

Abhijith Rajan, PhD

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Research data scientist specializing in astrophysical data mining, cleaning, and analysis. Has led studies on the detection and characterization of planetary atmospheres, the data for which were analyzed via Frequentist and Bayesian techniques. Experienced in communicating results to both experts and non-experts. Interested in transferring skills to industry, to make a positive impact through data science.

Areas of Expertise include:

- Data Cleaning
- Data Analysis
- Numerical Methods
- Technical Writing
- Grant Writing
- Technical Communication
- Troubleshooting & Debugging
- Problem Resolution
- Project Management

Skills & Abilities

Statistics, Modeling and Data Analysis

- Image analysis using least squares and principal component analysis.
- Single- and multi-variate parametric analyses and modeling.
- Markov-Chain Monte Carlo implementations to explore complicated likelihood spaces.

Technical Summary

- 10+ years of experience with scientific computing using Python scientific software stack (numpy, pandas, scipy, matplotlib, astropy). Well versed with taking pieces of code from ideas to production, as well as a writing and documenting code for use by the scientific community.
- Experienced with version control (git, Github, and Bitbucket), as a developer on 5 astrophysics projects, and 2 telescope simulation projects.

Technical Writing and Communication

- First author of 3 peer-reviewed articles and 6 technical articles, and co-author on 38 peer-reviewed articles.
- 20+ invited presentations to academic and public audiences across the Americas and Europe.
- Awarded 4 telescope grants since 2011, for Keck and Hubble Space Telescope time, securing ~\$160k in funding.

Professional Experience

Postdoctoral Fellow

Space Telescope Science Institute | Baltimore, MD | Jun 2017 – present

Develop software architecture for ground and space-based telescopes to estimate exoplanet spectra from multi-dimensional data. Calculate data correlations and estimate composition and fundamental properties of exoplanets.

Research and Instrument Analyst 2

Space Telescope Science Institute | Baltimore, MD | Sep 2008 – Apr 2012

Led exploratory analysis of new flight hardware for the Hubble Space Telescope using tools developed in Python. Co-developed novel method to image extra-solar planets for space telescopes.

Education

Doctor of Philosophy, Astrophysics

Arizona State University | Tempe, AZ | May 2012 – May 2017

Master of Science, Astronomy

San Diego State University | San Diego, CA | Aug 2005 – Aug 2008

Bachelor of Engineering, Instrumentation

University of Pune | Pune, India | Sep 1999 – Aug 2005