Contribution ID: **62**   Type: **not specified**

Reconstructing full pp collision events with HGPflow

Monday 6 November 2023 16:45 (15 minutes)

Last year we proposed a novel hypergraph-based algorithm (HGPflow) for one-shot prediction of particle cardinality, class, and kinematics in a dataset of single jets. This approach has the advantage of introducing energy conservation as an inductive bias, promoting both interpretability and performance gains at the particle and jet levels. We now deploy an upgraded version of HGPflow to the "big picture" of full proton-proton collisions in a realistic detector simulation and study how its success at the local scale translates into event-level quantities.

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Session Classification: Reconstruction & Representation Learning