

Tutorial on Multivariate Methods (TMVA)



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Glen Cowan (谷林·科恩)
Physics Department
Royal Holloway, University of London
g.cowan@rhul.ac.uk
www.pp.rhul.ac.uk/~cowan

Introduction

Exercise: use samples of “toy” signal/background MC training data to train a multivariate classifier using the program TMVA.

Problem sheet on:

```
www.pp.rhul.ac.uk/~cowan/stat/beijing14/  
istep_tmva_problem.pdf
```

Code for exercise:

```
www.pp.rhul.ac.uk/~cowan/stat/root/tmva/  
tmvaExamples.tar
```

Download to local directory and unpack:

```
tar -xvf tmvaExamples.tar
```

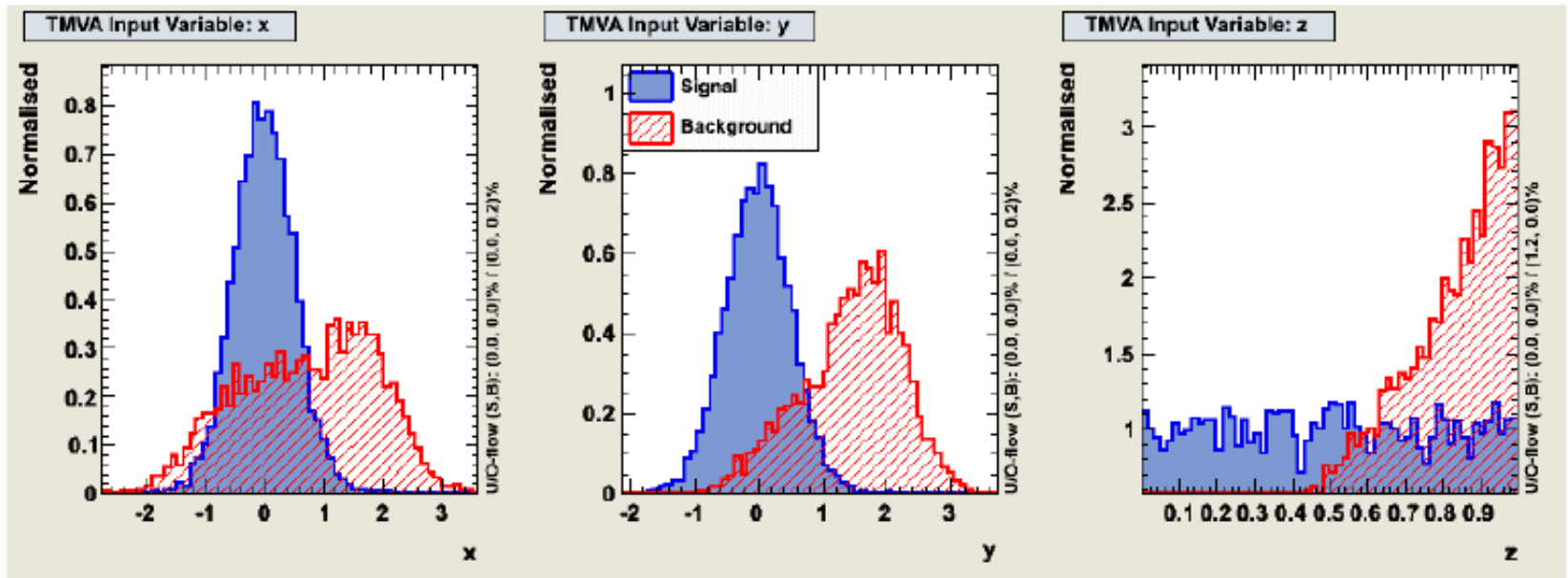
Setup for Root/TMVA at IHEP:

```
source /home/atlas01/bin/root/bin/thisroot.sh
```

