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HLT b-tagging in ATLAS with transformer network for 2024 data-taking

Jets originating from b-quarks (b-jets) are produced at collider experiments in many interesting physics processes, making them a key signature to trigger events.

Trigger developments for the beginning of LHC Run 3 introduced fast b-tagging algorithms running in the early steps of High-Level Trigger (HLT) with partial reconstruction of the event, allowing to perform early background rejection, saving CPU ressources.

The success of fast b-tagging in the first years of LHC Run 3 data-taking encouraged the development of new algorithms to reach better performances in HLT b-tagging.

The GN2 algorithm is a transformer based b-tagger used in ATLAS HLT for 2024 data-taking. A description of its architecture and a comparison of its performance with respect to previous algorithms will be presented.

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