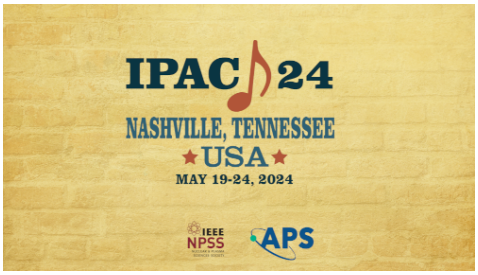

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A data science and machine learning platform supporting large particle accelerator control and diagnostics applications

Tuesday 21 May 2024 16:00 (2 hours)

Osprey DCS is developing the Machine Learning Data Platform (MLDP) supporting data science applications specific to large particle accelerator facilities and other large experimental physics facilities. It represents a "data-science ready"host platform providing integrated support for advanced data science applications used for diagnosis, modeling, control, and optimization of these facilities. There are three primary functions of the platform: 1) high-speed data acquisition, 2) archiving and management of time-correlated, heterogeneous data, and 3) comprehensive access and interaction with archived data. The objective is to provide full-stack support, from low-level hardware acquisition to broad data accessibility within a portable, standardized platform offering a data-centric interface for accelerator physicists and data scientists. Osprey DCS has developed a working prototype MLDP* and is now pursuing full-scale development. We present an overview of the MLDP including use cases, architecture, and deployment, along with the current development status. The MLDP is deployable at any facility, however, the low-level acquisition component is EPICS based.

Footnotes

- C. K. Allen, B. Dalesio, G. McIntyre, C. McChesney and M. Davidsaver, "Machine Learning Data Platform", Report TM-01-2032 Osprey DCS, January 10, 2023.

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