Contribution ID: **1347** Type: **Parallel Talk**

pyhf: a pure-Python statistical fitting library with tensors and automatic differentiation

Friday, 8 July 2022 17:45 (15 minutes)

The HistFactory p.d.f. template is per-se independent of its implementation in ROOT and it is useful to be able to run statistical analysis outside of the ROOT, RooFit, RooStats framework. pyhf is a pure-Python implementation of that statistical model for multi-bin histogram-based analysis and its interval estimation is based on the asymptotic formulas of "Asymptotic formulae for likelihood-based tests of new physics" [arXiv:1007.1727]. pyhf supports modern computational graph libraries such as TensorFlow, PyTorch, and JAX in order to make use of features such as auto-differentiation and GPU acceleration. In addition, pyhf's JSON serialization specification for HistFactory models has been used to publish 18 full probability models from published ATLAS collaboration analyses to HEPData.

In-person participation

Yes

Primary authors: STARK, Giordon (SCIPP, UC Santa Cruz); FEICKERT, Matthew (University of Illinois at Urbana-Champaign); HEINRICH, Lukas (Technical University of Munich)

Presenter: FEICKERT, Matthew (University of Illinois at Urbana-Champaign)

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