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Modern AI Tools for Event Reconstruction

LINDSEY GRAY, CERN

Machine Learning is a powerful technology with a storied and successful history in high energy physics, having played a major role in the discovery and characterization of the Higgs Boson. Modern advances in machine learning provide novel ways to use detector data, which simplify the development of pattern recognition algorithms, while taking advantage of finer granularity and precision timing of modern, and future high energy physics detectors. I will introduce machine learning in the context of its history within high energy physics, and then demonstrate modern explorations in machine learning that exploit the capabilities of next generation detectors for the HL-LHC.