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Investigating machine learning to classify events in CMS

High energy physics experiments are experiencing a growth in the number of collected and processed events that exceeds the rate of growth in computing resources sustainable by technology improvements at a flat yearly cost. This trend is expected to continue into the foreseeable future, and as the field is not expecting a big increase in support, innovative approaches are needed. In areas of science as diverse as biology and cosmology groups are deploying advanced machine learning techniques to learn to classify events based on rules and trained outcomes. High energy physics has used similar decision techniques at the analysis step, and has tried a few specific demonstrations as challenges. In this presentation we present the early exploratory work in CMS to utilize machine learning techniques for real-time event classification for triggering and analysis. The early performance and next steps will be outlined.

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