Sample Generation

Fixed energy = 60 GeV, Fixed direction = (1, 0, 0), positive x-direction

1.Gamma:
ddsim --compactFile /cvmfs/clicdp.cern.ch/iLCSoft/builds/2016-11-22/x86_64-slc6-gcc48-opt/lcgeo/HEAD/CLIC/compact/CLIC_o3_v07/CLIC_o3_v07.xml --enableGun --gun.particle gamma --gun.energy 60*GeV --gun.direction 1,0,0

2. Pi0:
ddsim --compactFile /cvmfs/clicdp.cern.ch/iLCSoft/builds/2016-11-22/x86_64-slc6-gcc48-opt/lcgeo/HEAD/CLIC/compact/CLIC_o3_v07/CLIC_o3_v07.xml --enableGun --gun.particle pi0 --gun.energy 60*GeV --gun.direction 1,0,0

3. Electron:
ddsim --compactFile /cvmfs/clicdp.cern.ch/iLCSoft/builds/2016-11-22/x86_64-slc6-gcc48-opt/lcgeo/HEAD/CLIC/compact/CLIC_o3_v07/CLIC_o3_v07.xml --enableGun --gun.particle e- --gun.energy 60*GeV --gun.direction 1,0,0

4. Charged pion:
ddsim --compactFile /cvmfs/clicdp.cern.ch/iLCSoft/builds/2016-11-22/x86_64-slc6-gcc48-opt/lcgeo/HEAD/CLIC/compact/CLIC_o3_v07/CLIC_o3_v07.xml --enableGun --gun.particle pi+ --gun.energy 60*GeV --gun.direction 1,0,0

Filter:

Electron and charged pion: H/E < 40

Pi0: opening angle for the two photons < 0.01

Samples used:

Feature-based nn (gamma vs. pi0):
/data/LCD/V2DownsampledGammaPi0MergingSize1WithProcessedFeaturesExcludingNSubOverwrittingChecked

Feature-based nn (e- vs. pi+):
/data/LCD/V2/DownsampledEleChPiMergingSize1WithProcessedFeaturesExcludingNSub

Cell-based nn/bdt (gamma vs. pi0)
/data/LCD/V2/DownsampledNormalizedGammaPi0MergingSize1

Cell-based nn/bdt (e- vs. pi+)
/data/LCD/V2/DownsampledNormalizedEleChPiMergingSize1

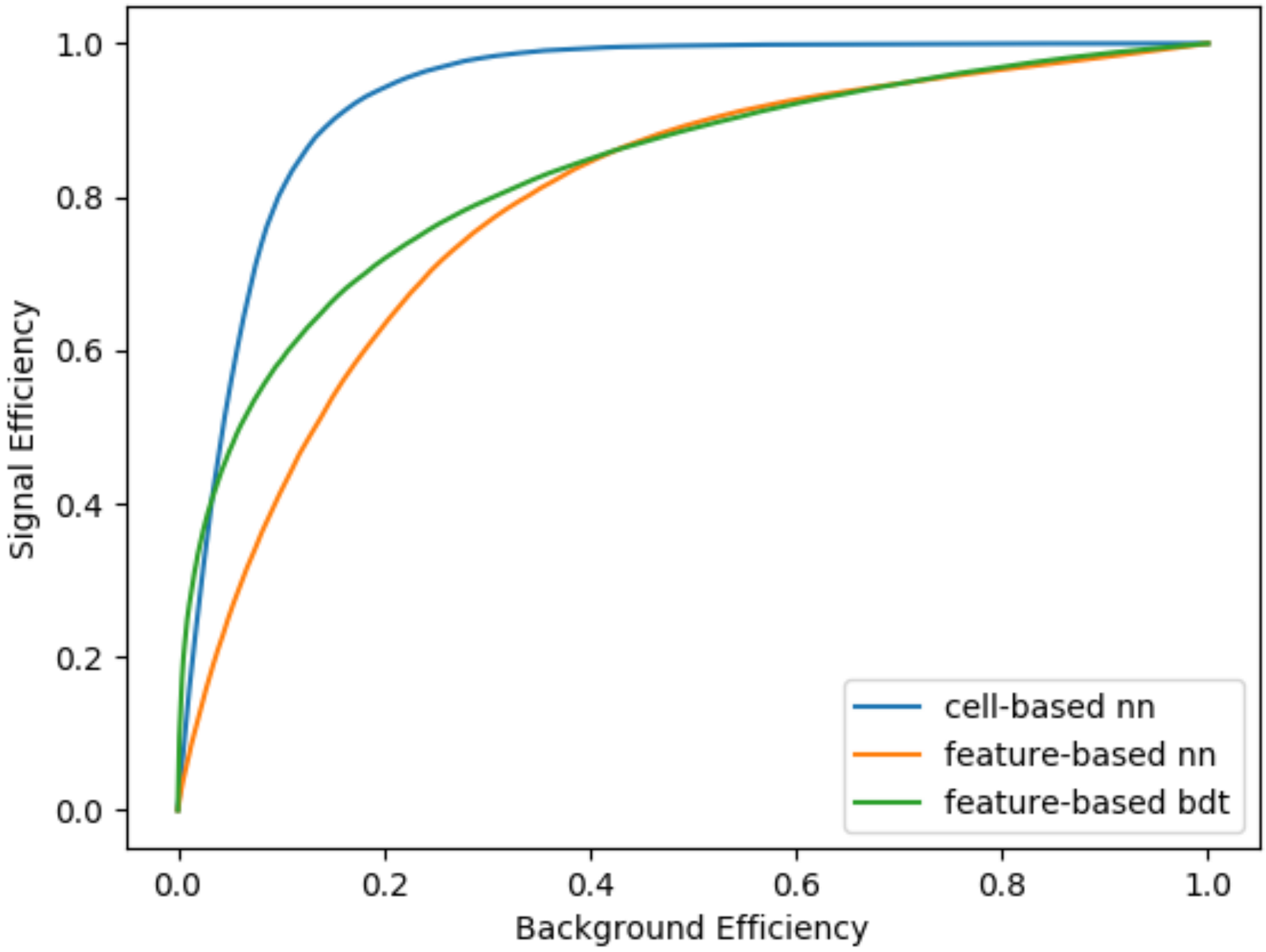
ECAL Size: (25, 25, 25) HCAL Size (5, 5, 60)

