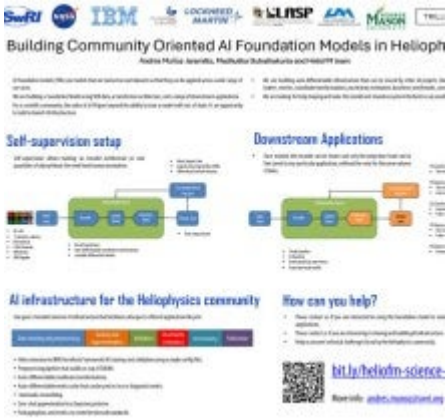
Andres
Munoz-Jaramillo
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Madhulika Guhathakurta NASA HQ (presenting author)
Sujit Roy, NASA MSFC & IMPACT Team
Johannes Schmude and IBM team
Poster
Foundation models are large AI models that are self-trained on vast quantities of data to enable a wide range of applications, while paying the Lionshare of the training cost upfront. Successful foundation models, such as GPT-4, can then be fine-tuned at a fraction of the cost by anyone with access to the pre-trained model and democratize the use of advance AI models by making them accessible to everybody.

Here we present current progress in the development of Surya, a foundation model built in collaboration with the IMPACT team at NASA MSFC and IBM, using data from the Solar Dynamics Observatory. In particular we focus on our considerations on how to build foundation models that add value to an entire scientific community, how to develop physical inference applications and how can these principles be extended to other missions, such as PUNCH, and the rest of the Heliospheric System Observatory.

The development of a foundation model in science goes beyond the training of large models with vast quantities of data. It involves the training of a model alongside the creation of frameworks that enable the most highly desired goal of scientists: To use AI for scientific inference. Surya's guiding principles reside firmly on the objective of bringing the most value to an entire community, rather than only seeking to outperform well established methods.



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