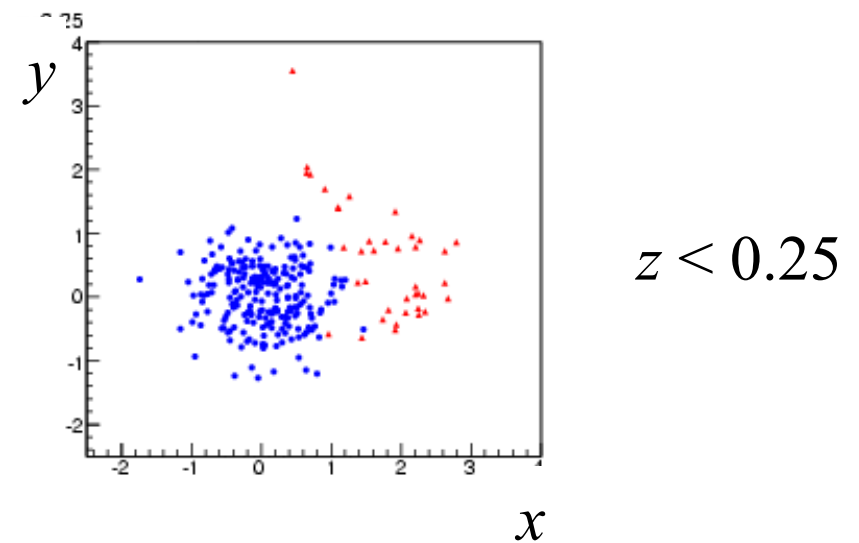
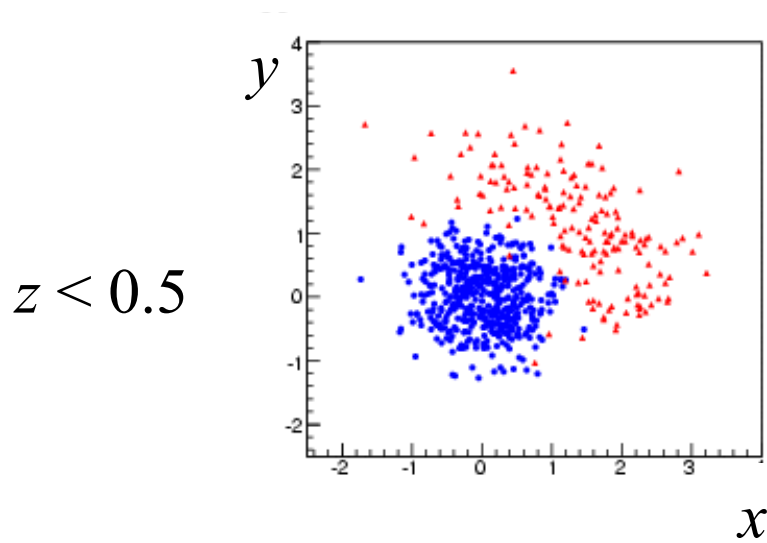
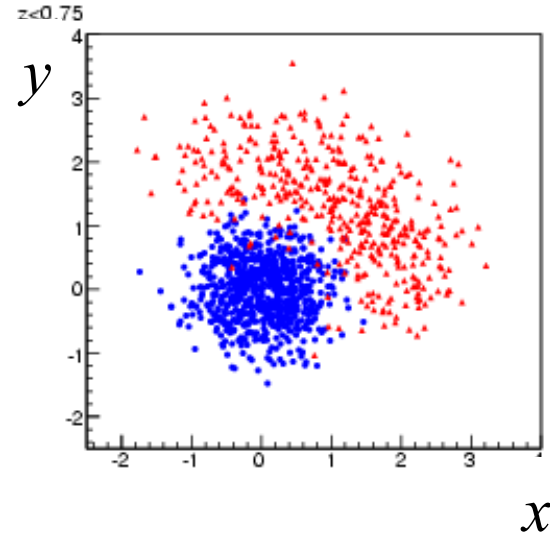
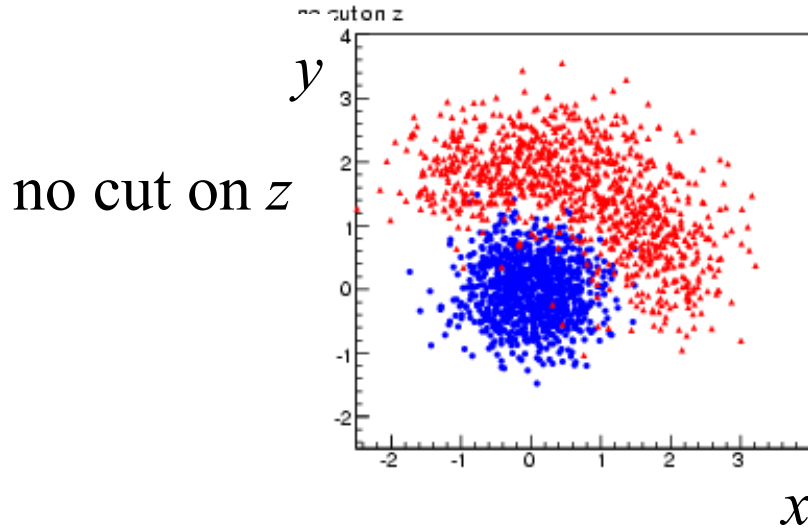
Read the file `readme.txt` for more instructions.

