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Context Enriched Prong CNN performance studies in NOvA

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NOvA is a neutrino oscillation experiment that uses Near and Far detectors to measure electron neutrino appearance and muon neutrino disappearance. The classification of neutrino flavour will be helped by the identification of final state particles of the neutrino interaction. So, NOvA has developed a Convolutional neural network (CNN) for single particle classification which employs context-enhanced inputs. The first implementation of this network was trained on neutrino and antineutrino datasets separately. In this work, we train the network on a combined neutrino and antineutrino dataset and compare with the separately-trained networks. Preliminary results show the combined network performing comparatively to the separate networks with chance of improvement with more data. In this work, I will show the comparison of these networks and their performances.

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