

KAYLEE BARRERA

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EDUCATION

Massachusetts Institute of Technology

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

Cambridge, MA

Expected June 2026

RESEARCH EXPERIENCE

Undergraduate Researcher, MIT Kavli Institute

Cambridge, MA

Advisors: Dr. Sarah Blunt & Prof. Andrew Vanderburg

June 2024 – Present

- Developed a Python package titled *eurydice* to perform cross-validation tests on Gaussian Process (GP) models of stellar activity for radial velocity measurements
- Utilized *eurydice* to perform cross-validation tests on the HD63433 planetary system to search for signs of overfitting on a pre-existing GP model and update planetary parameters

Undergraduate Researcher, MIT Wallace Observatory

Westford, MA

Advisor: Dr. Michael Person

May 2023 – August 2023

- Planned and captured 100+ hours of photometric observations with 5 different telescopes
- Processed and analyzed light curves for 7 Koronis family asteroids (Anubis, Chang, Corvina, Hamiltonia, Moultona, Rumoi, Urumqi) and Pluto

PUBLICATIONS

2. Slivan, S.; **Barrera, K.**; Colclasure, A.; Cusson, E.; Larsen, S.; McLellan-Cassivi, C.; Moulder, S.; Nair, P.; Namphy, P.; Neto, O.; Noto, M.; Redden, M.; Rhodes, S.; Youssef, S. *Lightcurves and Derived Results for Koronis Family Member (452) Hamiltonia*, 2024, Minor Planet Bulletin, 51, 176.
1. Slivan, S.; **Barrera, K.**; Colclasure, A.; Cusson, E.; Larsen, S.; McLellan-Cassivi, C.; Moulder, S.; Nair, P.; Namphy, P.; Neto, O.; Noto, M.; Redden, M.; Rhodes, S.; Youssef, S. *Lightcurves and Derived Results for Koronis Family Member (5139) Rumoi Including a Discussion of Measurements for Epochs Analysis*, 2024, Minor Planet Bulletin, 51, 6.

PRESENTATIONS

Contributed Talks:

MIT Stellar Contamination Workshop, Cambridge, MA

September 2024

eurydice: A New Software Package for Evaluating Gaussian Process Models of Stellar Activity Signals

Summer MIT Kavli Institute Undergraduate Research Forum (SMURF)

August 2024

eurydice: A New Software Package for Evaluating Gaussian Process Models of Stellar Activity Signals

LEADERSHIP

Inform Committee Lead, MITvote

September 2024 – Present

Co-Vice President of Social, Undergraduate Women in Physics (UWiP)

March 2024 – Present

Last updated: January 16, 2025