04/05/2024 GELATO Weekly

Max Cohen

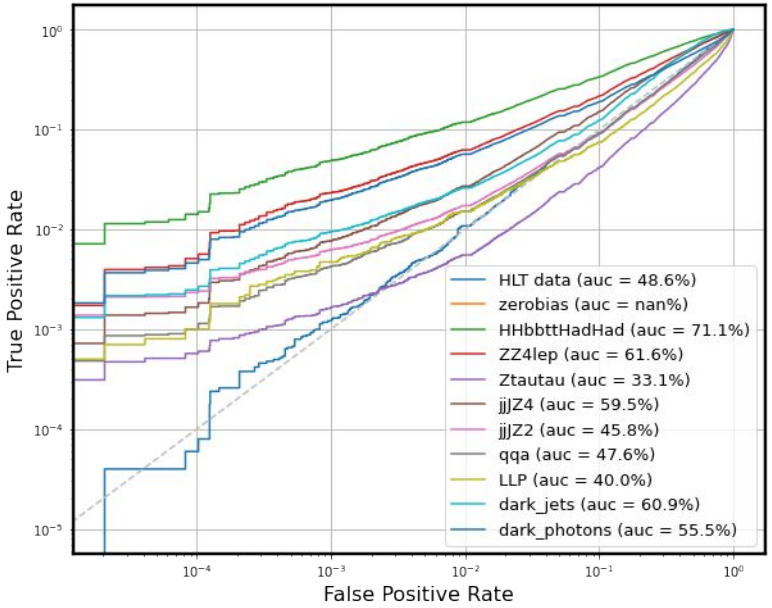
Updates from this week

- Continued testing out training with some zerobias events
  - Weighted the zerobias such that it corresponded to 20% of the training data
  - Made ROC with “as seen by HLT” data as background, evaluated over zerobias as well as an orthogonal HLT split

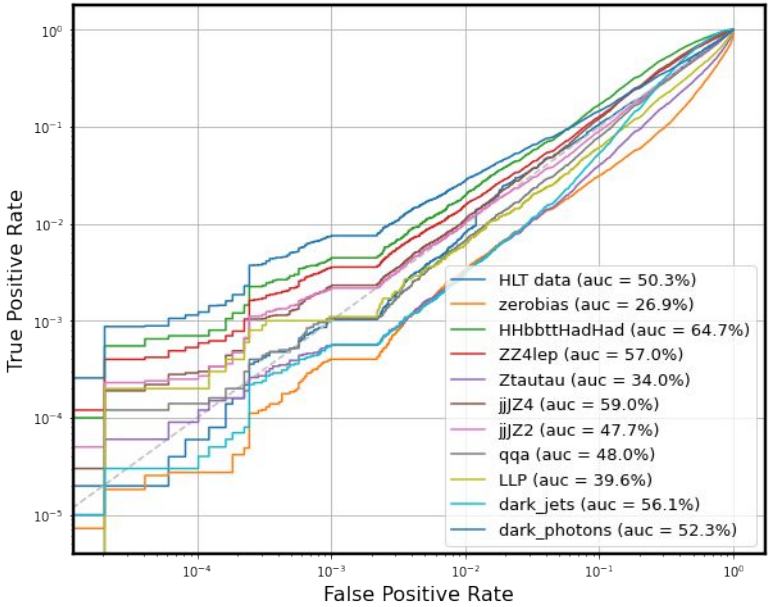
- First attempts at training the HLT network over the L1 objects
  - Hard to evaluate with MC, but it seems not to agree very well with the HLT-object model
  - Still lots to try out here, as well as thinking about non-signal based metrics

