

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 effective data models for rapid and efficient management of heterogeneous large data sets, and detailed statistical models of physical systems.

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

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.

Consultancy

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.

Skills

Python programming

Focused on data analytics



Scientific Python, Bayesian inference in Python, Astropy

Data visualization

Static and interactive data visualization for domain experts and clients



Power-BI, Tableau, Python, R

R programming

Data Analytics and statistical inference in R



Tidyverse

Machine learning

ML models for classification, regression and clustering



supervised, unsupervised

Statistical modeling

Creating inference models



Mechanistic models, Bayesian workflow

Data modeling

Producing and management of data models for complex and distributed datasets



Pandas, SQLite, Tidy R

Data intensive analytics

Techniques focused on rapid analysis of large datasets



GIS

Creating visualization models with GIS technology



QGIS, GeoPandas

Publications

Peer-reviewed publications

[Publication list on Astrophysical Data System](#)

Since 2012 I have had a total of 105 peer-reviewed publications, 11 as the first-author, 16 as second author, 6 led by my PhD students. These publications have accumulated more than 3000 citations, and an H-index of 30 (as reported by the NASA Astrophysical Data System by August 2024).

Media highlights

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](#)