

# Status report

May 23, 2021

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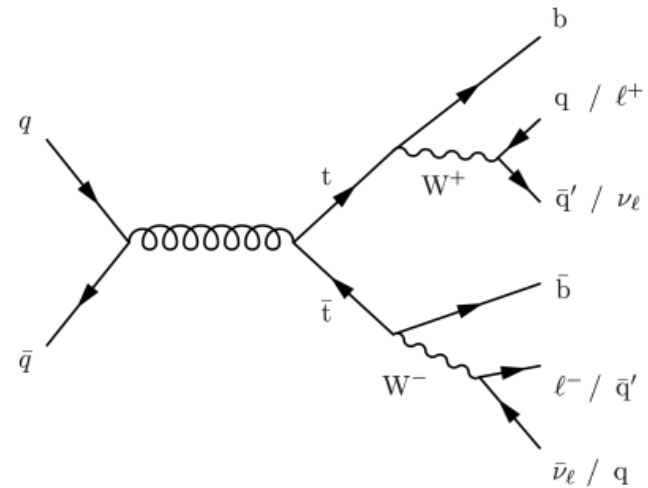
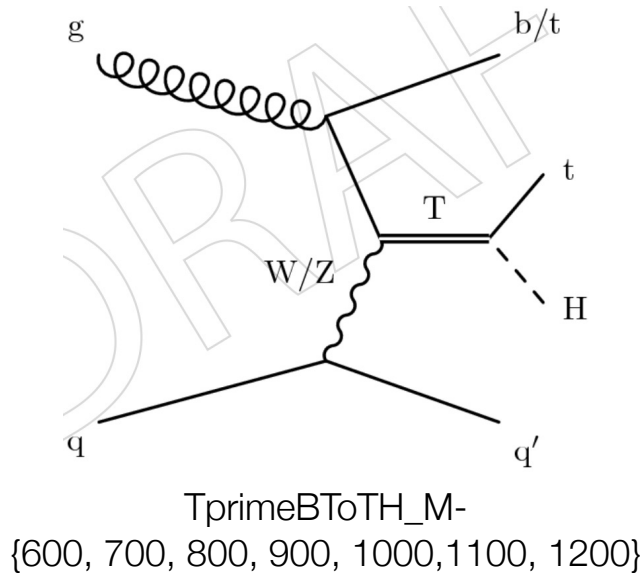
HYU / IP2I

# NN From Scratch

## Correlations between input features

- Motivation: Get "useful" input features for training NN
  - Jet components {pT, eta, energy, b-tag disc.} for first 5 leading jets (20 variables)

## Samples



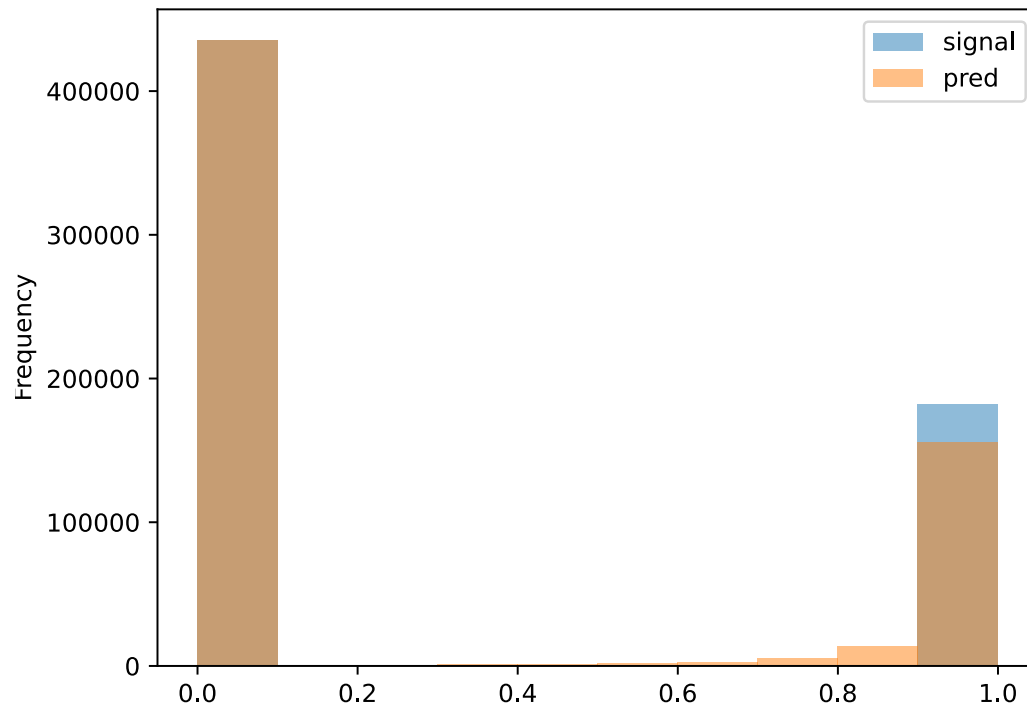
## Selections

- $\text{HLT} + n_{\text{jets}} \geq 6 + n_{\text{Tbjets}} \geq 2$  (before change)

