Opportunity Title: Machine Learning Applications for Planetary Geophysics and Geodesy

Opportunity Reference Code: 0288-NPP-JUL24-GSFC-PlanetSci

Organization	National Aeronautics and Space Administration (NASA)
Reference Code	0288-NPP-JUL24-GSFC-PlanetSci
How to Apply	All applications must be submitted in **Zintellect**
Application Deadline	7/1/2024 6:00:59 PM Eastern Time Zone
Description	**Description:**

This opportunity is to conduct research in planetary geodesy and geophysics using novel machine learning techniques. Researchers at NASA GSFC's Planetary Geology, Geophysics, and Geochemistry Laboratory have long analyzed spacecraft data from planetary missions, particularly radiometric tracking data, altimetry, and imagery. Modern machine learning modeling frameworks such as generative artificial intelligence (AI) have the potential to improve the quality of high-level datasets relevant to planetary applications. A variety of lunar and planetary datasets, such as optical and radar imagery, topography, and gravity, can benefit from more efficient and large-scale exploration and analysis. Machine learning models may also be applied to tasks such as surrogate modeling, change detection, segmentation and classification, enabling higher-fidelity analysis of complex processes. The advisor is the Team Leader of the Europa Clipper Gravity & Radio Science investigation and is the Co-Lead of the Gravity Science investigation of the VERITAS mission to Venus. Projects related to these targets and to the Moon and Mercury are of particular interest, but not required. The research may range from simulation to modeling to data analysis. The participant will have the opportunity to collaborate with other GSFC planetary scientists.

**Field of Science:** Planetary Science

Advisors:

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Applications with citizens from Designated Countries will not be accepted at this time, unless they are Legal Permanent Residents of the United States. A complete list of Designated Countries can be found at: https://www.nasa.gov/oiir/export-control.

Eligibility is currently open to:

- U.S. Citizens;

- U.S. Lawful Permanent Residents (LPR);

- Foreign Nationals eligible for an Exchange Visitor J-1 visa status; and,

- Applicants for LPR, asylees, or refugees in the U.S. at the time of application with 1) a
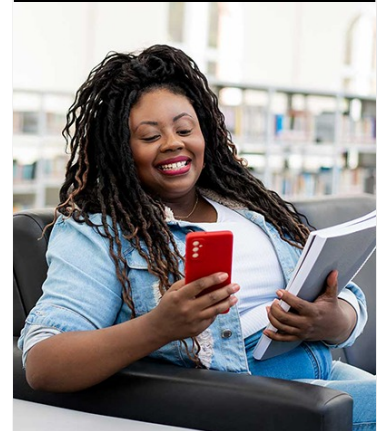
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valid EAD card and 2) I-485 or I-589 forms in pending status

Qualifications	Doctorate in Planetary Science, Machine Learning, or related field.
Eligibility Requirements	• **Degree:** Doctoral Degree.