Contribution ID: **287** Type: **Poster**

Prospects for automatic data quality monitoring at the CMS pixel detector.

Tuesday, 24 May 2022 08:58 (1 minute)

Data quality monitoring (DQM) and data certification (DC) are of vital importance to advanced detectors such as CMS, and are key ingredients in assuring solid results of high-level physics analyses using its data. The current approach for DQM and DC is mainly based on manual monitoring of reference histograms summarizing the status and performance of the detector. This requires a large amount of person power while having a rather coarse time granularity in order to keep the number of histograms to check manageable. We discuss some ideas for automatic DQM and DC using machine learning at the CMS detector, focusing on a number of case studies in the pixel tracker. In particular, using legacy data taken in 2017, we show that data certification using autoencoders is able to accurately spot anomalous detector behaviour, with a time granularity previously inaccessible to the human certification procedure. We propose some ideas and plans to commission these automatic DQM and DC procedures in the coming Run 3 of CMS data taking.

Collaboration

Primary author: CMS COLLABORATION

Presenter: LAMBRECHT, Luka (Ghent University (BE))

Session Classification: Solid State Detectors - Poster session