# NN From Scratch

## Evaluation

- Motivation: Does NN really differentiate signal and background??
- Evaluation with TTToHadronic leftovers and Tprime {625,650,675}
  - Simply plotting True signal label and Predictions

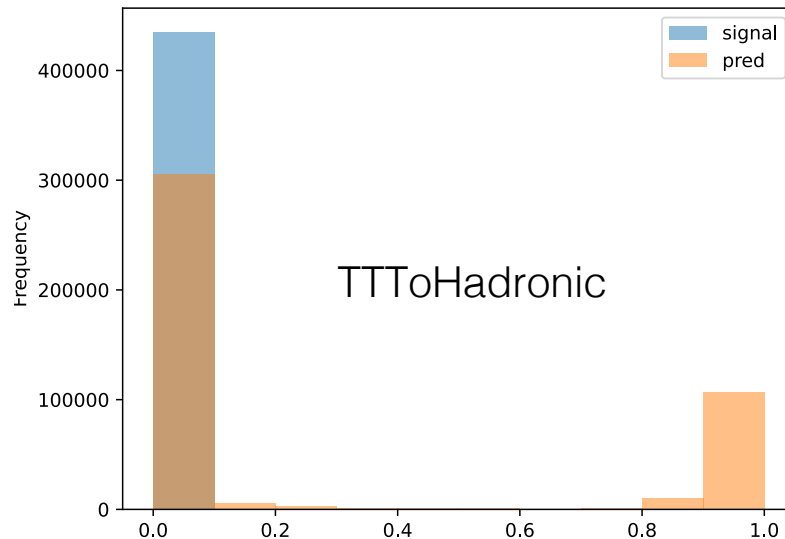
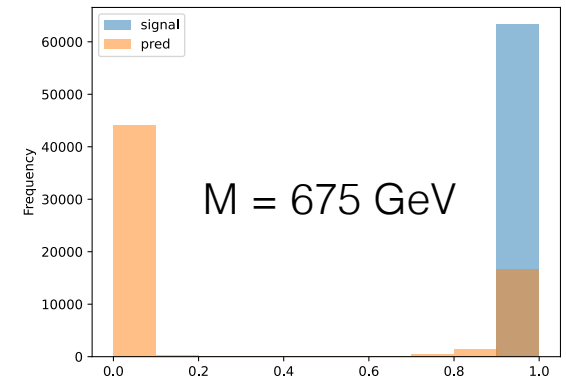
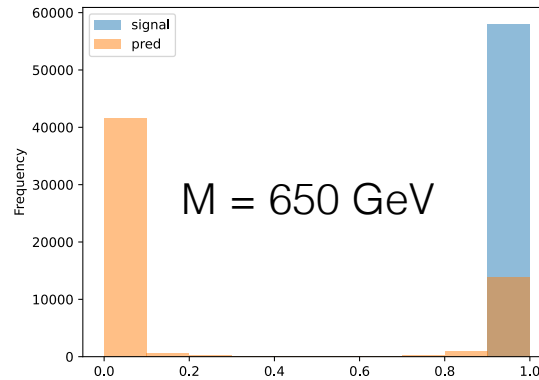
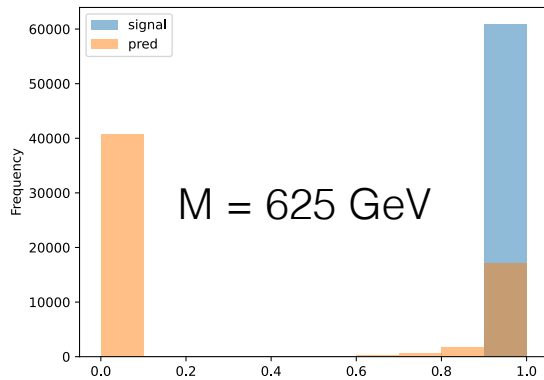


→ It looks so well differentiate, but..

# NN From Scratch

## Evaluation

- Motivation: Does NN really differentiate signal and background??
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! Room for improvement

# Develop NN

## Performance comparison

- BDT vs DNN(without mass-inde) vs DNN(with mass-inde) vs pNN(without mass-inde)
- BDT: workflow with TMVA is ready
  - AUC: 0.901