Track 3: Real-time Calibration and Alignment

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Summary

- Monday: Discussion Session
  - Talk on CMS Calibration: HLT Conditions, prompt calibration loop, and offline calibration
    - CMS calorimeter was not designed to be calibrated fast - need sizeable number of balance events for each cell
  - Talk on HGTD calibration: Need live calibration to correct for effects that would degrade precision timing resolution
  - Need to motivate people to work on automating monitoring / calibration procedures: ML?
  - Should we re-think calibrations? Variations we are currently averaging away. Doing things faster would be better for trigger and offline.
  - Live calibration has a huge potential impact on triggers - O(50%) of events recorded are thrown away because below trigger turnon (set by online : offline resolution, ie a function of trigger calibration) and it's difficult to work on turnon
- Wednesday: Hands-on Session
  - Attempt to predict the CMS calorimeter transparency using a neural network
  - We discovered that you can't solve CMS's calibration problems in two hours. Time variation is tricky to train.
- Doing things in closer-to-real time, to capture time variation we are otherwise averaging out, is going to be useful for upgrades (eg HGTD) and current calibration (eg calorimeters and fill-by-fill variations)