

## Non-parametric comparison of histogrammed two-dimensional data distributions using the Energy Test.

When monitoring complex experiments, comparison is often made between regularly acquired histograms of data and reference histograms which represent the ideal state of the equipment. With the larger HEP experiments now ramping up, there is a need for automation of this task since the volume of comparisons would overwhelm human operators. However, the two-dimensional histogram comparison tools currently available in ROOT have been noted in the past to exhibit shortcomings (<http://bura.brunel.ac.uk/handle/2438/2763>). We discuss a newer comparison test for 2D histograms, based on the Energy Test of Aslan and Zech (<http://arxiv.org/abs/hep-ex/0203010>), which provides more decisive discrimination between histograms of data coming from different distributions, and compare it with recent ROOT releases.

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