UW Classification trees: first comparison with Atwood/Usher trees

• Issue: how does the boosted tree scheme compare with Insightful Miner’s multiple tree?
  – Previous comparison was with single trees only.

• Reminder:
  – This code is all in GlastRelease, accessible to anyone
The new Atwood/Usher variables

• Fantastic job by Tracy to make these available:

• The names are:
  – CTBbestEneProb
  – CTBprofileProb
  – CTBlastLayerPr
  – CTBtrackerProb
  – CTBparamProb
  – CTBBestEnergy
  – CTBdeltaEoE
  – CTBVTX
  – CTBCORE
  – CTBGAM

• A little niggle:
  – Can someone tell me the rule on how to capitalize these guys?
  – When “energy” is “ene”?
  – When “prob” is “pr”?
CTBbestEneProb

- Tracy recommends 0.1 as a cut on this.
  For the 10M GR v7r3p1 run, here is the distribution, cut, and corresponding acceptance:
The corresponding $\Delta E/E$ distributions for the standard 8 energy bins

Note: logarithmic scales!
The UW version

• UW variable: \textit{CTgoodCal}.
  
  – Trained on even events in
    \texttt{allGamma-GR-v7r2-merit-TKR-prune.root}
  
  – 7 different trees, all boosted 10 times:
    • param: all energies, or separately low, med, high
    • profile
    • tracker
    • lastlayer
  
  – Best one seems to be the combination of low, med, high of param
    • Results are shown for performance on the 10 M run
      \texttt{allGamma-v7r3p1-10M-merit.root}
      \texttt{allGamma-v7r3p1-10M-merit_1.root}
      \texttt{allGamma-v7r3p1-10M-merit_2.root}
CTgoodCal results: cut at 0.5
The corresponding $\Delta E/E$ distributions for the standard 8 energy bins

Note: logarithmic scales!
Status

• Boosted trees seem to be at least equivalent to IM multiple trees
• Training can be done by anyone
• Next week: compare the following:
  – CTBVTX with CTvertex
  – CTBCORE with CTgoodPsf: how do our standard $\sigma$ and $\gamma$ compare? (See Jim’s fits)
• Following week
  – CTBGAM vs. CTgamma