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# Adversarial Neural Network-based data-simulation corrections for jet-tagging at CMS

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Variable-dependent scale factors are commonly used in HEP to improve shape agreement of data and simulation. The choice of the underlying model is of great importance, but often requires a lot of manual tuning e.g. of bin sizes or fitted functions. This can be alleviated through the use of neural networks and their inherent powerful data modeling capabilities.
We present a novel and generalized method for producing scale factors using an adversarial neural network. This method is investigated in the context of the bottom-quark jet-tagging algorithms within the CMS experiment. The primary network uses the jet variables as inputs to derive the scale factor for a single jet. It is trained through the use of a second network, the adversary, which aims to differentiate between the data and rescaled simulation.

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