

Supervised CWoLa: train supervised classifiers without background simulation

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Supervised deep learning methods have found great success in the field of high energy physics (HEP) and the trend within the field is to move away from high level reconstructed variables to low level detector features. However, supervised methods require labelled data, which is typically provided by a simulator. The simulations of HEP datasets become harder to validate and calibrate as we move to low level variables. In this work we show that the classification without labels paradigm can be used to enhance supervised searches for specific signal models by removing the need for background simulation when training supervised classifiers. When combined with a data driven background estimation technique this allows for dedicated searches for specific new physics processes to be performed using simulated signal only.

Track

Tagging (Classification)

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Session Classification: Tagging