

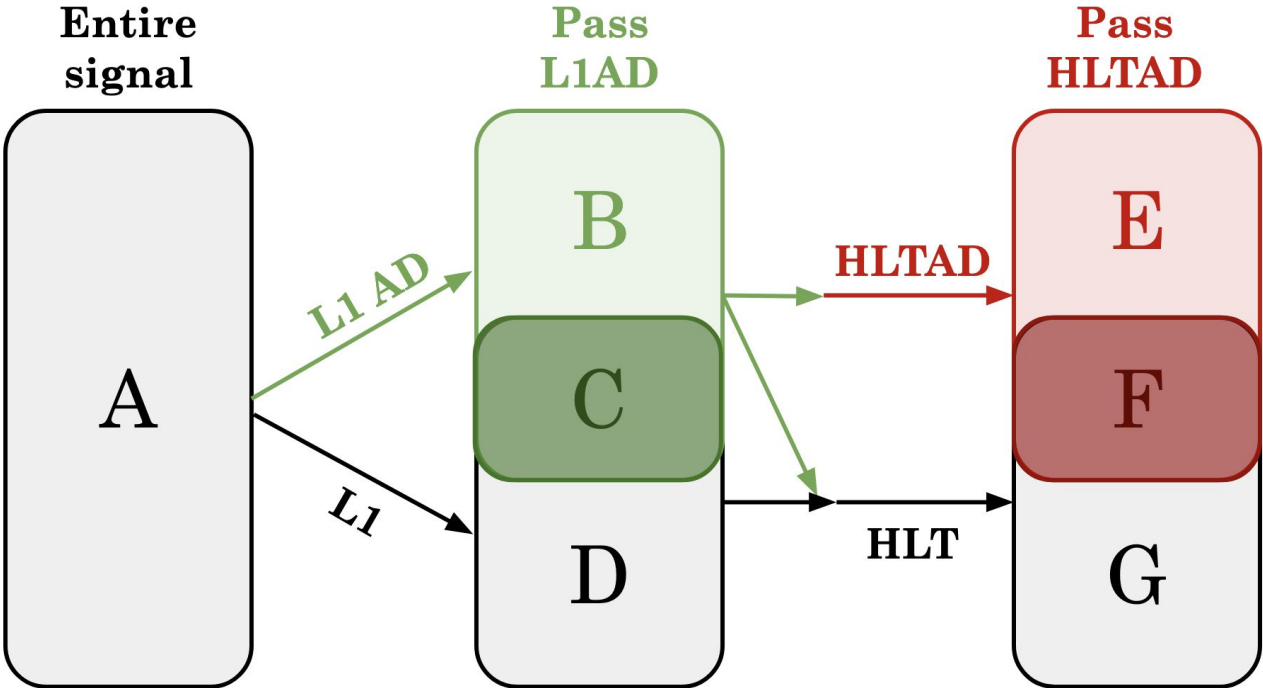
# 02-17-2025 AD Trigger Update

Max Cohen



# Reference:

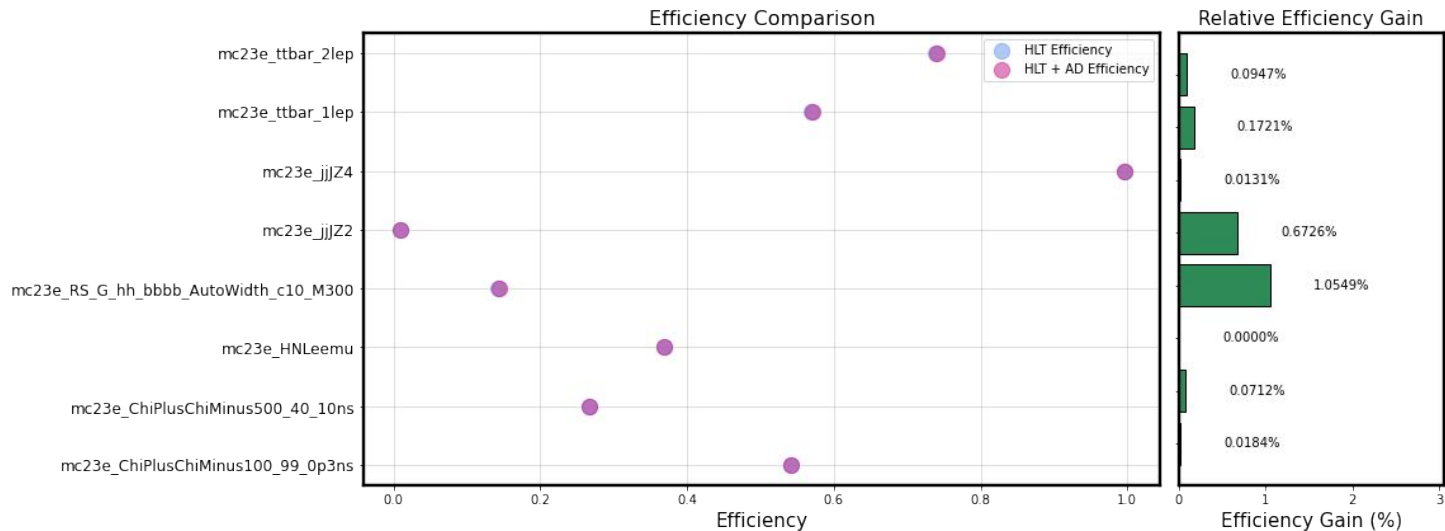
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# HLT