

Dharmender

Astrophysics Researcher

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-  LinkedIn
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-  ORCID

Education

- Ph.D. in Astronomy**
Central University of Himachal Pradesh
12/2021 – Present | Kangra, India
- Master of Computer Application (MCA)**
Indira Gandhi National Open University,
Delhi 
03/2023 – Present | Delhi, India
- Data Science**
Masai
01/2025 – 07/2025 | Bangalore, India
- Master of Science (Physics)**
Central University of Himachal Pradesh 
07/2019 – 06/2021 | Kangra, India

Technical Skills

- Python | SQL |
- Natural Language Processing (NLP) |
- Machine Learning | Deep Learning |
- Excel | Power BI | Git | HTML5 |
- CSS3 | Django

Soft Skills

- Attention to Detail | Problem Solving |
- Time Management | Teamwork

Certificates

- Business Professional Programmer** 
From National Institute of Electronics and
Information Technology (NIELIT)
- Introduction to Machine Learning** 
From Indian Institute of Technology
Kharagpur

Summary

Versatile researcher and data professional with expertise in Python, SQL, Machine Learning, and Data Visualization. Experienced in applying advanced statistical and AI-driven techniques to analyze complex scientific datasets, particularly in astrophysics. Strong problem-solver with proven ability to adapt quickly to emerging technologies and collaborate effectively in cross-disciplinary teams. Dedicated to delivering accurate, high-impact insights in both academic research and data-driven industry projects.

Professional Experience

Visiting Research Student
Indian Institute of Astrophysics

- 04/2025 – Present | Bangalore, India
- Performed statistical data analysis on astronomical datasets
 - Developed data visualizations to illustrate research findings
 - Executed data cleaning and preprocessing to ensure data integrity
 - Applied critical thinking to interpret complex scientific data.

Projects

Star-formation in neutral hydrogen gas reservoirs at cosmic noon

01/2024 – 12/2024

Our recent work has centered on investigating star formation within neutral hydrogen gas reservoirs, damped Lyman-alpha systems (DLAs), at cosmic noon. Through a stacking analysis of Lyman-alpha emission in DLAs, my research has uncovered highly significant emission, suggesting a close connection between DLAs and Lyman-alpha emitters (LAEs). This finding supports the hypothesis that DLAs may represent an early evolutionary phase of LAEs or even LBGs.

AGN Reverberation Mapping: A tool for probe the mass of Supermassive black hole

Employed reverberation mapping techniques to analyze light curves of Active Galactic Nuclei (AGNs). This involved cross-correlating variations in the continuum and broad emission lines to determine the time delay, which is then used to estimate the size of the Broad-Line Region (BLR) and consequently the mass of the central supermassive black hole.
Skills Used: Data analysis (e.g., cross-correlation function), astronomical software, interpretation of astronomical data.
Key Achievements: Successfully estimated black hole masses for AGN sources using reverberation mapping.