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Machine learning solutions for cluster reconstruction in planar calorimeters

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Run 3 of the Large Hadron Collider (LHC) of the data-taking period poses unprecedented challenges to the computing models used in the high-energy physics experiments of the LHC accelerator. Only in the LHCb experiment, the luminosity has increased by a factor of five. Recent results show that deep learning solutions techniques can significantly improve the performance of the cluster reconstruction in calorimeters when high occupancy is expected. In this talk, we will review selected results of the LHC experiments and, in particular, focus on the investigated convolutional (CNN) and graph neural network (GNN) solutions for planar, LHCb-inspired calorimeters with hybrid granularities.

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