

# Machine Learning tutorials

Signal/background discrimination for the VBF Higgs four lepton decay channel  
with the CMS experiment using Machine Learning classification techniques



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# Instructions: VBF exercise

- Github repository for the code: [https://github.com/bdanzi/Higgs\\_exercise](https://github.com/bdanzi/Higgs_exercise)

- Download VBF\_exercise.ipynb and load in google Colab

OR one can just click on the following link:

<https://colab.research.google.com/drive/13Y7BxQ-W69vMRR4P9QniKpXyvTZNJNqw?usp=sharing>

- Download files for 4mu final state:

<https://drive.google.com/drive/folders/18tIXFdjVZ5XwW1SLUo-A1wTYqPPbi871?usp=sharing>

or also <https://www.dropbox.com/scl/fo/jif7kfq2zy7vt7mobmsuq/AJDEpe6D->

[RFrKn3m9rqzKOI?rlkey=eigzpbfcwsj0u8gy0a1vun6my&st=mo0xqskv&dl=0](https://www.dropbox.com/scl/fo/jif7kfq2zy7vt7mobmsuq/AJDEpe6D-RFrKn3m9rqzKOI?rlkey=eigzpbfcwsj0u8gy0a1vun6my&st=mo0xqskv&dl=0)

- Download files for 4e final state:

[https://drive.google.com/drive/folders/1i77jmpzIXAmr\\_lAneTAcYq2PmQC4Aojm?usp=sharing](https://drive.google.com/drive/folders/1i77jmpzIXAmr_lAneTAcYq2PmQC4Aojm?usp=sharing)

- and upload them in google Colab

- start reading the instructions in the .pyb file and execute the commands

# Instructions: EFT modeling via ML

- Github repository for the code: [https://github.com/ndefilip/EFT\\_ML.git](https://github.com/ndefilip/EFT_ML.git)