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Identification of Lorentz-boosted jets in the CMS experiment

A fundamental aspect of CMS researches concerns the identification and characterisation of jets originating from quarks and gluons produced in high-energy proton-proton collisions. Electroweak scale resonances (Z/W bosons) and Higgs bosons are often produced with high Lorentz-boosts, where their products become highly collimated large and massive jets, usually reconstructed as AK8 jets. Therefore, the identification of the particle initiating the jet plays a crucial role in distinguishing between boosted bosons from the QCD background. In this talk, an overview of the usage of boosted jet taggers within CMS will be given. It will highlight the most recent AK8 tagging algorithms, which make use of sophisticated machine learning techniques, optimised for performance and efficiency.

AI keywords

Signal identification pattern reconstruction, inference, ML classifiers

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