Opportunity Title: Machine Learning Applications in Solar System Exploration
Opportunity Reference Code: 0330-NPP-MAR26-GSFC-Expl

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0330-NPP-MAR26-GSFC-Expl

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 4/2/2026 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:

Recent years have witnessed an exponential growth in the use and capabilities of artificial intelligence across all areas of science and technology. However, the deployment of artificial intelligence in the space environment has lagged other applications, due in part to the more limited access to space, the need for extreme environment testing and the greater cost and recovery time from failures. For these reasons, most spacecraft operations so far have relied on human in-the-loop. However, the opportunities and advantages for AI deployment are very significant, including the ability for fleets of numerous small satellites or other probes to operate and interact autonomously, and the avoidance of round-trip light travel delay during decision making for more distant spacecraft. Prior to such rollout, modeling, assessment and evaluation must be carefully completed before deployment to space. To this end, it is advantageous to simulate autonomous operations, including assessment of prior spacecraft data. In this project, the postdoctoral researcher will work with NASA scientists and engineers to develop AI systems for autonomous operation of instrument and spacecraft suites. This will include fuller understanding of prior spacecraft operations to assess and determine what functions can optimally be delegated to onboard AI systems and what decisions require human inputs. The suite of possible decision making encompasses activities such as camera operations, drilling, movement, safety measures, data assessment and telemetry. The project outcomes will include AI systems, publications and presentations on results.

Field of Science: Exploration

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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

Qualifications A strong candidate will have a PhD in a relevant discipline including engineering, computer science or physical or biological sciences with experience in training and evaluation of AI systems. This may include development of robotic systems, training of neural nets for data assimilation and related activities. Strong programming skills are a must, including experience with machine learning. Good written and oral communication skills in English are important.

Point of Contact Mikeala

Eligibility Requirements

- **Degree:** Doctoral Degree.