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Performance and Uncertainty of Boost Top Taggers in ATLAS

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The identification of top quark decays, known as top tagging, is a crucial component in many measurements and searches at the Large Hadron Collider (LHC). Recently machine learning techniques have greatly improved the performance of top tagging algorithms. This poster presents the performance of several machine learning based jet tagging methods. In particular the performance of a Lund jet plane based tagger is compared to existing baselines. Then the systematic uncertainties in network performance are estimated through an approximate procedure that allows the size of the produced uncertainties to be quantified along with the raw performance. The most performant algorithms are found to produce the largest uncertainties, motivating the development of methods to reduce these uncertainties without compromising performance.

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