

# TYLER ROBBINS

██████████ | ██████████ | ty.robbins@live.com  
www.tyler-robbins.com

## EDUCATION

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B. S. in Physics (conc. in Astrophysics, dept. honors), Mathematics minor August 2020 – May 2024  
*The University of Toledo* Toledo, Ohio

## RESEARCH EXPERIENCE

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**Post-bacc Researcher**, Advisor: Rupali Chandar April 2024 – present  
*The University of Toledo* Toledo, Ohio (Virtual)

- Holes in the ISM: The Bubble Population of NGC 4254
  - Created a catalog of large-scale bubbles in NGC 4254 from HST and JWST images. Performed statistical analysis of the ages of star clusters inside and on the rims of bubbles to better understand stellar feedback processes. Part of the PHANGS collaboration. **(Robbins et al. 2024 in prep)**

**Undergraduate Researcher**, Advisor: Tom Megeath August 2022 – present  
*The University of Toledo* Toledo, Ohio

- YSOlab
  - Worked with a team to locate protostars of interest in the southern regions of the sky based on variability using publicly available data. **(Kulkarni et al. 2024a, Kulkarni et al. 2024b in prep)**

**Summer Intern**, Mentor: Elizabeth Hays May – August 2023  
*NASA Goddard Space Flight Center* Greenbelt, Maryland (Hybrid)

- Gamma-ray Variability Analysis of BL Lacertae
  - Analyzed 15 years of gamma-ray data and 10 years of optical polarization data from BL Lac to create a light curve and perform calculations of emission region size based on variability.

### Other Projects:

- *Clusters, Clumps, and Dark Galaxies*: HST / JWST analysis of distant galaxies to create star cluster catalogs to age-date said galaxies. **(Caputo et al. 2024 in prep)**
- *Spectroscopic Data Cleaning*: Cleaned and reduced spectroscopic data pertaining to a catalog of O stars.

## PUBLICATIONS

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- **Robbins et al. (2024)**. *Holes in the ISM: The Bubble Population of NGC 4254*. **[Paper in preparation]**
- Kulkarni et al. (2024a). *The Infrared Variability of V1647 Ori over 26yr with Spitzer, (NEO)WISE, and ISO*. *Research Notes of the AAS*, 8.
- Kulkarni et al. (2024b). *27 years of Spaceborne IR Astronomy: An ISO, Spitzer, WISE, and NEOWISE Survey for Large Amplitude Variability in Young Stellar Objects*. **[Paper in preparation]**
- Caputo et al. (2024). *Cluster Demographics in the Infrared Luminous Galaxy IC 4687 From HST and JWST*. **[Paper in preparation]**

## PROJECTS

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**2024 Total Solar Eclipse Community Project** April 2024  
*Community STEM Outreach* The University of Toledo

Organized and led a viewing party for over 80 attendants from various great lakes universities as president of SPS. Included multiple interviews with various news outlets, representing the student body.

## NASA University Student Launch Initiative

August 2023 – April 2024

### Technical Project

Led the vehicle team during the 2024 NASA USLI competition. Designed and constructed a rocket capable of transporting a lander payload approx. 5,000 ft AGL. Mainly worked on design / construction of vehicle and avionics electronics.

## Battle of the Rockets

August 2022 – April 2023

### Technical Project

Led the vehicle team during the 2023 BOR competition. Designed and constructed a rocket capable of transporting a dummy payload to approx. 2,000 ft AGL. Mainly worked on design / construction of vehicle and avionics electronics.

## WORK EXPERIENCE

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### Summer Research Intern

May – August 2023

NASA Goddard Space Flight Center

Greenbelt, Maryland

- Worked as part of the Astroparticle Physics Lab
- Worked on a mentored project over approximately 10 weeks. Responsible for ensuring deadlines were met as well as completing the research project within allotted time. Presented research findings at end of program.
- Developed skills in Python, computational physics, statistical modeling, and gamma-ray astrophysics.

### Guest Relations Team Lead

May 2019 – present

Columbus Zoo & Zoombezi Bay

Powell, Ohio

- Held a leadership position managing operations and assisting with guest recovery daily.

## LEADERSHIP

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### Guest Relations Team Lead, Columbus Zoo & Zoombezi Bay

May 2021 – present

Columbus Zoo & Zoombezi Bay

Powell, Ohio

### President, Society of Physics Students

October 2022 – May 2024

The University of Toledo

Toledo, Ohio

### Vehicle Team Lead, UT Rocketry Team

August 2023 – April 2024

The University of Toledo

Toledo, Ohio

## SKILLS

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- Programming: R, C, C++, C#, Java, Python, SQL, HTML, CSS, JS
- Software: Excel, SAOimageDS9, Jupyter, Github
- Python: NumPy, Astropy, pandas, Matplotlib, Photutils, SciPy

## PROFESSIONAL AFFILIATIONS

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National Association of Rocketry (NAR)

November 2023 – present

American Astronomical Society (AAS)

October 2022 – present

American Physical Society (APS)

October 2022 – present

Society of Physics Students (SPS)

October 2021 – present

## PRESENTATIONS

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### Gamma-ray Variability Analysis of BL Lacertae

- Presented work to UT student body and faculty, research group meetings, NASA intern research conference.