ADITYA PARTHASARATHY MADAPUSI

Astrophysicist | Data-Driven Scientist

My current research involves developing advanced inference tools to detect the weakest gravitational waves in the Universe. I develop highly-parallelised predictive modelling software and data analysis pipelines for one of the world's most sensitive radio telescopes.

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Relevant links

Scan for my research publications

Code repository
github.com/aparthas3112

Techincal expertise

Python (Advanced)

Linux (Advanced)

Statistical Inference (Advanced)

C/C++ (Intermediate)

Data visualisation (Intermediate)

SQL/SQLITE (Intermediate)

Docker/Singularity (Intermediate)

Distributed Computing (Intermediate)

Languages

English, Hindi, Telugu & Tamil

Overview

- Five years of experience in academic research.
- Research involves *statistical inference*, *predictive modelling* and analysis of big data used in astrophysical experiments.
- Developed end-to-end *open-source pipelines* for analysing *time-series data* using *high-performance and distributed* computing systems.
- *Led* various international teams and organised conferences.
- Developed astronomy and software related teaching material used by students across the world.
- *Keen on transferring skillset* to F1 data science and engineering.

Demonstrated Skills

- Published *many peer-reviewed* manuscripts as lead-author and co-author, including in the presitigious *Science* journal.
- Actively collaborate with NASA and secured multi-year funding for research projects.
- *Primary developer* of a data analysis pipeline that is *highly-parallel*, modular and *widely-used* by the community to process large scientific data sets. This involves data cleaning, processing, database management and user-interfaces to visualise output.
- Co-developer of a Bayesian inference software, which does parameter estimation over multi-dimensional data to search for subtle signal trends. Widely used within the community to search for weak gravitational waves.
- Have presented *over 40 research talks* to scientific audiences around the globe and *over 60 public talks* about science and astronomy.

Important Results

I published the first result to show that NASA's space telescope can be used to search for gravitational waves.	My Bayesian inference tool has been used to accurately model and predict trends in astrophysical data. - - - - - - - - - - - My data analysis pipeline has been used to produce some of the most precise data sets in astrophysics.	My research has had a wide impact across astrophysics with more than 2000 citations. - - - - - - - - - - - My research has been mentioned in more than 50 press articles.

Education & Jobs

2020 - Current	Postdoctoral researcher at Max Planck Institiute of Radio Astronomy, Germany.
2016 - 2020	Ph.D. scholar at Swinburne University of Technology, Melbourne, Australia.
2014 - 2016	Research assistant at Raman Research Institute, Bengaluru, India.
2009 - 2013	Bachelors in Instrumentation and Control Engineering, Anna University, India.