Weekly Report

Kaili Zhang

2019-07-22

Status

- HH->yy+Multilepton;
- Calo seeding and GSF for forward tracks
- Lepton+tau trigger check

Grid Space;

HH->yy+Multilepton

- Huirun applied a tau handler on Hgam
  - Checking performance
- Lepton PID effiencicy
  - Apply trigger first?
- Apply for the GRID space production role

QT

Finally, nearly finished.

Report last Wednesday;
List the things to do for signing off.

Hi Kaili,

thank you for the report today. We estimate you have put sufficient time into your QT and studies. I copied your *QT task description [ATLIDTRKCP-119] in italic* and added --> status summary and **requirement to qualify in bold** to each task. In summary, our last requirement is that you prepare a clear and comprehensive wiki of your work.

1) QT tasks description: Implement a calo ROI selection tuned for the forward region > 2.5 , to complement the existing calo seeding for <2.5
--> status: we consider tuning to be beyond the scope of the QT. You had to deal with an overhead of migrating to the new release (r21.9) and new cluster collection. We have no requirements and this will be followed-up after you are qualified.

2) QT task description: This should then picked up by the pattern recognition to allow bremsstrahlung recovery fits to be performed
--> status: you demonstrated the bremsstrahlung recovery fits are activated in the forward region. Performance optimization and detailed evaluation beyond the scope of QT, due to r21.9 migration.
Requirement to qualify: document the code changes required to get this work on the wiki.
- Add link to your git branch [https://gitlab.cern.ch/kazhang/athena/commit/4fcc63ff0d0bba69b58e414242ba9a0f975c3d2c], explain why you switched to topoclusters
- prepare working instructions one can copy and paste to lxplus terminal to reproduce your work.
- make your private production samples available on eos or afs and share them with all ATLAS users for reference (eos: you to this via cernbox client, afs via acl permissions)
- add the table with current performance to the wiki (p5) and technical instructions of how you extract the results from the .log files (performance optimization: beyond the scope of QT, due to r21.9 migration)

3) QT task description: Study the effect of using the above tracks and clusters > 2.5 to seed the Gaussian Sum Fitter
4) QT task description:: Quantify the performance in this new region and possible gains for physics.
--> status: you have provided performance estimates
Requirement to qualify: document the following on the wiki:

- add info to the wiki on how to access the GSF track particles
InDetPhysValMonitoringTool.TruthParticleContainerName = "TruthParticles"
InDetPhysValMonitoringTool.TrackParticleContainerName="GSFTrackParticles"

- Document on the wiki the summary of observations about GSF vs InDetTrackParticles:
- the efficiency and 2D pt vs eta plots + explain their contents
- add link to the wiki to your last performance plots (which also document effects on pulls and resolutions)

5) QT task description: Document the selection, code updates, and results
--> status: this is the wiki we are requesting in this email.
Requirement to qualify: as in points 2), 3) and 4) above.

Beyond our requirements, please add any information you estimate another student would need to reproduce and follow-up on your work to this wiki.

Could you please let us know once you have the wiki draft? After we are happy with the state of the wiki, we will be willing to sign-off your QT.

Thanks,

Lepton+tau trigger check

- Maosen's walk
- Previous ttH group use onelep/dilep trigger in 5 channels
- Now need test the new triggers with tau information for run-3 ML.
- New triggers:

```
New1="(HLT_mu20_ivarloose_tau20_mediumRNN_tracktwoMVA_L1TAU8_03dRtt)"
New2="(HLT_e24_lhmedium_nod0_ivarloose_L1EM22VHI_tau20_mediumRNN_tracktwoMVA_L1TAU8_03dRtt)"
New3="(HLT_mu14_ivarloose_tau25_mediumRNN_tracktwoMVA)"
New4="(HLT_mu14_ivarloose_tau25_mediumRNN_tracktwoMVA_L1DR-MU10TAU12I_TAU12I-J25)"
New5="(HLT_e17_lhmedium_nod0_ivarloose_tau25_mediumRNN_tracktwoMVA_L1DR-EM15TAU12I-J25)"
New6="(HLT_e17_lhmedium_nod0_ivarloose_tau25_mediumRNN_tracktwoMVA)"
New7="(HLT_e24_lhmedium_nod0_ivarloose_tau35_mediumRNN_tracktwoMVA)"
New8="(HLT_e17_lhmedium_nod0_ivarloose_tau25_mediumRNN_tracktwoMVA_L1EM15VHI_2TAU12IM_4J12)"
New9="(HLT_mu14_ivarloose_tau25_mediumRNN_tracktwoMVA_L1MU10_TAU12IM_3J12)"
New10="(HLT_mu14_ivarloose_tau35_mediumRNN_tracktwoMVA)"
New11="(HLT_mu14_ivarloose_L1MU11_tau35_mediumRNN_tracktwoMVA_L1MU11_TAU20IM)"
```

- to be added……