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Reinforcement learning environment for deep learn physics dataset

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Deep learn physics open dataset contains thousands of frames LARTPC detector data. The main problem of the dataset is semantic segmentation. This problem has been solved succesfully with modified version of U-Net, as well as graph-networks. The main difficulty of this problem lays within the sparcity of data (thin tracks inside pixels, or voxels) which make it difficult to feed classical machine learning algorithms. Although the translation of a problem to reinforcement learning usually performs suboptimally compared to supervised machine learning, we propose library called LARTPC-game, which translates the deep learn physics dataset to reinforcement learning environment. It is not motivated by increased performance, but in novelty of a application of reinforcement learning in such kind of problems, as well as by a possibility of introducing a model more closely related to physics than others. This library may be used to require the model to behave exactly as a particle would behave, thus creating model of particle, directly from detector data.

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