

# HUNTER VANNIER

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## EDUCATION

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**Purdue University**, West Lafayette, IN August 2026

*Doctor of Philosophy*, Major: Planetary Science, GPA: 4.0

**Wesleyan University**, Middletown, CT May 2020

*Bachelor of Arts (High Honors)*, Major: Astronomy, Minor: Planetary Science, GPA: 3.54

*Mapping the Local Interstellar Medium: Using Hubble to Look Back at the ISM Along the Sun's Historical Trajectory*

## RESEARCH EXPERIENCE

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*Graduate Research Assistant*, Purdue University Aug 2020-Present

Department of Earth, Atmospheric, and Planetary Sciences, Advisor: Briony Horgan, PhD

- Use VIS/NIR data from the *Moon Mineralogy Mapper* spacecraft to create mineralogical maps of volcanic features on the surface of the Moon in order to constrain their nature and composition.
- Use laboratory VNIR/NIR and TIR instruments to analyze mineralogy of igneous rocks and interpret remotely sensed planetary surface data.

*Undergraduate Research Assistant*, Wesleyan University July 2017-Aug 2020

Department of Astronomy, Advisor: Seth Redfield, PhD

- Used high resolution UV data from *Hubble Space Telescope* to reconstruct the morphology of the local interstellar medium, focusing on eight sight lines along the Sun's historical trajectory; fit interstellar absorption features in stellar spectra using IDL programming language to characterize the galactic environment our solar system traversed over the last five million years.

*Undergraduate Researcher*, Wesleyan University, University of Bridgeport April 2017-February 2020

Department of Astronomy, Advisor: Seth Redfield, PhD

School of Engineering, Advisor: Jani Pallis, PhD

- Co-lead a project that aimed to build, design, and launch a high altitude payload which is funded through NASA and CT Space Grant Consortium. Presented multiple stages of design reviews to a NASA advisory board in order to attain continued funding

*Undergraduate Research Assistant*, Wesleyan University May 2018-August 2020

College of the Environment, Advisor: Helen Poulos, PhD

- Conducted fire ecology fieldwork/research in the Chiricahua National Monument to measure agave mortality in response to wildfire and controlled burns

## PUBLICATIONS

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**Vannier H.**, Horgan, B., Stopar, J. D., Henderson, M. (2024). Constraining formation hypotheses for irregular mare patches on the Moon with orbital reflectance spectra. *JGR: Planets*, 129, e2023JE008108.

**Vannier H.**, Redfield S, Wood B E, Mueller H R, Linsky J L, Frisch P (2023). Mapping the Local Interstellar Medium: Using Hubble to Look Back at the ISM Along the Sun's Historical Trajectory. (*In Preparation, to be submitted to the Astrophysical Journal.*)

Wood B E, Müller H R, Redfield S, Konow F, **Vannier, H.**, Linsky J, et al. (2021). New Observational Constraints on the Winds of M dwarf Stars. *The Astrophysical Journal*, 915, 37, doi:10.3847/1538-4357/abfda5.

Carleo I, Youngblood A, Redfield S, Barris N C, Ayres T R, **Vannier H**, et al. (2021). A Multi-wavelength Look at the GJ 9827 system: No Evidence of Extended Atmospheres in GJ 9827 b and d from HST and CARMENES data. *The Astronomical Journal*, 161, 3, doi:10.3847/1538-3881/abdb2f

## PRESENTATIONS

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**54th Lunar and Planetary Science Conference**, March, 2023  
Poster presentation  
*VNIR Spectral Properties of Felsic Rocks: Implications for Mars Detections*

**53rd Lunar and Planetary Science Conference**, March 2022  
Oral Presentation  
*Investigating 16 Irregular Mare Patches with Visible/Near-Infrared Spectra From the Moon Mineralogy Mapper*

**235th Meeting of the American Astronomical Society**, Honolulu, HI January 2020  
Poster Presentation  
*Mapping the Local Interstellar Medium: Using Hubble to Look Back at the ISM Along the Sun's Historical Trajectory*

**10 first-author abstracts presented at professional conferences (2019-2023).**

## AWARDS AND HONORS

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The Honor Society of Phi Kappa Phi March 2022-Present  
*Awarded to top 10% across all Purdue graduate programs*

NASA Indiana Space Grant Consortium Graduate Scholarship (\$12,000) May 2023

Goddard Instrument Field Team Proposal (Co-I) July 2022, May 2023

Gerald H. Krockover Graduate Fellowship Award in K-12 Outreach April 2021

Mobile Graduate Fellowship Award in Geologic Mapping April 2021

NASA Connecticut Space Grant Consortium Undergraduate Research Grant (\$5000) November 2018

NASA Connecticut Space Grant Consortium Undergraduate Scholarship (\$5000) September 2017

Wesleyan College of the Environment Internship Program (\$4000) May-July 2018

Wesleyan Research in the Sciences Summer Fellowship (\$4100) May-July 2017, 2019

## SKILLS

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Proficient in IDL/ENVI; Experienced in Python, Davinci; Familiar with ArcGIS Pro, C, Matlab, Arduino, Mathematica, and R

## EXTRA-CURRICULAR ACTIVITIES

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**Next Generation of Lunar Scientists and Engineers**, Treasurer May 2023-present

**NASA Community College Network**, Subject Matter Expert January 2023-present

**URGE Team Member**, Purdue University January 2021-August 2022  
Meet bi-weekly with group of graduate students to collaborate on anti-racist policy and actionable items to implement in our geosciences department, improving diversity and inclusion in the geosciences.

**GSA Treasurer**, Purdue University September 2020-August 2022  
Manage spending and allocate funds for the Graduate Student Assembly (2 hours/week)

**Varsity Ice Hockey**, Wesleyan University September 2016-March 2020  
Participate in off-ice training, daily practices, weekend games and video sessions (30 hours/week)