Henry Manelski

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PROFESSIONAL SUMMARY

A Planetary Science PhD candidate working with Dr. Roger Wiens at Purdue University with expertise in remote sensing, spectroscopy, and machine learning. Experienced member of NASA's Perseverance rover science team with strong Python and data analysis skills.

EDUCATION

Purdue University **05 2022 – Present**
*PhD Candidate - **Planetary Science**, Advisor: Roger Wiens* *West Lafayette, IN*

Columbia University **08 2018 – 05 2022**
*BSc - **Applied Mathematics**, GPA: 3.56* *New York, NY*

SELECTED COURSEWORK

- Dynamical Systems
- Geochemistry for a Habitable Planet
- Mathematics of Data Science
- Space Instrumentation
- Laboratory Analysis of Planetary Materials
- Mars Seminar
- Partial Differential Equations
- Space Policy (audited)

WORK AND LEADERSHIP EXPERIENCE

SuperCam Science Team | Student Collaborator **05 2022 - Present**

- Working on the Perseverance Mars rover as a science Payload Uplink Lead (sPUL) for SuperCam.
- Specialize in analysis of Laser Induced Breakdown Spectroscopy (LIBS) data, plasma diagnostics (first author manuscript published in 2024), and trace element geochemistry.
- Lead the effort to calibrate SuperCam to quantify nickel - leading to the discovery of the highest Ni enrichment ever found in bedrock on Mars (currently in work).

Crater Café | Lead Organizer **05 2024 - 05 2025**

- Serving as the lead organizer for the Purdue EAPS Planetary group's weekly seminar: Crater Café. Helping to bring world class planetary scientists to Purdue to share their research with our department.

EAPS Graduate Student Association | Secretary **09 2023 - 09 2024**

- Served as a liaison for graduate students in Purdue EAPS to communicate with faculty and staff. Organized monthly meetings to plan events, discuss graduate student concerns, and make our voices heard within the department.

Jet Propulsion Laboratory | Research Assistant **06 2021 - 08 2021**

- Awarded a Summer Undergraduate Research Fellowship (SURF) at JPL/Caltech for the summer of 2021. Principal component analysis and spectral parameters were used to investigate passive spectra from the Curiosity Rover's ChemCam instrument.

TEACHING EXPERIENCE

Purdue University EAPS | Teaching Assistant **01 2025 - 05 2025**

- Ran lab sessions for "EAPS 112: Earth Through Time". Made custom presentations to engage students and graded lab assignments.

Columbia University Dept. of Earth & Enviro. Eng. | Teaching Assistant **01 2022 - 05 2022**

- Helped to build the curriculum for and grade projects/exams for the course "EAEE 4262: Space Exploration and Mining". Held office hours and review sessions. Created lesson plans and ran discussion sessions.

Columbia University Dept. of Mathematics | Teaching Assistant **09 2020 - 12 2020**

- Graded exams and held office hours for the course "MATH 1102: Calculus II". Ran review sessions before exams.

SKILLS & INTERESTS

Languages: English (Native), German (C1/B2), Mandarin (B1), Polish (B1)
Technical: Python (Pandas, Numpy, Sci-kit learn), ArcGIS Pro, Multivariate regression (PLS, Elastic Net), Supervised machine learning (Random Forest, ExtraTrees), JMARS
Citizenship: United States, Austria

AWARDS

2025 - Geology Graduate Award, given by Purdue EAPS

2025 - Cedric J. Newby Award, given by Purdue EAPS

2024 - 2nd Best Publication in Spectrochimica Acta Part B in 2024, selected for an Invited Talk at SciX 2025

2024 - Tomas Hirschfield Scholar Award at FACSS SciX