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New Framework Overview

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Overview

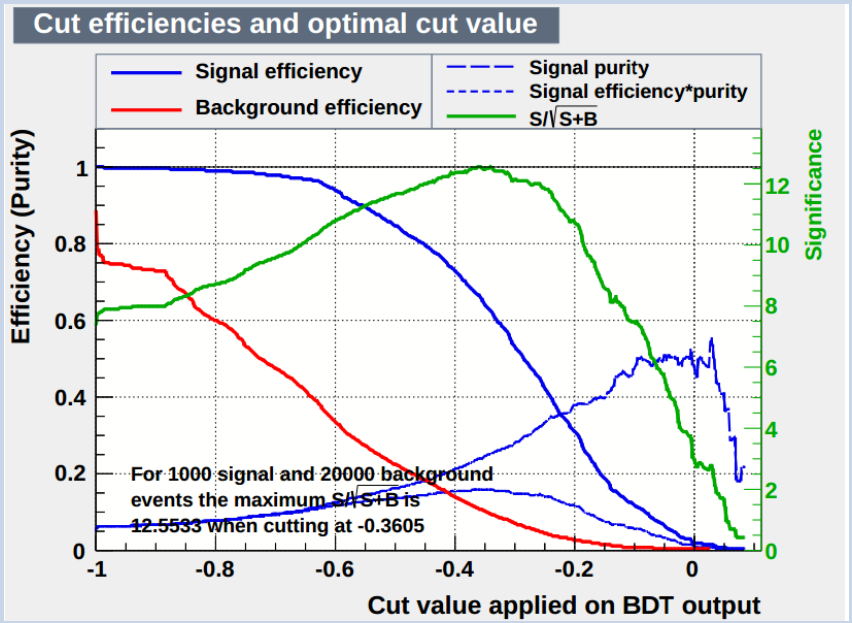
- General progress update
- Show MVAs trained with new FW
- Twiki with instructions to have a go yourself can be found here

General progress update

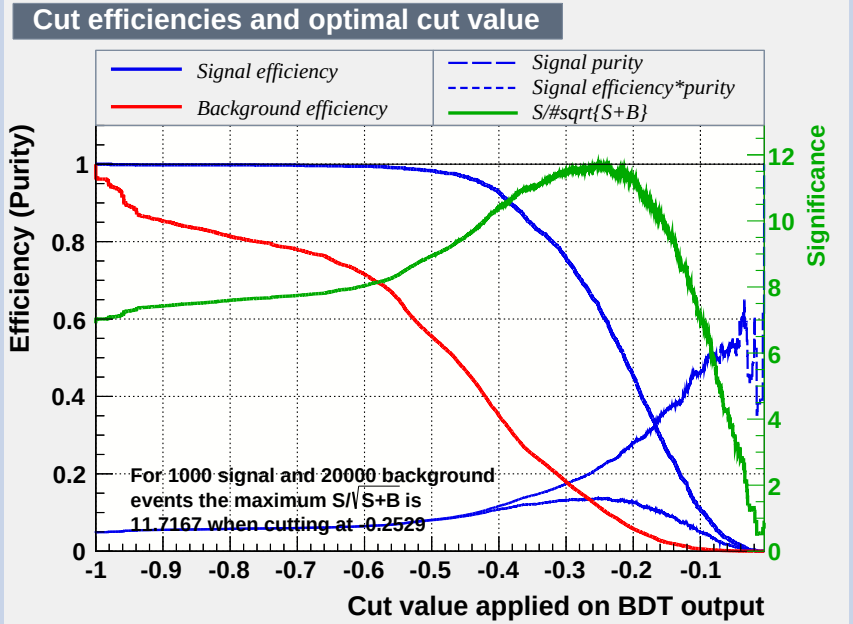
- Light trees for all samples are accessible through xrootd:
  - Some modules will run on these remotely.
  - A local copy is needed for some modules requiring access to many files at once due to xrootd memory issues.
- An MVA Training module is now available.
- Scripts to support running the framework on the Imperial and CERN batch systems have been added.
- Many options are now configurable through config files

Test of MVA Training

Old Macro



New FW Code



- Same input variables and preselection
- Results comparable
  - Differences may be due to differing test and training tree selection

Instructions for new users

- Follow instructions here for installation
- A simple analysis can be found in: ICHiggsTauTau/Analysis/HiggsNuNu/LightTree/test/IntroLTAnalysis.cpp
- Instructions to run it can be found in the "For the impatient user" section at the above link.

Quick Example

```
//MVA TRAIN
std::vector<std::string> sigsets;
sigsets.push_back("sig125");
std::vector<std::string> bkgsets;
bkgsets.push_back("VBF-QCD");
bkgsets.push_back("VV");
bkgsets.push_back("Top");
bkgsets.push_back("ZJets_ll");
bkgsets.push_back("ZJets_ll_vbf");
bkgsets.push_back("ZJets_nunu");
bkgsets.push_back("WJets_enu");
bkgsets.push_back("WJets_munu");
bkgsets.push_back("WJets_taunu");
std::vector<std::string> variables;
variables.push_back("jetmet_mindphi");
variables.push_back("dijetmet_ptfraction");
variables.push_back("dijetmet_vectorialSum_pt");
variables.push_back("jet1met_scalarprod_frac := jet1met_scalarprod/met");
variables.push_back("jet2met_scalarprod_frac := jet2met_scalarprod/met");
variables.push_back("n_jets_cjv_30");
variables.push_back("jet2_pt");
variables.push_back("dijet_M");
variables.push_back("dijet_deta");
variables.push_back("dijet_dphi");
variables.push_back("met");
variables.push_back("met_significance");
variables.push_back("sqrt(ht)");
std::vector<std::string> specvariables;

MVATrain mvatrainer("mvatrainer");
mvatrainer.set_sigsets(sigsets)
  .set_bkgsets(bkgsets)
  .set_variables(variables)
  .set_specvariables(specvariables)
  .set_basesel("passtrigger==1&&nvetomuons==0&&nvetoelectrons==0&&jet1_pt>50&&jet2_pt>50&&jet1_eta<4.7&&jet2_eta<4.7&&met_significance>3&&di
jetmet_mindphi>1.5")
  .set_sigcat("")
  .set_bkgcat("");
```

Conclusions

- New framework now has most functionality needed for analysis optimisation
  - Instructions to try it out can be found here
- Light Ntuples are in DCache

Backup