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## A Deep Learning Search of Dark Tridents at the MicroBooNE Experiment

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The use of Convolutional Neural Networks (CNN) techniques has grown widely among the Liquid Argon Time Projection Chamber (LArTPC) community, mainly because the high-resolution images produced by these detectors are suitable to be processed by such neural networks. Current and future LArTPC experiments are constantly investigating different applications of CNNs as is the case in the MicroBooNE and DUNE collaborations. In this poster, we present preliminary results of using a CNN in the search of dark tridents in the MicroBooNE experiment. The dark trident signal is a new interaction channel that allows a dark sector composed of a dark matter fermion and a dark photon that could be explored in neutrino LArTPC experiments. We show that the CNN achieves good discrimination of the signal from the background ( $NC\pi^0$ ), using a simulated dataset. We include robustness checks, such as the performance over different backgrounds, presence of cosmic ray activity in the dataset and accuracy for different dark photon mass values.

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