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A frequentist study of the false signals generated in the training of semi-supervised neural network classifiers using a WGAN as a data generator.

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In resonance searches for new physics, machine learning techniques are used to classify signal from background events. When using machine learning classifiers it is necessary to measure the amount of background events being incorrectly labelled as signal events. In this research the $Z\gamma \rightarrow (\ell+\ell-)\gamma$ final state dataset focusing around 150GeV centre of mass is used. A Wasserstein Generative Adversarial Network is used as a generative model and a semi-supervised DNN is used as a classifier. This study provides a methodology and the results of the measurement of false signals generated during the training of semi-supervised DNN classifiers.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

PhD

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