

# JEBRAAN MUDHOLKAR

 [Website](#)

 [jebraanjamil@gmail.com](mailto:jebraanjamil@gmail.com)

 [LinkedIn](#)



## Education

**Ludwig-Maximilians-Universität München**

*Master's in Astrophysics*

**2024 - present**

*Munich, Germany*

**Fergusson College(Autonomous)**

*Bachelor's of Science in Physics, CGPA-9.06/10*

**2021 - 2024**

*Pune, India*

**New Indian Model School**

*Higher Secondary Education-Percentage-95.8%*

**2020 - 2021**

*Sharjah, UAE*

**New Indian Model School**

*Secondary Education-Percentage-91%*

**2018 - 2019**

*Sharjah, UAE*

## Projects

**Analysing the dichotomy of Lyman Break Galaxies(LBGs) and Lyman alpha emitters(LAEs) by means of their Lumniosity functions**

**May 2024–present**

*This study aims to collect two population statistics of galaxies in the early universe: Lyman alpha luminosity functions and the UV luminosity functions. Our objective is to better understand the dichotomy between the galaxy populations that are contributing to these two statistics. This dichotomy is a result of the respective galaxy samples being gathered by different observational methods. In particular, we understand and refine the methodology developed in the literature for establishing the connection between the two luminosity functions.*

**Photometry and Spectroscopic Studies of Exoplanet Hosting Stars**

**June 2023 – September 2024**

*With the advent of high-resolution spectrographs coupled with medium to large aperture telescopes around the globe, there are plenty of high-resolution and high signal-to-noise ratio data available to the astronomy community. The data can be used to derive the chemical composition and atmospheric characteristics of a star. In this study, we aim to develop a code in Python which estimates the stellar ahtmospheric parameters from the analysis of stellar spectra based on two primary methods, synthetic spectral fitting and the equivalent width method. Synthetic spectral fitting method involves fitting the observed spectrum with different synthetic spectra for a set of stellar parameters. The second method is based on equivalent widths (EWs) that are used to derive abundances for a set of Fe I and Fe II lines from the observed spectra.*

**Study of potentially habitable planets**

**October 2022 – September 2024**

*This study investigates potential trends in exoplanet habitability by utilizing data from NASA's Exoplanet Archive, specifically sourced from the Kepler mission. An algorithm was developed in Python for the purpose of analyzing, scaling, and visualizing this dataset. The focus of the analysis was to plot the diameters and semi-major axes of exoplanets against the diameters of their respective host stars, providing insight into potential correlations and patterns in exoplanetary systems.*

**NASA Citizen Science Project**

**October-2022**

*Contributed to NASA citizen science project named "Planet Hunters Tess", where I was able to locate innumerable transits of exoplanets orbiting their respective host stars.*

## Experience

---

- Attended a workshop on “Introduction to Computational Astrophysics” conducted by Astro Club, Fergusson College, Pune (February-2024)
- Participated in International Astronomical Search Collaboration by analyzing images from Pan-STARRS and contributing to the observations of Near-earth objects and Main Belt Asteroids. (October-2023)
- Attended 2023 Sagan Exoplanet Summer Hybrid Workshop on “Characterizing Exoplanet Atmospheres: The Next Twenty Years” hosted by NASA Exoplanet Science Institute at the California Institute of Technology in Pasadena, CA (July 2023)
- Attended a workshop on Particle Physics organized by Astro Club of Fergusson College. The workshop was conducted in association with Indian Institute of Science Education and Research (July-2023)
- Attended with merit a one-month course on Quantum Computing using Indigenous Quantum Simulator “Qsim” jointly organized by IIT Roorkee and C-DAC Hyderabad (May-June-2023)
- Participated in a “10-week workshop on Astronomical Data Science using Python” organized by Spartificial (January-April 2023)
- Volunteered in Frontiers in Physics, A 2-day National event hosted by Astro Club, Fergusson College, wherein I was one of the members of the technical team (April-2023)
- Volunteered for National Science Day at the Inter-University Centre for Astronomy and Astrophysics (IUCAA, Pune) where, along with my team, I explained the Main sequence stars and their behavior to more than 1000 people (February-2023)
- Attended a workshop on “Exoplanets-A Short Course on planets orbiting stars other than Sun” Organized by Pune knowledge Cluster (February-2023)

## Extracurricular

---

### Member at Astro Club

2021 – 2024

- Astro Club is a club that comes under the Department of Physics of Fergusson College, Pune
- The club is a student’s initiative to discuss broadly on physics related topics
- Astro Club organizes Group Discussions, Problem Solving sessions, Poster Exhibition and yearly edition of Frontiers in Physics (National Students’ seminar)

### Member at Green steps

2021 – 2022

- Green steps are an NGO working for sustainable development and enhancing the quality of the environment. Volunteered for the ‘Green-steps Campaign’ conducted by the SOEC wherein non-degradable waste from the Fergusson College and the surrounding area was collected and well-disposed.

## Skills

---

- |                            |                 |                |
|----------------------------|-----------------|----------------|
| • Python                   | • C-Programming | • Linux        |
| • R.Spec                   | • xyscan        | • Astrometrica |
| • Digital Image Processing | • Scilab        | • Latex        |
| • Stellarium               | • Bash          | • Anchoring    |

## Languages

---

- |           |         |           |
|-----------|---------|-----------|
| • English | • Hindi | • Marathi |
|-----------|---------|-----------|

## Achievements

---

- Received third prize for thesis explanation during Poster exhibition of Frontiers In Physics, a National seminar organized by Astro Club of Fergusson College.
- Received second prize for explaining detection of exoplanets during poster exhibition hosted by Astro Club.
- Ranked in top 5 for scoring greater than 95% in Higher Secondary Education in my school.