Event Reconstruction Efficiency and Purity Studies for Charged Pion Semi-Inclusive Neutrino Charged-Current Cross Section in NOvA JYOTI TRIPATHI, Fermilab and Panjab University, NOVA COLLABORATION — The NOvA experiment is a long-baseline neutrino oscillation experiment designed to measure the rates of electron neutrino appearance and muon neutrino disappearance. The NOvA near detector is located at Fermilab, 800 m from the primary target and provides an excellent platform to measure and study neutrino nucleus interactions. We present the status of the measurement of the differential cross section with respect to pion kinematics for interactions involving charged pions in the final state, $\nu_\mu N \to \mu \pi^\mp X$. We are using a convolutional neural network-based approach for the identification of particles produced in neutrino-nucleus interactions. We present event classification efficiency and purity studies using this particle identification, along with systematic uncertainties on the final selection, background estimates and prospects for the measurement.

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