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Particle track reconstruction with the TrackNETv2

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Modern high-energy physical detectors provide a huge amount of data, and for future high-luminosity colliders such as NICA, an Exabyte data scale is expected. Particle track reconstruction in such a dense environment is a very challenging task. Common algorithms make use of hand-engineered features and do not scale well with detector occupancy. This work is a logical continuation of the research presented on the XXII International Scientific Conference of Young Scientists and Specialists (AYSS-2018), where we have already introduced the approach of sequential tracking with the help of ad-hoc deep recurrent neural network named TrackNET. But that first version had a number of problems. To address these shortcomings, we introduce here the TrackNETv2, which is faster, has much fewer parameters and is able to train directly from Monte-Carlo simulated events.

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