performance studies

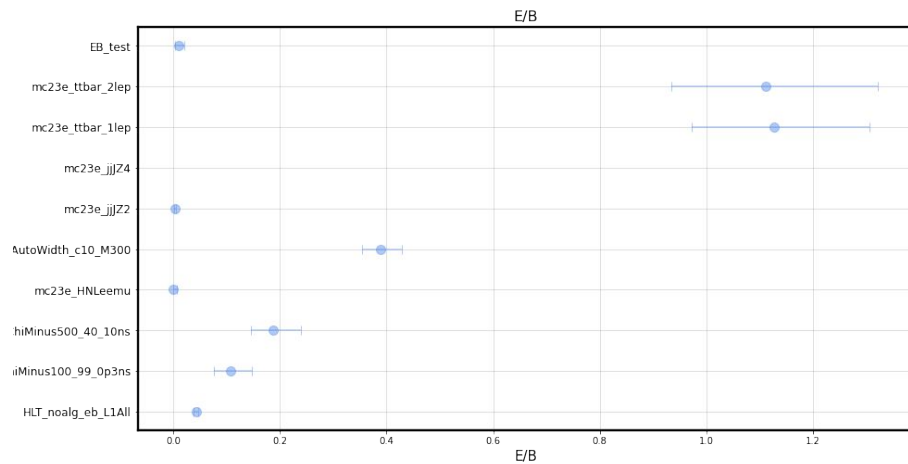
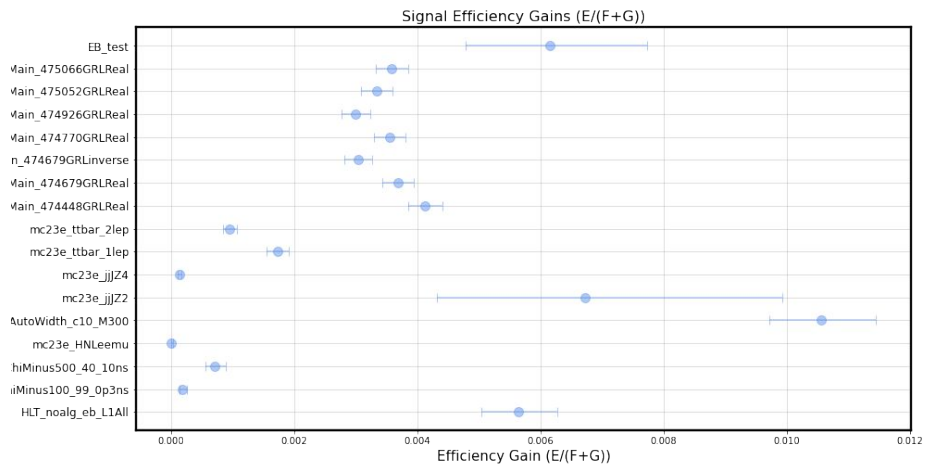
Recall from last week: The most performant model:

Important comment: even with this training scheme, many trainings fail (e.g. very bad performance)



# HLT performance studies

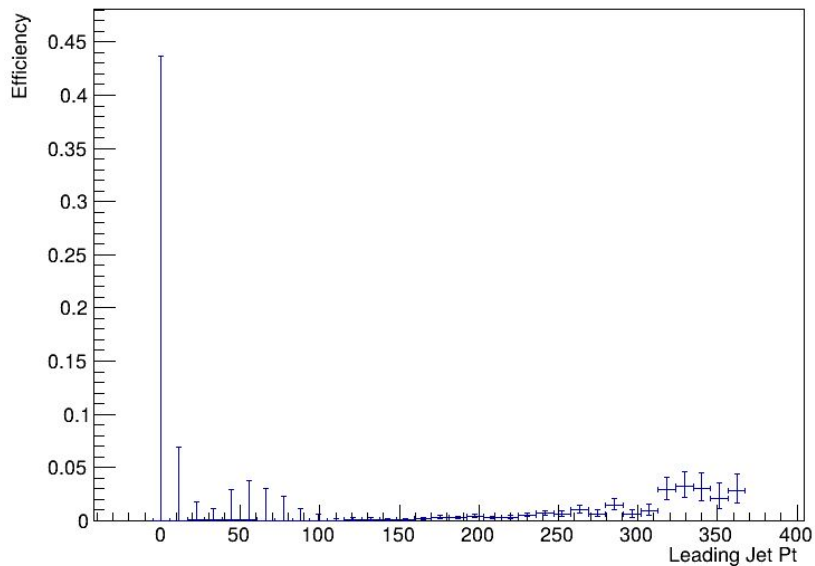
Recall from last week: The most performant model:



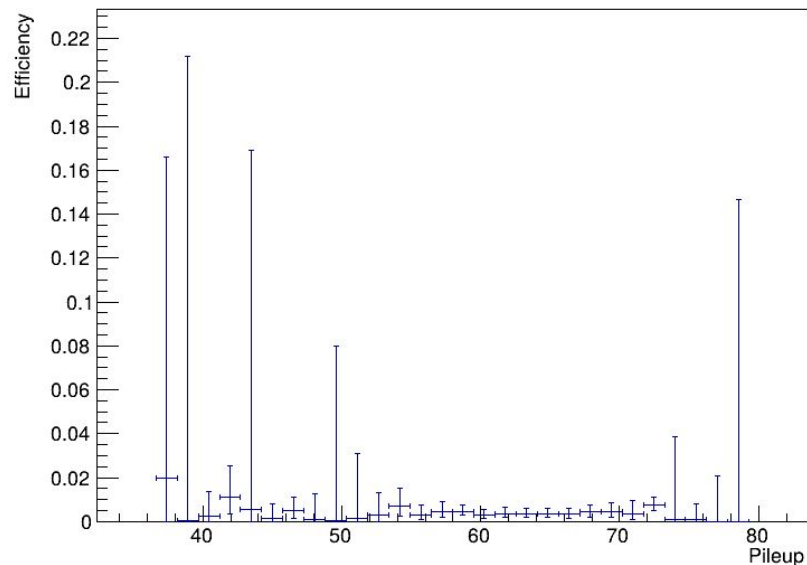
# HLT performance studies

Recall from last week: The most performant model:

