

Graph Neural Networks for Reconstruction in DUNE

Friday, December 4, 2020 12:00 PM (30 minutes)

The Deep Underground Neutrino Experiment is a next-generation long-baseline neutrino oscillation experiment, designed to measure current unknowns in neutrino oscillation phenomenology. Its high-resolution detectors benefit from ML-based reconstruction techniques, which currently provide the backbone of its projected sensitivity to primary physics goals. This talk will discuss the development of graph neural network (GNN) based low-level reconstruction techniques, using an attention message-passing network to classify the relationships between detector hits into different particle types. The current benchmark achieves 84% accuracy in graph edge classification, with more advanced techniques currently in development.

Presenter: HEWES, Jeremy (University of Cincinnati)