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Identification of Jets Containing b-Hadrons with Recurrent Neural Networks at the ATLAS Experiment

Tuesday 21 March 2017 09:45 (20 minutes)

A novel b-jet identification algorithm is constructed with a Recurrent Neural Network (RNN) at the ATLAS Experiment. This talk presents the expected performance of the RNN based b-tagging in simulated $t\bar{t}$ events. The RNN based b-tagging processes properties of tracks associated to jets which are represented in sequences. In contrast to traditional impact-parameter-based b-tagging algorithms which assume the tracks of jets are independent from each other, RNN based b-tagging can exploit the spatial and kinematic correlations of tracks which are initiated from the same b-hadrons. The neural network nature of the tagging algorithm also allows the flexibility of extending input features to include more track properties than can be effectively used in traditional algorithms.

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Session Classification: Identification and Tagging Mini-Workshop