at Curtin Institute of Radio Astronomy	2020 - 2023
Organizer	
An institute-wide casual weekly meeting to discuss the most recent developments in research. Aimed at students and early-career researchers, these meetings are vital at a large cross-disciplinary institute to provide opportunities for colleagues to learn from each other and ignite new learning and research opportunities.	

Teaching

Since mid 2020, I have taught into multiple disciplines at Curtin University: physics, statistics, and data science across two campuses (Bentley and Kalgoorlie).

Data Visualization (STAT3011)	2022 - present
Lecturer	
Backed with my experience working with the industrial sector, I have incorporated authentic learning components to the curriculum with real life examples, providing students with industry-ready skills.	
Data Science in Practice (STAT2006)	2023 - present
Lecturer	
In contrast with classical topics, data science is in rapid evolution at the moment. I have been updating the syllabus for this unit frequently to make sure students are provided by up-to-date practical knowledge.	
Special topics in astrophysics (PHYS4003)	2022 - present
Lecturer	
I have developed and have been teaching a completely new module on astro-statistics in the honours astrophysics unit. Given the fast expansion of data-intensive astronomy and the applied nature of astro-statistics, I developed novel technology-driven tutorial activities based on the scaffolding learning technique with authentic examples to enhance effective delivery and learning for students.	
Statistical Mechanics (PHYS 2002)	2020 - 2023
Lecturer	
I updated the curriculum with novel teaching techniques and taught this crucial unit for physics and chemistry students.	