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【365】 Deep Neural Networks for signal/background classification in associated Higgs production with a vector boson decaying into a $b\text{-}\bar{b}$ quark

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In 2017 the first evidence in CMS data of the Higgs boson (originally discovered in 2012 by ATLAS and CMS collaborations) decaying into a pair of $b\text{-}\bar{b}$ quarks has been observed with a significance of 3.3 sigma for associated Higgs production with a vector boson. This analysis is dominated by a large background of $V\text{+}J$ ets events and therefore multivariate methods are used to classify signal and background. A better discrimination of signal and background will increase the significance and can contribute to raise it over the threshold needed for an observation. Therefore, new methods, e.g. deep neural networks are explored and their performance in this analysis will be presented together with a general overview of the analysis strategy and results.

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