

Constituent based Quark/Gluon Jet Tagging

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Improving the identification of jets initiated from gluon or quark will impact the precision of several analysis in the ATLAS collaboration physics program. Using jet constituents as inputs for developing quark/gluon taggers gives the models access to a superset of information with respect to the use of high-level variables. Transformer architecture is used to learn long-range dependencies between jet constituent kinematic variables to predict the jet flavor. Several variations of Transformers are studied, and their performance is compared to the high-level variable taggers and older jet constituent taggers. We propose a new Transformer-based architecture (DeParT) that outperforms all other taggers. The models are also evaluated on events generated by multiple Monte Carlo generators to study their generalization capabilities.

Alternate track

I read the instructions above

Yes

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