

## Statement of Interest

My main goal as a freshman at UIUC was to dive into research, explore fields that excite me, and figure out what I want to work on in the future. I've always been driven by curiosity, which led me to write a paper on string theory during my rhetoric class, where I developed scientific writing skills. This passion now drives my goal of going to grad school to focus on astronomy-related fields while combining the data science skills I'm learning with my entrepreneurial aspirations. To fulfill this goal, I participated in the Cozad new venture challenge this semester, presenting my startup - Messier.com. The goal of messier.com is to avoid repetition and propel discovery in research.

As I mentioned my focus is on a diverse set of astronomy fields. Thus, I this semester I started working as an economic analyst on Venus MEON: A project by the Space Generation Advisory Council which is a branch of UN. Here I have going through economic data on space exploration and have analyzing the viability of a manned mission to Venus in a orbiter format. This means that I go in depth of research in every aspect of the mission from engineering to science to allocate budget to each one of these fields. Currently our proposal has been sent for the IAC conference. Various tools that I had learnt before as chief scientist for the NASA L'Space program help me a lot in this.

As chief scientist for NASA L'Space, I led efforts to identify potential lunar exploration sites using JMars data, designed a science traceability matrix, and determined rover science goals. These tasks deepened my understanding of data analysis, mission planning, and scientific communication. Working with a multidisciplinary team also taught me how to collaborate effectively and handle complex challenges, experiences that I know will be invaluable for my current projects and beyond.

I've always been curious about the intersection of religion and science, and when I couldn't find a dataset for a related project, I created my own through extensive research. I also contributed to a comet survey and generated image data for NASA L'Space using JMARS. These experiences, alongside my coursework in STAT 107, 207, and 385, taught me how to build apply scientific datasets in meaningful ways—skills I'm eager to bring to this survey and beyond.

When I read the project description for the Star and Planet formation project, I couldn't wait to dive into it myself. I built a Python program for analyze ALMA disk images—reading FITS files, extracting radial brightness profiles, ring and asymmetry detection, ellipse fitting. I used Fourier analysis to identify rings, gaps, and potential clumps in the disk structures—features often linked to early planet formation. I used python to automatically tag disks, then visualized trends across categories in Tableau. Though this project required a lot of time and effort, it was all eventually worth it. This project let me combine astronomy and data science, in a self-learning experience. This gave me an outlook, showing me the top of the glacier for the work for a research group.

All of these experiences—exploring ideas, building things from scratch, and diving deep into science—have helped me figure out what I enjoy doing. I'm excited to keep learning, working on meaningful problems, and seeing where this path takes me.