Drishty B. Jadia

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Education

Indian Institute of Technology Kanpur **November 2020 – May 2025**
B.S. - M.S. in Physics (Dual Degree) *CPI: 8.61/10 (M.S.)*
Minors: Space Science and English Literature

Technical Skills

Languages: Python, C++, Bash, LaTeX
Libraries & Tools: NumPy, Pandas, Astropy, Matplotlib, Scipy
Astronomy Software: CASA, AIPS, CIAO, XSPEC, HeaSoft, DS9, PyBDSF, LAXPCsoft
Systems/Workflow: Linux, Git, SLURM, NRAO Pipelines

Research Experience

Master's Project: Radio Transients in VLA COSMOS & STRIPE82 Surveys |
Prof. Kunal Mooley, Department of SPASE, IIT Kanpur **August 2024 – May 2025**

- Calibrated and imaged 3 GHz VLA-COSMOS data using **AIPS** and **CASA**; generated 320+ mosaics across 110 epochs.
- Applied **PyBDSF** for source detection and built light curves from cross-matched sources to identify transients.
- Calibrated and imaged STRIPE82 OTFM scans on NRAO servers; continuing variability analysis and classification.

Central Engine of Giant Radio Galaxies (GRGs) |
Prof. Vaidehi Paliya, VSP 2024, IUCAA, Pune **November 2024 – January 2025**

- Analyzed **136** GRGs detected by **LOFAR** & **Chandra**; investigated jet-linked X-ray emission and accretion signatures.
- Extracted Chandra spectra using **CIAO**; performed spectral modeling with **XSPEC** (absorbed power-law fits).
- Visually classified **3500+** SDSS spectra into HERGs/LERGs via emission-line diagnostics.

Experimental VLBI with GMRT, NCRA 15m Antenna and ORT |
Dr. Visweshwar Ram Marthi, VSRP 2024, NCRA-TIFR, Pune **May 2024 – July 2024**

- Executed VLBI observations at 1.4 GHz and 325 MHz using **GMRT–15m** and **GMRT–ORT** baselines.
- Detected fringes between GMRT and ORT; synchronized data streams via delay calibration for offline correlation.
- Designed and conducted experiment to estimate the stability of OCXO with respect to Hydrogen Maser.
- Assessed system readiness for VLBI by analyzing phase stability, timestamping errors, and coherence loss.

Pulsar Signal Processing using ORT Voltage Data |
Prof. Avinash Deshpande, Course Project, IIT Kanpur **November 2022 – March 2023**

- Explored time-series analysis and spectral methods using raw ORT voltage data of the Vela pulsar.
- Gained exposure to pulsar detection techniques including de-dispersion, phase folding, and power spectrum analysis.
- Understood statistical properties of radio noise and dispersion effects in the ISM via dynamic spectra and PDFs.

Conferences & Training

- Presented oral talk at *URSI-RCRS 2024*, GEHU, Bhimtal on experimental VLBI with Indian arrays.
- Conducted X-ray spectral analysis of giant radio galaxies during *VSP 2024*, IUCAA, Pune.
- Executed experimental VLBI with GMRT–NCRA 15m–ORT baselines as part of *VSRP 2024*, NCRA-TIFR, Pune.
- Selected for *ISSAA 2023*, IUCAA; completed five-week school on astronomy and astrophysics in-person.
- Attended *IAGRG-32*, IISER Kolkata; lectures and discussions on general relativity, dark energy, and cosmology.

Teaching Experience

Indian Institute of Technology Kanpur **July 2024 – May 2025**
Teaching Assistant, PHY111A - Physics Laboratory *Kanpur, India*

- Guided 200+ undergraduates in conducting and analyzing physics lab experiments.
- Provided demonstrations, clarified experimental concepts, and assisted with lab report writing.