Features used: Shown in Last Friday’s slides

Key plots:

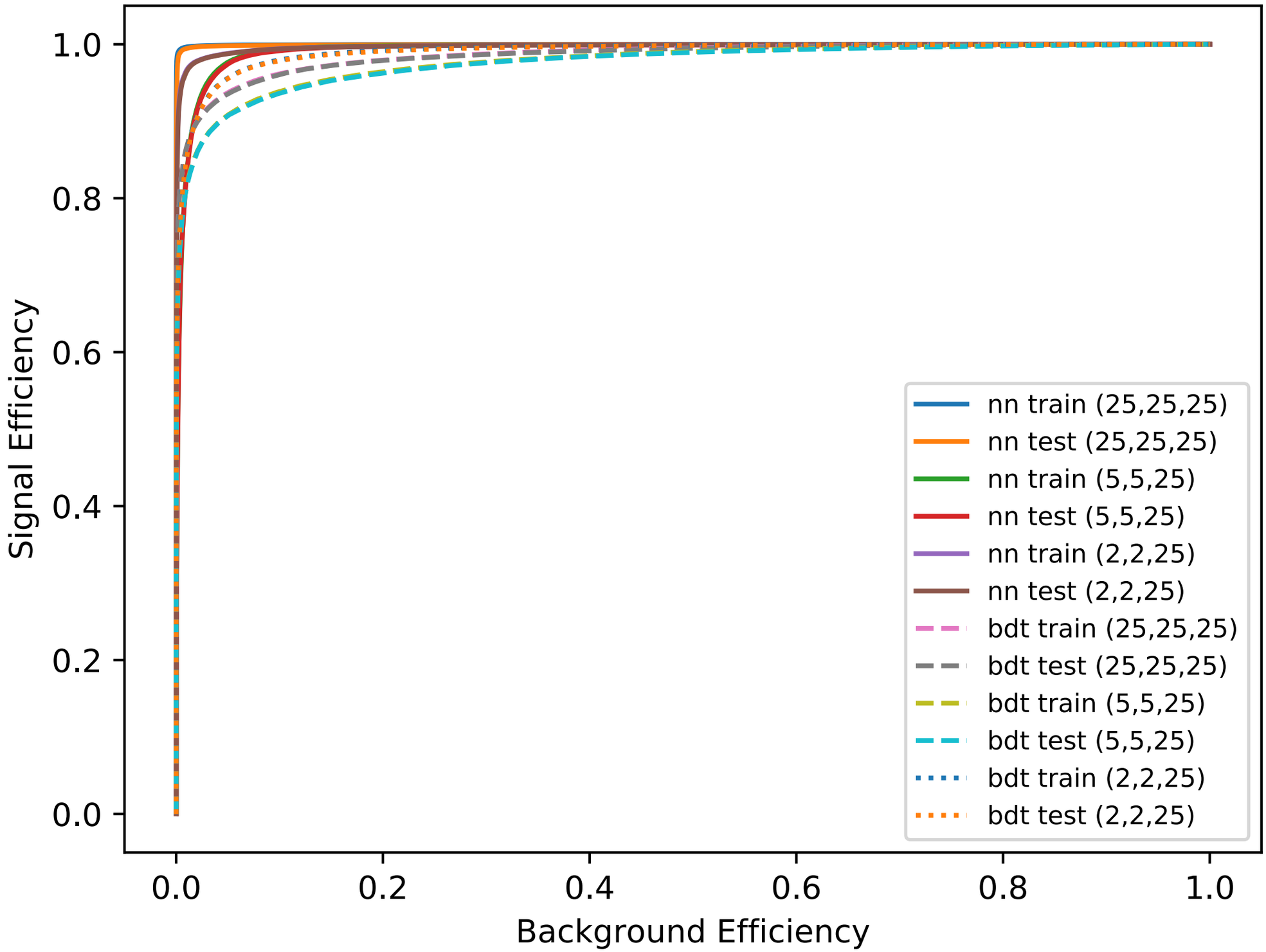
Gamma vs. Pi0 (original images)

Cell-based nn: depth=4, width=132, feature-based nn: depth=4, width=134
BDT: depth=3, # of estimators = 800



0.2 increase in signal efficiency, 15 increase in back efficiency

e- vs. pi+ (image size shown in labels)



0.05 increase in signal efficiency, ? increase in back efficiency