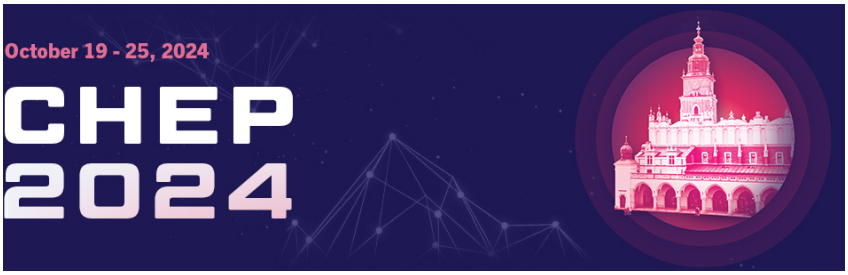

Contribution ID: **550** Type: **Talk**

New RooFit PyROOT interfaces for connections with Machine Learning

Wednesday 23 October 2024 16:51 (18 minutes)

With the growing datasets of HE(N)P experiments, statistical analysis becomes more computationally demanding, requiring improvements in existing statistical analysis algorithms and software. One way forward is to use Machine Learning (ML) techniques to approximate the otherwise untractable likelihood ratios. Likelihood fits in HEP are often done with RooFit, a C++ framework for statistical modelling that is part of ROOT. This contribution demonstrates how learned likelihood ratios can be used in RooFit analyses, showcasing new RooFit features that were developed for that purpose. Since ML models are often created with Python libraries, this necessitated new RooFit pythonizations, e.g. for using Python functions as RooFit functions in general. Some of these pythonizations were only possible by a major PyROOT upgrade that was undertaken this year. Therefore, this contribution will also summarize the new PyROOT features, resulting in a presentation that will promote both new RooFit and PyROOT features for the benefit of the users of the most recent ROOT versions.

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