

Reconstruction study of the 2x2 near detector prototype

The Deep Underground Neutrino Experiment (DUNE) will address open issues in neutrino physics such as the measurement of the CP-violating phase in neutrino oscillations and the neutrino mass ordering. The 2x2 demonstrator is a single-phase liquid argon time projection chamber (LArTPC), with four modules, operated as a prototype for the DUNE liquid argon near detector (ND-LAr). Based on the ArgonCube design concept, 2x2 features a novel pixelated charge readout and advanced high-coverage photon detection system.

Machine learning is being used to form a complete reconstruction pipeline of the events of the 2x2 using the ml-reco-3d package. This attempts to explore the accuracy and efficiency of the machine learning based reconstruction pipeline.

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