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FuncADL: Functional Analysis Description Language

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There is an increasing demand for declarative analysis interfaces that allow users to avoid writing event loops. This simplifies code and enables performance improvements via vectorized columnar operations. A new analysis description language (ADL) inspired by functional programming, FuncADL, was developed using Python as a host language. In addition to providing a declarative, functional interface for transforming data, FuncADL borrows design concepts from the field of database query languages to decouple the interface from the underlying physical and logical schemas. In this way, the same query can easily be adapted to select data from very different data sources and formats. In this talk, I will demonstrate the FuncADL query language interface by implementing the example analysis tasks designed by HSF and IRIS-HEP to benchmark the functionality of ADLs.

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