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[312] DL1: A new Deep Neural Network-based higher level tagger for ATLAS Flavour Tagging

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A novel higher-level flavour tagging algorithm called DL1 has been developed using a neural network at the ATLAS experiment at the CERN Large Hadron Collider. We have investigated the potential of Deep Learning in flavour tagging using higher-level inputs from lower-level physics-motivated taggers. The DL1 studies presented show that the obtained neural network improves discrimination of b-jets against both light-flavoured-jets and c-jets, and also provides a novel c-tagging possibility, which also makes it a highly flexible tagger. The DL1 tagger is described and a detailed set of performance plots presented, obtained from simulated $t\bar{t}$ events at $\sqrt{s}=13$ TeV and the Run-2 data taking conditions where this tagger will be applied.

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