

The use of new methods for processing data of a physical experiment.
Application of machine learning methods on the NICA complex.

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Operation of the ALICE Hyperloop analysis train system

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Hyperloop is a new analysis train system, developed and introduced for the data analysis in the ALICE experiment in the conditions of LHC Run 3. It has started a regular operation in early 2022, being available 24/7. Hyperloop, as a successor of the LEGO train system, used for analysis of Run 1 and Run 2 data, provides efficient management of the analysis process and economical usage of the Grid resources with a convenient web-based user interface. It utilizes all the modern features of new O2 Analysis Framework developed for the Run 3 data.

The analysis is based on the WLCG infrastructure and AliEn framework. The train consists of several wagons. Each wagon corresponds to a configurable workflow that can exchange the data between them. There are two types of wagons: service wagons made by experts providing additional information, such as advanced tracking or centrality, and user wagons for user analysis. The Hyperloop web application allows for automatized wagon test with estimation of the needed resources of CPU and memory, and, in most cases, the train submission is also done automatically. Hyperloop offers several tools for bookkeeping and preservation, including automatized changelogs for datasets, runlists and wagons, as well as comparison tools for wagons and trains.

In this talk, the user and operation experience of the Hyperloop system will be discussed, focusing on the most useful and innovative features. An overview of the current status of the analysis in Run 3 will also be presented.

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