Satyapriya Das

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Education

Indian Institute of Space Science and Technology (IIST) — Thiruvanathapuram, India
MS: Astronomy and Astrophysics — *2023–2025*

Indian Institute of Space Science and Technology (IIST) — Thiruvanathapuram, India
B.Tech. Engineering Physics — *2020 – 2023*

Research Experience

Master's Thesis — Onsite
Swapnil Singh (Scientist SD, URSC-ISRO), Prof. Sarita Vig (IIST) — *August 2024 – May 2025*

- Analysis of NGC 4258 to investigate the dynamic interplay between star formation and an AGN due to its jet alignment via multi-wavelength analysis.

Visiting Student Program (VSP) Intern — Onsite
Prof. Aseem Paranjape, IUCAA — *25 June 2024 – 5th Aug 2024*

- Analyzed band average power spectrum from N-body simulations using Fisher matrix.
- Plotted 64% and 95% confidence ellipses.
- Determined correlation between parameter estimates.

Summer Research Intern — Onsite
Dr. Resmi Lekshmi, IIST — *May 2023 – July 2023*

- Understanding and reproducing "A quick look at the 3 GHz radio sky. I. Source statistics from the VLA Sky Survey" paper to analyze VLASS data (epoch1 and 2).
- Multi-frequency catalog making and analyzing blazars from Fermi-LAT using supervised and unsupervised ML. To understand the importance of VLASS in the classification.

Undergraduate Student Researcher — Onsite
Prof. Sarita Vig, IIST — *Sep 2022 – Feb 2023*

- Analysis of M15 globular cluster using GAIA Archive, TOPCAT and Python.
- Data cleaning via constraints and vector point diagram, understanding branches of the HR diagram.
- Isochrone fitting of CMD for age estimation, metallicity, and distance modulus of the cluster.

Training and Workshops

SKA in India (VIII): enhancing scientific and technological participation in SKA — Online
NIT, Rourkela — *15th Feb 2025*

- Overview, scientific groups and working in India, participation in SKA, open discussion.

Sagan Summer Workshop 2024 — Online
NASA Exoplanet Science Institute, Caltech — *21 – 26th July 2024*

- Sessions explored basic optical principles of high-contrast imaging, fundamentals of coronagraph, wavefront sensing technologies and high-contrast instrument design.
- Presentations and group exercises covered approaches to starlight/PSF subtraction, planet and disk recovery, determination of orbits from imaging observations, etc.
- PROTO Workshop (21 Jul) - Career guidance, working with NASA, Decadal Survey, mission formulation at NASA, the road to WHO.

Conferences

43rd Astronomical Society of India Conference
NIT Rourkela, India, On-site *15-19 February 2025*

* Poster presentation on my Master's thesis.

42nd Astronomical Society of India Conference
IISc Bengaluru, India, On-site *1–4 February 2024*

* Poster presentation on work done under Dr. Resmi Lekshmi, IIST.

Relevant Skills

Languages:	Python (extensively used) || C++|| MySQL
Tools:	TOPCAT (extensively used) || IRAF (proficient)|| DS9 || Heasoft || GPU Cluster || LaTeX CCDLAB (UVIT)|| Jdaviz (JWST) ||Barolo (3D modelling)
Package:	Tensorflow || Astropy || Scipy || Pandas || Astroquery || Numpy || Aplpy
Maths:	Statistics || Bayesian Analysis (Fisher Matrix) || Numerical Analysis (integration, ODE, interpolation, least square fitting)

Volunteer and Co-curriculars

Core member, Astronomy Club, IIST	Took hands-on sessions on telescope, organized talks, conduct workshops.
Citizen Scientist at NASA	Organised teams to engage in Asteroid Hunting organised by NASA.
Decoration Team member, Dhanak	Full campus decoration for Dhanak, the cultural fest of IIST.
Changemaker, Spaceonova	Worked at Space sector based startup, Spaceonova.

Courses under Masters Programme

* Astronomical Techniques
* Radiation Processes in Astrophysics
* Planetary Sciences
* Computational Astrophysics
* Data Analysis Astronomy Lab
* Structure and Evolution of Stars
* Galaxies (Structure, Dynamics and Evolution)
* Cosmology
* High Energy Astrophysics
* Observational Astronomy Lab