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【352】 Anomaly detection techniques for ATLAS calorimeter data quality monitoring

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The ATLAS detector at the LHC records vast amounts of data. To ensure excellent detector performance, a number of checks are performed both during and after data-taking.

This study introduces a prototype algorithm designed to automatically identify detector anomalies in ATLAS liquid argon calorimeter data. The data is represented as a multi-channel time series, corresponding to average calorimeter energy cluster properties. In this work, we investigate the capability of unsupervised machine learning techniques, such as autoencoders, to detect transient detector issues. Such tools are planned to be implemented to identify previously-unknown detector issues and significantly facilitate data quality shifter work.

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