Training over zerobias

- Scaled weights such that zerobias events correspond to 20% of training data



Without zb data

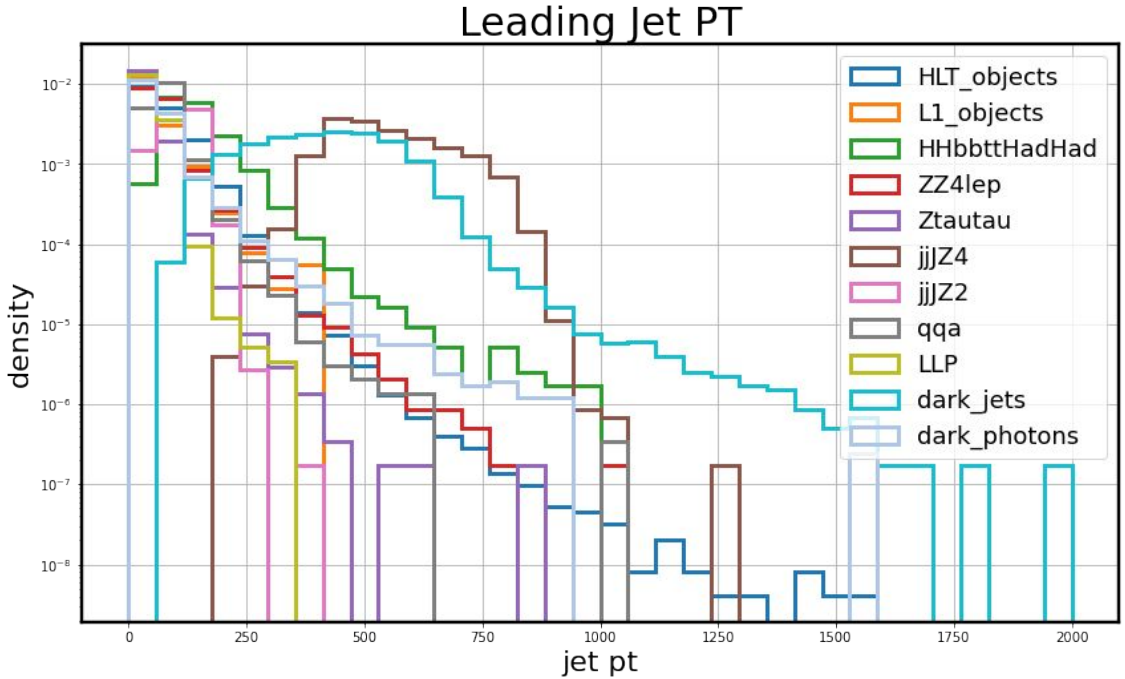


With zb data

Training HLT network over L1 objects

- L1 objects have et cutoff

  At 400 GeV

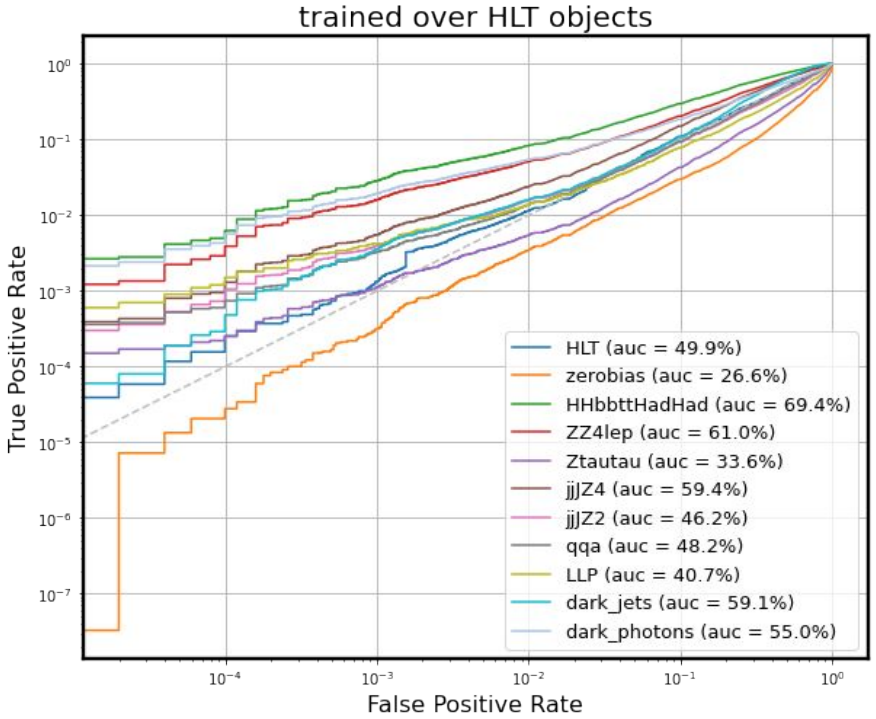


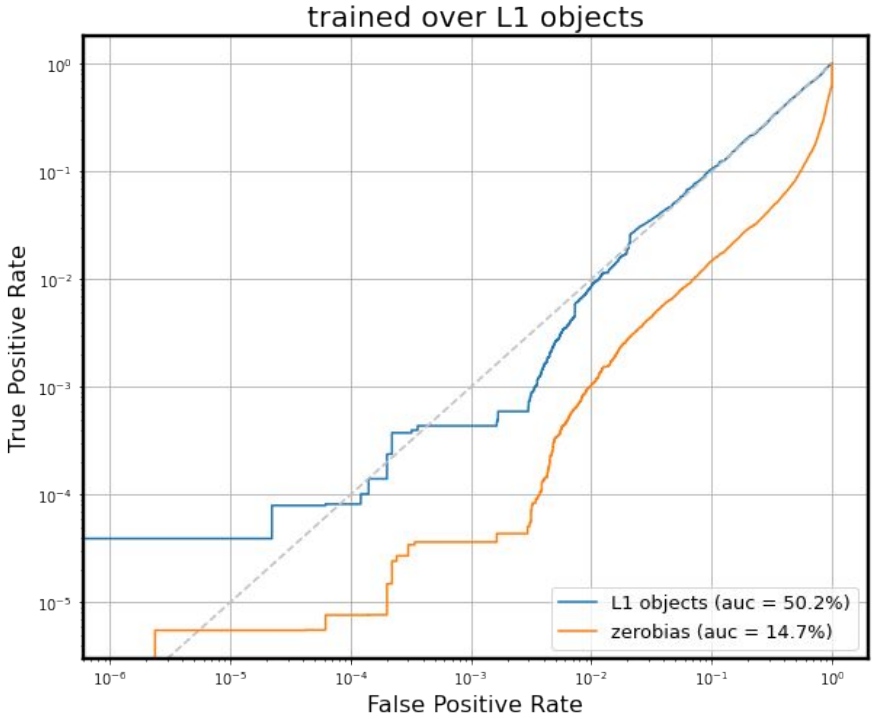
Training HLT network over L1 objects

Some things to note:

- When training over HLT objects, using 3 electrons, 3 muons, 3 photons
- In L1, no distinction between electrons and photons
  - Accordingly, I trained the L1 model with 3 EMs, 3 muons, 3 taus such that they would have the same shape
- The HLT and L1 networks I trained have identical structure
- L1 objects had much lower training and val loss
  - But similar threshold on AD score to get FPR = 10e-4

Training HLT network over L1 objects





Training HLT network over L1 objects

- At FPR = 10e-4, no overlap between HLT anomalies and L1 anomalies
  - Statistics are still extremely low…