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New Approaches for Boosting to Uniformity ^[1]

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ABSTRACT: The use of multivariate classifiers has become commonplace in particle physics. To enhance the performance, a series of classifiers is typically trained; this is a technique known as boosting. This paper explores several novel boosting methods that have been designed to produce a uniform selection efficiency in a chosen multivariate space. Such algorithms have a wide range of applications in particle physics, from producing uniform signal selection efficiency across a Dalitz- plot to avoiding the creation of false signal peaks in an invariant mass distribution when searching for new particles.

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