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Using Machine Learning for Precision Measurements

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The use of machine learning techniques for classification is well established. They are applied widely to improve the signal-to-noise ratio and the sensitivity of searches for new physics at colliders. In this study I explore the use of machine learning for optimizing the output of high precision experiments by selecting the most sensitive variables to the quantity being measured. The precise determination of the electroweak mixing angle at the Large Hadron Collider using random forests is developed as a test study.

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