Test example with TMVA

Each event characterized by 3 variables, x , y , z :

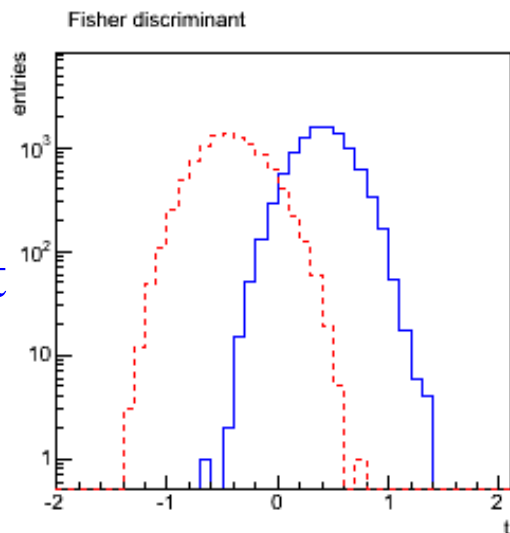


Test example (x, y, z)

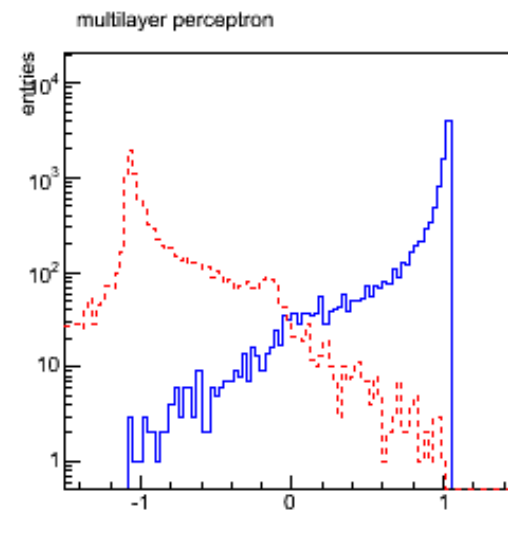


Test example results

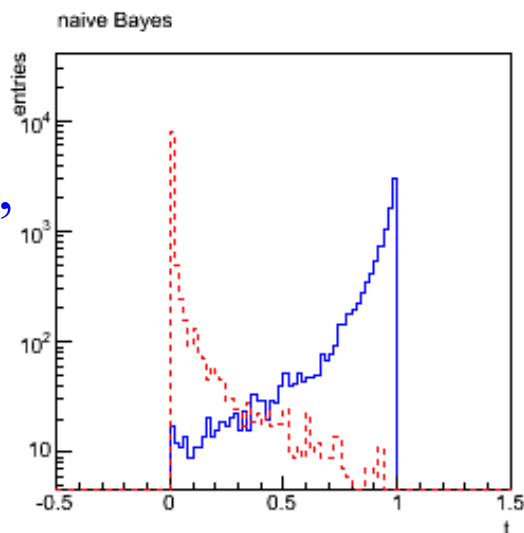
Fisher discriminant



Multilayer perceptron



Naive Bayes, no decorrelation



Naive Bayes with decorrelation

