Contribution ID: **8**   Type: **Methods & tools**

pyhf: A standalone HistFactory Implementation

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LHC Experiments, especially ATLAS, use the popular HistFactory package bundled with ROOT to define statistical models based on histogram templates and perform statistical tests on those models, such as interval estimation and limit setting. In order to facilitate the usage of such experiment-grade likelihood models outside of the collaboration, we present a standalone implementation of HistFactory based purely on widely used python packages (scipy, numpy), that allows recasters to quickly calculate figures of merit such as upper limits and CLs baned (including expected bands). Further the implementation also comes with implementatinos for popular modern Tensor Backends (such as PyTorch, TensorFlow) popular in the Machine Learning Community. These backends will allow of the usage of GPU accelarations as well as auto-differentiation.

Presentation

Talk given in person

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