



NASA SBIR 2018 Phase I Solicitation

S5.03 Machine Learning and Deep Learning for Science and Engineering

Lead Center: GSFC

Participating Center(s): ARC, JPL, LaRC

Technology Area: TA11 Modeling, Simulation, Information Technology and Processing

NASA research and engineering has begun exploring the application of Machine Learning and Deep Learning (ML/DL) within Science and Engineering. While there are many problems that can be addressed with ML/DL, the adoption of these techniques and technologies are slow due to the large learning curve associated with the application of this technology and the applicability of commercial and open source tools to specific problems of interest for NASA.

This subtopic area seeks to close those gaps and accelerate the use of ML/DL across NASA Science and Engineering. The emphasis of this subtopic will be on the application of ML/DL to solve challenging Science and Engineering problems and also for new technologies to enable and accelerate the use of ML/DL within NASA.

Proposals MUST be in alignment with existing and/or future NASA programs and address or extend a specific need or question for those programs. It is therefore incumbent upon the proposers to have discussions with NASA scientists and engineers to receive feedback prior to submission and to adequately show the alignment of the proposed innovation to NASA.

Specifically, innovative proposals are being sought to assist NASA Science and Engineering in the following two areas:

- Application of ML/DL to solve challenging and unique problems in order to significantly advance NASA's Science and Engineering.
- New algorithms, methods, or tools to accelerate the use and adoption of ML/DL within NASA.

Research proposed to this subtopic should demonstrate technical feasibility during Phase I, and in partnership with scientists, show a path toward a Phase II prototype demonstration, with significant communication with missions and programs to later plan a potential Phase III infusion. It is highly desirable that the proposed projects lead to solutions that will be infused into NASA programs and projects.

Tools and products developed under this subtopic may be developed for broad public dissemination or used within a narrow scientific community. These tools can be plug-ins or enhancements to existing software, on-line data/computing services, or new stand-alone applications or web services, provided that they promote interoperability and use standard protocols, file formats, and Application Programming Interfaces (APIs).

