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# Regression CNNs for Energy Reconstruction in the NOvA Experiment

*Tuesday, 21 July 2020 13:40 (25 minutes)*

NOvA is an accelerator neutrino experiment with an 810 km baseline. Using the NuMI beam from Fermilab, it measures electron neutrino appearance and muon neutrino disappearance at its far detector. NOvA has embraced a wide range of deep learning methods. Here we will focus on energy regression CNNs. NOvA has developed a regression CNN that takes the raw cells from the detector as inputs, and outputs an estimate of the electron neutrino event energy. The resolution of this CNN outperforms that of the traditional method, and also has improved systematic uncertainty. NOvA is also experimenting with regression CNNs for other energy estimation tasks.

**Primary author:**   JARGOWSKY, Ben (University of California, Irvine)

**Presenter:**   JARGOWSKY, Ben (University of California, Irvine)

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