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CMS L1 Data Scouting for HL-LHC

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The CMS Experiment at the CERN Large Hadron Collider (LHC) relies on a Level-1 Trigger system (L1T) to process in real time all potential collisions, happening at a rate of 40 MHz, and select the most promising ones for data acquisition and further processing. The CMS upgrades for the upcoming high-luminosity LHC run will vastly improve the quality of the L1T event reconstruction, providing opportunities for a complementary Data Scouting approach where physics analysis is performed on a data stream containing all collisions but limited to L1T reconstruction. This poster describes the future Data Scouting system, some first estimates of its physics capabilities, and the demonstration setups used to assess its technical feasibility.

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