Contribution ID: **25**   Type: **Individual talk**

Full Event Reconstruction on NOvA using Instance Segmentation

Tuesday, 21 July 2020 14:30 (25 minutes)

The NOvA experiment is a long baseline neutrino oscillation experiment measuring neutrino oscillations and cross sections using the NuMI beam at Fermilab. Reconstructing particles produced in neutrino interactions provides the basis for neutrino energy estimation and final state identification for cross section measurements and interaction model tuning. This talk will present an end-to-end technique for reconstructing a neutrino interaction using instance segmentation based on Mask R-CNN. This technique simultaneously reconstructs particle hit clusters and classifies the particle identity. This has now been incorporated into NOvA's analysis framework and shows improvement in the number of particles that get reconstructed and in the purity of reconstructed particle clusters.

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