Contribution ID: **30**   Type: **not specified**

Transformer models for heavy flavor jet identification in CMS

Tuesday 1 November 2022 11:35 (20 minutes)

During Run2 of the Large Hadron Collider (LHC), deep-learning-based algorithms were established and led to a significantly improved heavy flavor (b and c) jet tagging performance. In the scope of large-radius boosted jets like top-quark jets, Graph Neural Network (GNN) based models, e.g. ParticleNet, have reached state-of-the-art performance. As a step further, we present Particle Transformer (ParT), a new algorithm that incorporates physics-inspired interactions in an augmented self-attention mechanism. We show that ParT substantially improves the heavy flavor jet tagging performance compared to the state-of-the-art DeepJet algorithm. ParT is therefore a promising algorithm to be used for heavy flavor jet identification during Run3 of LHC.

Primary authors: DE MOOR, Alexandre (Vrije Universiteit Brussel (BE)); LI, Congqiao (Peking University (CN)); MULLER, Denise (Vrije Universiteit Brussel (BE)); QU, Huilin (CERN); QIAN, Sitian (Peking University (CN))

Presenter: QIAN, Sitian (Peking University (CN))

Session Classification: Equivariance and New Architectures