Anomalous Event Efficiency vs Leading Jet Pt

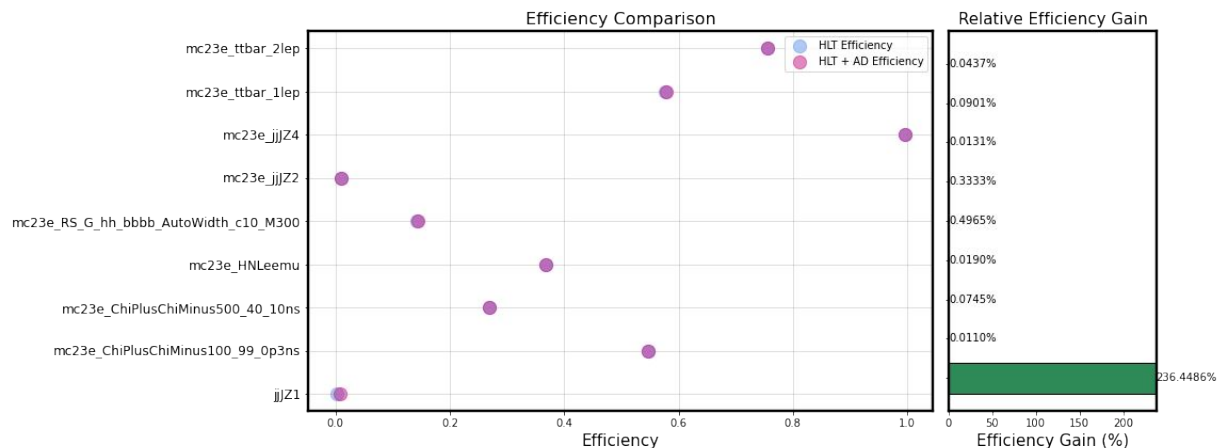


Anomalous Event Efficiency vs Pileup



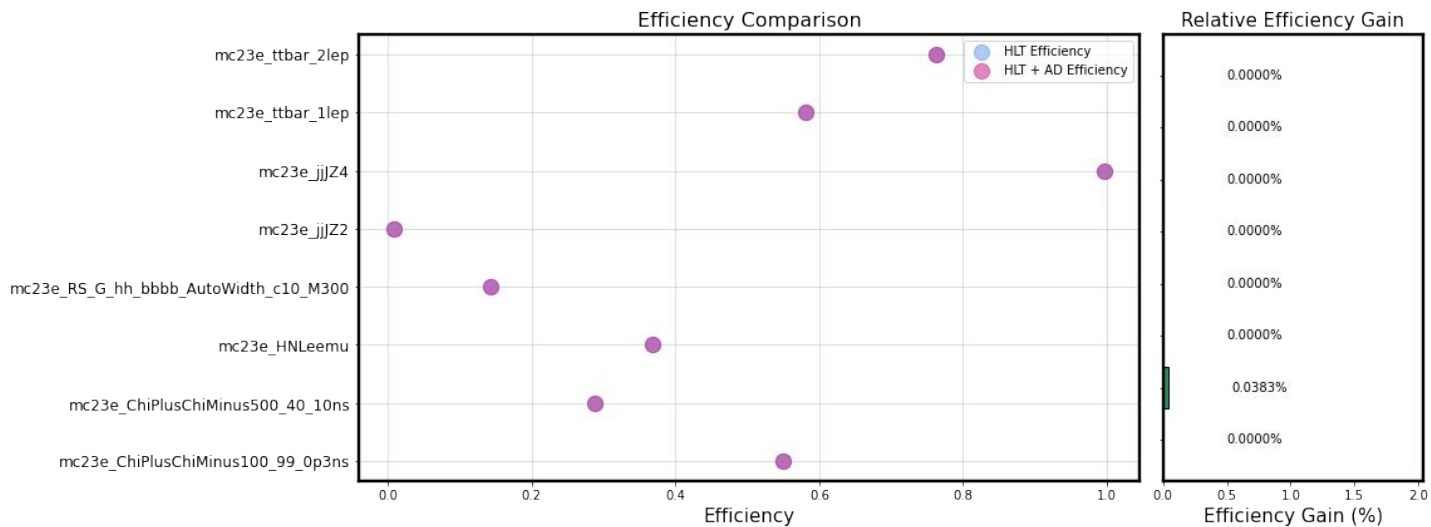
# Other HLT studies

Only training over passL1 events



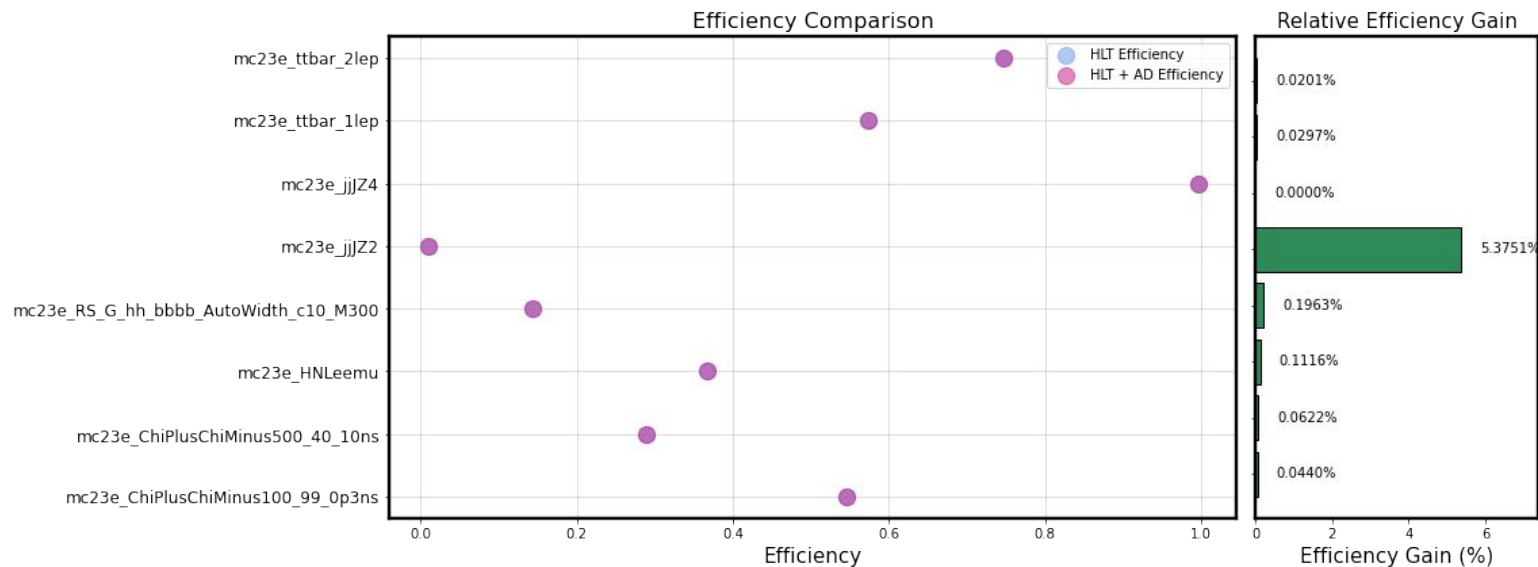
# Other HLT studies

Only training over failL1 events



# Other HLT studies

Per-event pt normalization (sum of pt of each event normalized to 10)





# Other HLT studies

## Overlap removal:

Reject	Against	Criteria
electron	electron	shared track, $pt_1 < pt_2$
tau	electron	$dR < 0.2$
tau	muon	$dR < 0.2$
muon	electron	is calo-muon and shared ID track
electron	muon	shared ID track
photon	electron	$dR < 0.4$
photon	muon	$dR < 0.4$
jet	electron	$dR < 0.2$
electron	jet	$dR < 0.4$
jet	muon	$NumTrack < 3$ and (ghost-associated or $dR < 0.2$ )
muon	jet	$dR < 0.4$
jet	tau	$dR < 0.2$
photon	jet	$dR < 0.4$
fat-jet	electron	$dR < 1.0$
jet	fat-jet	$dR < 1.0$

