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TrackNETv3 with optimized inference for BM@N tracking

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There are local and global approaches to do track reconstruction depending on the amount of input data available for training a neural network model that solves the reconstruction problem. Global methods need access to all tracks in an event that results in a high memory footprint. We have successfully applied the recurrent neural network (RNN) TrackNETv2 and its updated version v2.1 to the problem of track reconstruction of the Monte-Carlo simulation for BM@N RUN6 and BESIII experiments. We found that the method of training for BM@N using buckets of tracks seems to be unnatural to RNNs, so we make a few improvements to the training procedure, inspired by widely-known language modeling systems. Also, we proposed a few vectorization tricks to speed up the inference phase of the model. The ghost filtration step was also modified to utilize the information about the rough location of the event primary vertex. The new TrackNETv3 program and preliminary results of its testing on the Monte-Carlo simulations of BM@N RUN7 are presented

Summary

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