Malia Barker, Ph.D.

maliabarker@icloud.com LinkedIn http://maliabarker.com/

Research Interests

I am focused on developing data-driven approaches to understand complex dynamical systems, with current applications in orbital evolution and time-series analysis. My work integrates statistical modeling, simulation, and uncertainty quantification to extract meaningful patterns from noisy observational data. I am interested in the use of machine learning—including generative AI, probabilistic programming, and deep learning—to accelerate scientific discovery in domains where physical processes are difficult to observe directly.

Education

2023 – Current **Ph.D. Computing, Boise State University** Data Science Emphasis

2021 – 2023 **B.S. Applied Computer Science, Dominican University of California** Back End Web Concentration

Summer 2021 **Google Computer Science Summer Institute**

Employment History

Aug 2022 – May 2023 **NASA OSTEM Intern, SURA Research Contractor** Astrophysics Department, Goddard Space Flight Center, Greenbelt, MD.

Research and Teaching Experience

2025 – Current **NASA FINESST Fellow**

Fall 2024 – Current **VIP500 Research Course Mentor** Physics Department, Boise State University, Boise, ID.

2024 – 2025 **NASA Idaho Space Grant Consortium Fellow**

Fall 2024 **UF100 Discussion Section Leader** Physics Department, Boise State University, Boise, ID.

2023 – 2024 **Graduate Assistant** Computing Department, Boise State University, Boise, ID.

Research Publications

Journal Articles

1. B. Jackson, E. Adams, R. Huchmala, **M. Barker**, M. Rothmeier, J. Morgenthaler, and A. Sickafoose, "Metrics for optimizing searches for orbital precession and tidal decay via transit- and occultation-timing," *The Astrophysical Journal*, 2025, In review for publication in *The Astrophysical Journal*.

2. S. Peacock, L. Huseby, **M. Barker**, A. Taylor, A. Dunn, D. Hintz, T. Barman, and E. Shkolnik, "Pegasus: Phoenix euv grid and stellar ultraviolet spectra," *The Astrophysical Journal*, 2025, In preparation for publication in *The Astrophysical Journal*.

3. M. Rothmeier, E. Adams, K. Schindler, A. Beck, B. Jackson, J. P. Morgenthaler, A. A. Sickafoose, **M. Barker**, L. Mancini, J. Southworth, D. Evans, and A. Krabbe, "Doomed worlds ii: Reassessing suggestions of orbital decay for tres-5 b," *The Planetary Science Journal*, 2025, Submitted for publication in *The Planetary Science Journal*.

4 C. Howlett, E. Pickering, J. Breman, and **M. Barker**, "Astrometry observations of six uncertain double stars," *Journal of Double Star Observations*, vol. 15, no. 2, pp. 248–254, 2019.

Conference Proceedings

1 **M. Barker**, B. Jackson, R. Huchmala, E. Adams, and A. Kirk, "Susie transiting exoplanet ephemeris package," in *AAS/Division for Planetary Sciences Meeting Abstracts*, vol. 56, 2024, pp. 402–02.

2 **M. Barker**, S. Peacock, L. Huseby, A. Taylor, A. Dunn, T. Barman, D. Hintz, and E. Shkolnik, "A new way to view euv spectra—building public access to the pegasus grid," in *American Astronomical Society Meeting Abstracts*, vol. 241, 2023, pp. 163–09.

Skills

Coding	Python, C++, R, SQL, LaTeX
Web Dev	HTML, CSS, JavaScript.

References

Available on Request