Opportunity Title: Machine Learning Applications to Planetary Science Datasets
Opportunity Reference Code: 0257-NPP-NOV26-GSFC-PlanetSci

Organization National Aeronautics and Space Administration (NASA)

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How to Apply All applications must be submitted in Zintellect

Please visit the NASA Postdoctoral Program website for application instructions and requirements: How to Apply | NASA Postdoctoral Program (orau.org)

A complete application to the NASA Postdoctoral Program includes:

1. Research proposal
2. Three letters of recommendation
3. Official doctoral transcript documents

Application Deadline 11/1/2026 6:00:59 PM Eastern Time Zone

Description **About the NASA Postdoctoral Program**

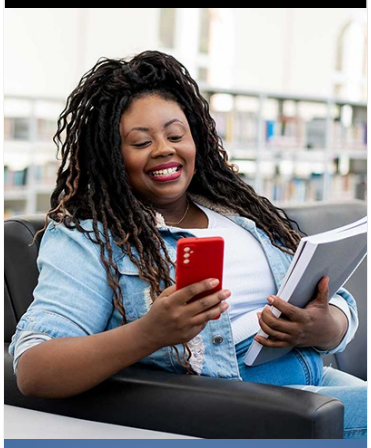
The NASA Postdoctoral Program (NPP) offers unique research opportunities to highly-talented scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed to advance NASA's missions in space science, Earth science, aeronautics, space operations, exploration systems, and astrobiology.

Description:

Until recently, returned datasets from planetary science missions beyond Earth orbit have been modest, due to the relatively small numbers of missions, and limitations in downlink bandwidth (e.g. NASA's Deep Space Network). Their sparsity has allowed for multiple generations of researchers to conduct data analysis by detailed inspection, calibration, cataloging and modeling of every byte of data. The future of planetary science bodes to be different, with increasing numbers of missions, instruments that produce vastly larger data rates and volumes, resulting in much larger amounts of data being recorded for analysis. As with Earth remote sensing, this changing exploration landscape requires a paradigm shift in how planetary science is conducted, and most especially making use of advanced computational tools to leverage the expertise of human researchers, and to make rapid analysis of very large datasets tractable. Recent advances in machine learning techniques have opened up a new frontier for tackling the 'big data' problem in planetary sciences. Successful applications so far include feature recognition and semantic segmentation of image data, feature extraction from time series data from plasma and field detection instruments, and real-time decision making on spacecraft such as Perseverance. Together with mentors at NASA GSFC, the researcher will apply machine learning techniques to image and spectroscopic data to produce new scientific results, and to devise new analysis methodologies. Results will be published in journals and presented at conferences.

Please contact the project mentor with any questions about project scope, background experience or eligibility.

Preferred Qualifications:

NPP NASA Postdoctoral Program
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A post-doctoral researcher is sought with either pre-existing experience in machine learning applications in the geosciences or astronomy; or significant experience in computational techniques applied to scientific problems combined with a desire to quickly learn new techniques in machine learning. Strong computer coding skills are essential, and experience with python-based neural net architectures such as PyTorch, TensorFlow and Keras is preferable.

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 valid EAD card and 2) I-485 or I-589 forms in pending status

Questions about this opportunity? Please email npp@orau.org

Eligibility Requirements

- **Degree:** Doctoral Degree.