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## **Muon neutrino reconstruction in MicroBooNE**

MicroBooNE is a 85 metric ton fiducial mass Liquid Argon TPC (LArTPC) neutrino experiment at Fermilab. The primary physics goal is to investigate the excess of electron neutrinos seen by MiniBooNE in the [200-600] MeV range. MicroBooNE will use muon neutrinos to constrain the expected intrinsic electron neutrino component of the beam. Our low energy excess analysis uses deep learning applied to LArTPC images. In this poster, we present a novel 3D reconstruction based on Computer Vision and a stochastic best neighbor search for full track reconstruction. In addition to event reconstruction, we have developed a self-diagnostic tool that allows recognition of poorly reconstructed tracks. Using the output of our 3D event reconstruction, and a rudimentary particle identification stage, we achieve an energy resolution of 1.8% for the simulated charged current quasielastic muon neutrino events in the range of [200-1500] MeV.

### **Mini-abstract**

A Novel Muon Neutrino Reconstruction in MicroBooNE LArTPC for Low Energy Excess Searches

### **Experiment/Collaboration**

MicroBooNE

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