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Deep tracking for the SPD experiment

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The reconstruction of elementary particle trajectories (tracking) is an important part of event reconstruction in high-energy physics experiments. The recurrent neural network model TrackNETv3 was proposed as an analogue to classical tracking methods based on the Kalman filter, which allowed us to obtain high tracking efficiency values for the BM@N and BES-III experiments. Based on previous results with these experiments, the possibility of applying the TrackNETv3 model to the data from the SPD experiment is considered. In contrast to the BM@N experiment with a fixed target, SPD is a collider experiment, besides, it has a much larger number of tracking detector stations. The paper presents a way of adapting the original model to the data of the SPD experiment. Also, a study of the dependence of the performance quality of the tracking algorithm on the level of data contamination by false hits (fakes) appeared due to tracking detector specifics has been carried out. The results of calculations performed using the data of the preliminary Monte Carlo simulation of the SPD experiment are presented.

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