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Machine Learning Based Jet p_{T} Reconstruction with Full Jets in ALICE[1] HANNAH BOSSI, Yale University, ALICE COLLABORATION — Reconstructing the jet transverse momentum (p_{T}) is a challenging task, particularly in heavy ion collisions due to the large fluctuating background from the underlying event. One common treatment of this background is to subtract the event-averaged momentum density (excluding the two leading jets) multiplied by the jet area from the original jet transverse momentum. While this method effectively corrects for the average background, it does not account for region-to-region fluctuations. A novel method to correct the jet transverse momentum on a jet-by-jet basis to reduce these fluctuations will be presented. We utilize machine learning techniques to predict the background-free detector-level jet p_{T} from jet parameters, including the constituents of the jet. The performance of this approach is evaluated using jets from PYTHIA simulations embedded into ALICE Pb–Pb data. In comparison to the standard area-based method, these machine learning based estimators show a significantly improved performance, which could allow for measurements of jets to lower transverse momenta and larger jet radii.

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