Steps performed in listed order.  
Only surviving objects participate  
in subsequent steps.

delta-R calculated using  
*rapidity* by default

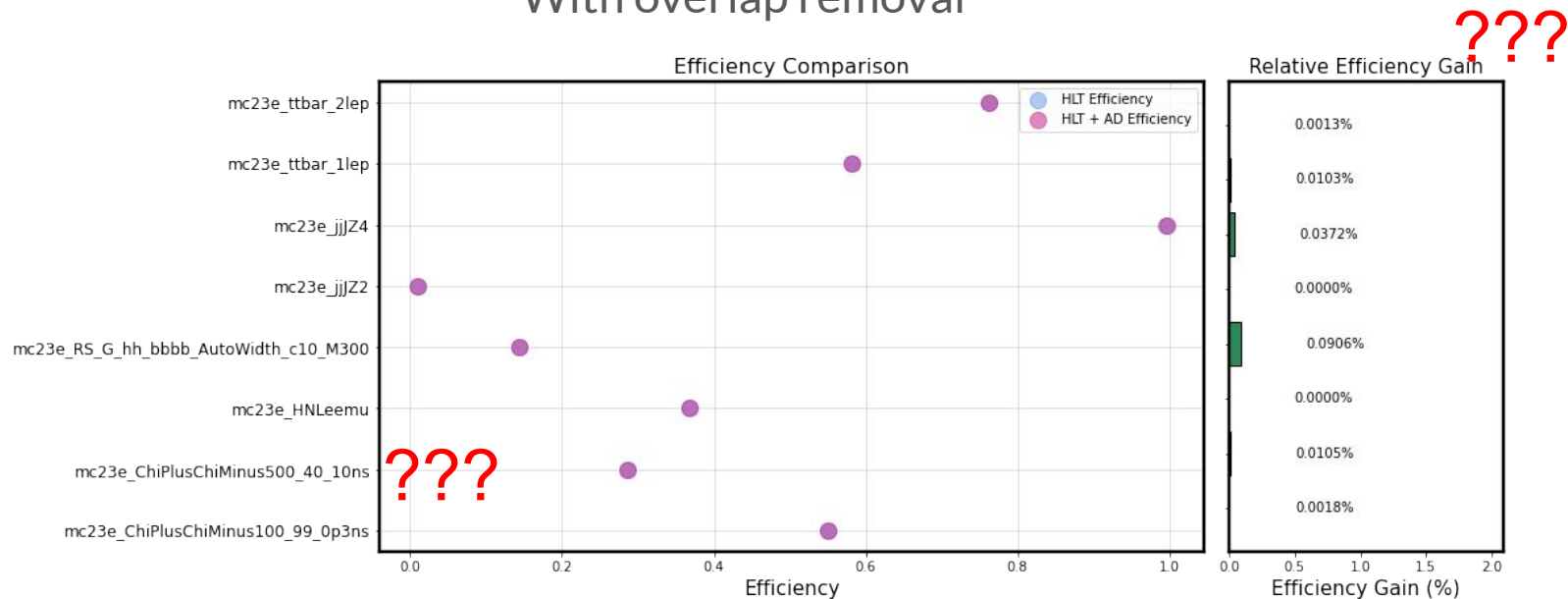
Replaced this with:  
Muon Electron  $dR < 0.2$

So my cuts ended up being:

```
Reject Against Criteria
muon electron dR < 0.2
photon electron dR < 0.4
photon muon dR < 0.4
jet electron dR < 0.2
electron jet dR < 0.4
jet muon dR < 0.2
muon jet dR < 0.4
photon jet dR < 0.4
```

# Other HLT studies

With overlap removal



Why is this performance so bad?

Backup

# HLT performance studies

Recall from last week: The most performant model:

$$E+F / (B+C)$$

