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The ODISSEE project: Converged AI real-time data processing for SKAO and HL-LHC

The next decades will see a new generation of scientific facilities and experiments generate exabytes of data, requiring physics-quality inference to be performed in real time in order to reduce their volume to manageable amounts for permanent storage and final physics analysis. Two of the biggest examples of such facilities are the SKAO and HL-LHC, which also share a common scientific goal of searching for dark matter and understanding its properties. Unlocking their full potential will require significant advances in the way we process data in real-time. This is essential both in order to achieve the required computational and energy efficiency as well as to increase the reuse of common methods in order to improve the coherence of the real-time processing in light of the shared scientific objectives of the projects. The ODISSEE project is a recent initiative, funded by the European Commission under the 2024 infrastructure programme, bringing together SKAO and HL-LHC researchers together with computer scientists and a range of industry partners which seeks to address this challenge. A unique aspect of ODISSEE is the scope: it aims for an end-to-end treatment of the data processing chain, from the optimization of data centre operations and monitoring, to enabling the use of AI algorithms at scale across a range of computing architectures, as well as a simultaneous tuning of computational and energy efficiency together with physics accuracy. In this poster we will present the latest actions and results from the ODISSEE project.

Secondary track

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