Opportunity Title: Artificial Intelligence for Life in Space (AI4LS) NPP opportunity
Opportunity Reference Code: 0126-NPP-MAR24-ARC-BioSci

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0126-NPP-MAR24-ARC-BioSci

How to Apply All applications must be submitted in Zintellect

Application Deadline 3/1/2024 6:00:59 PM Eastern Time Zone

Description **Description:**

The Artificial Intelligence for Life in Space (AI4LS) working group at NASA Ames focuses on developing and implementing artificial intelligence and machine learning (AI/ML) methods to accelerate space biology research and better characterize the effects of space travel on living systems.

This project will focus on the development of foundation models for space biology. Transfer learning is a machine learning technique in which a model is trained on a large, broad dataset to encode underlying features and relationships, and then refined on a smaller dataset for a similar problem space. This is relevant to space biology research, where datasets typically have limited sample size and the problem space is restricted to a specific distribution. We have begun developing a suite of foundation models pretrained on larger biomedical datasets which can be refined to model space biology research questions. This project will add to this suite of models.

Further, the project will investigate causal inference for space biology. Biological investigations are often interested in identifying causal relationships between a condition and an effect, but most analysis techniques are limited to identifying correlation. Correlation is required for causation but not sufficient. However, leveraging a combination of invariance theory and ML methodology, we aim to elucidate causal relationships in complex biological data.

Field of Science: Biological Sciences

Advisors:

Sylvain Costes
sylvain.v.costes@nasa.gov
(650) 604-5343

Lauren Sanders
lauren.m.sanders@nasa.gov
5304092174

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;

Opportunity Title: Artificial Intelligence for Life in Space (AI4LS) NPP opportunity
Opportunity Reference Code: 0126-NPP-MAR24-ARC-BioSci

- 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

Qualifications

Ph.D. in biological sciences, preferably bioengineering or bioinformatics

Experience working with machine learning and space biology data

Strong analytical skills and computer programming ability

Good written and verbal communication skills

Eligibility Requirements

- **Degree:** Doctoral Degree.