

# KAYLEE BARRERA

✉ [kaybar@mit.edu](mailto:kaybar@mit.edu) |  [kayleebarrera.github.io](https://github.com/kayleebarrera)

## EDUCATION

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**Massachusetts Institute of Technology**, Cambridge, MA

S.B in Earth, Atmospheric, and Planetary Sciences; S.B in Physics

Expected June 2026

## RESEARCH EXPERIENCE

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**MIT Kavli Institute**, Cambridge, MA

June 2024 – Present

Advisors: Dr. Sarah Blunt & Prof. Andrew Vanderburg

- Led development of *eurydice*, a Python package for cross-validation of Gaussian Process (GP) models of stellar activity in radial velocity data.

**MIT Remote Observing Lab**, Cambridge, MA

February 2025 – June 2025

Advisor: Dr. Michael Person & Dr. Artem Burdanov

- Applied time-series analysis techniques using *prose* (Python) and *Tycho Tracker* to produce light curves and identify key periods on brown dwarf system VHS 1256-1257 and asteroid 2024 PT5.

**MIT Wallace Observatory**, Westford, MA

May – August 2023

Advisor: Dr. Michael Person

- Processed and analyzed light curves for 8 Koronis family asteroids and Pluto to measure photometric changes over their rotational periods using *AstroImageJ*.

## PUBLICATIONS

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3. Brothers, T. C., Abbasi, F. N., Ekermann, J., et al. (including **Barrera, K.**) *Lightcurve and Rotation Period of Near-Earth Asteroid 887 Alinda During the 2025 Close Approach*, Minor Planet Bulletin, 52, 211 (2025)
2. Slivan, S. M., **Barrera, K.**, Colclasure, A. M., et al. *Lightcurves and Derived Results for Koronis Family Member (452) Hamiltonia*, Minor Planet Bulletin, 51, 176 (2024)
1. Slivan, S. M., **Barrera, K.**, Colclasure, A. M., et al. *Lightcurves and Derived Results for Koronis Family Member (5139) Rumoi Including a Discussion of Measurements for Epochs Analysis*, Minor Planet Bulletin, 51, 6 (2024)

## RESEARCH & CONFERENCE PRESENTATIONS

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### Talks:

2025 Lamat Research Symposium (Santa Cruz, CA)

August 2025

MIT Astronomy Field Camp Symposium at the IAC (La Laguna, Tenerife, Spain)

January 2025

MIT Stellar Contamination Workshop (Cambridge, MA)

September 2024

Summer MIT Kavli Institute Undergraduate Research Forum (Cambridge, MA)

August 2024

### Posters:

EAPS Community Research Showcase (Cambridge, MA)

September 2025

2025 Sagan Summer Workshop (Virtual)

July 2025

Extremely Precise Radial Velocities 6 (Porto, Portugal)

July 2025

Emerging Researchers in Exoplanet Science Symposium X (Princeton, NJ)

June 2025

## AWARDS & FELLOWSHIPS

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Lamat Fellowship, *University of California, Santa Cruz*  
The EAPS Undergraduate Achievement Award, *MIT EAPS Dept.*

Summer 2025  
May 2025

## LEADERSHIP

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### **MIT Undergraduate Women in Physics (UWiP)**

*Co-President*

March 2025 – Present

*Co-Vice President of Social*

March 2024 – March 2025

### **Earth, Atmospheric, and Planetary Sciences (EAPS) Undergraduate Council**

*President*

February 2025 – Present

## TEACHING

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### **Undergraduate TA for 12.409 (Hands-On Astronomy: Observing Stars and Planets)**

Spring 2025

Department of Earth, Atmospheric, and Planetary Sciences, MIT

## SKILLS

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**Programming Languages:** Python, MATLAB, LaTeX

**Memberships:** American Astronomical Society, Society of Physics Students, American Physical Society

*Last updated: Oct 9, 2025*