

Trigger Level Tracking With Neural Networks on Heterogeneous Computing Systems

Friday 13 October 2023 11:32 (22 minutes)

The high luminosity upgrade of the LHC aims to better probe the higgs potential and self coupling. The Event Filter task force has been charged with exploring novel approaches to charged particle tracking to be employed in the upgraded ATLAS trigger system, capable of analyzing high luminosity events in real time. We present a neural network (NN) based approach to predicting and identifying hits left by particles at trigger level. In this bottom-up approach, the complexity of and input to the NN are kept minimal to allow the NN to be implemented in a heterogeneous computing system, such as with FPGA or GPU. This hardware based approach allows for increased data throughput, shorter latency and, crucially, flexibility to improve the algorithm in the future.

Author: GEKOW, Alex (Ohio State University (US))

Presenter: GEKOW, Alex (Ohio State University (US))