James
Parr
Trillium Technologies
Anne Spalding, Trillium Technologies
Oral
FDL-X (‘X for experimental’) is a derivative of FDL which builds programmatic innovations to tackle ambitious problems by combining proven AI pipelines to unlock brand new integrated AI capabilities and insights for NASA science. The innovative, collaborative research process fosters thought-leadership and enriches a community of AI expertise around heliophysics problems.

During this year’s summer research sprint, the FDL-X teams tackled three challenges which integrated AI, machine learning and domain science in a meaningful way. These challenges included improving predictions on EUV irradiance (a key variable in predicting the behavior of the ionosphere); hyper-local geoeffectiveness and improved predictions on thermospheric drag. All three have crucial utility for the space community.

The success of these projects and the integrated AI pipeline they are built upon is opening up new opportunities for future research. In this talk we’d like to present two of these opportunities; AI Platforms and Multi-domain Integration.

AI Platforms can be built so that Live inference (such as EUV data) and multi-modal Foundation models can be made easily accessible to the broader scientific community enabling real time insight, uncovering new discoveries in the data, and prediction as a service.

For Multi-domain Integration we want to discover what is unlocked by exploring opportunities between the domains of Earth, Sun and Moon environments. As we mature AI research projects in these domains; we can create them using modular architecture and cloud computing, allowing them to be stacked and integrated to tackle more complex problems. Sample problems in this area include understanding the effects of solar irradiance on Astronauts by combining Helio and Lunar research projects.
Presentation file
10-wednesday-parr-james .pdf
YouTube link
View recording
Meeting homepage
4th Eddy Cross-Disciplinary Symposium
Download to PDF