

New Paired Data Training

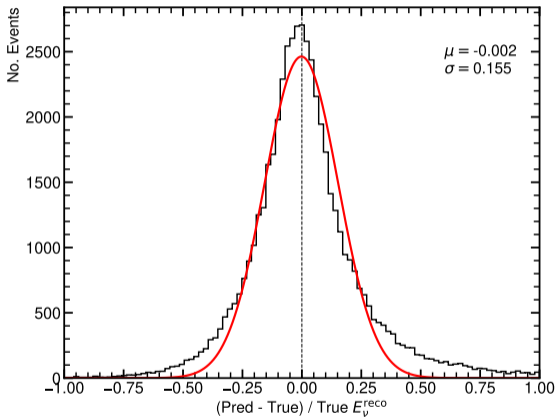
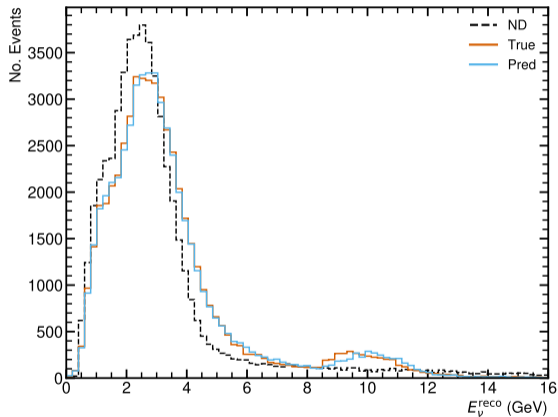
Alex Wilkinson

01 November 2024

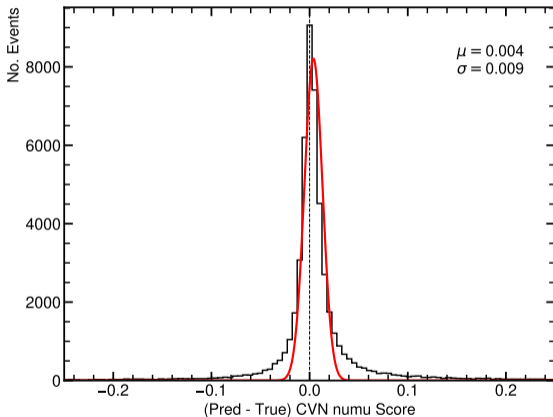
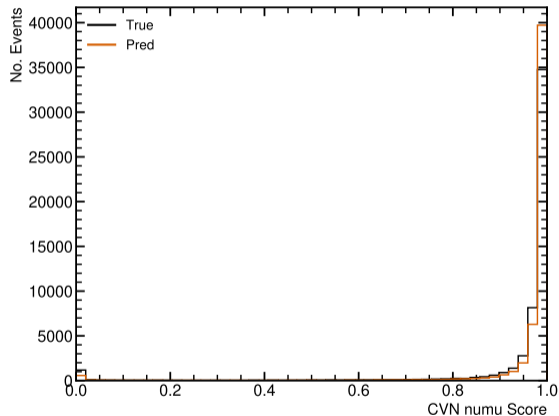
- ▶ Training with Colin's new paired dataset where the muon is resimulated
- ▶ Using the model developed by Radi
(<https://github.com/radiradev/dune-near-to-far>)
- ▶ Training using paired data where the ND event passes the PRISM selection cuts
→ $\sim 120\text{k}$ after selection from ~ 1.1 million before

- ▶ Remove eRecoN from inputs
- ▶ Predicting all four CVN scores (numu, nue, nc, nutau)
- ▶ Number of Gaussians in mixture increased to 56
- ▶ Train for longer, 3 \rightarrow 8 epochs

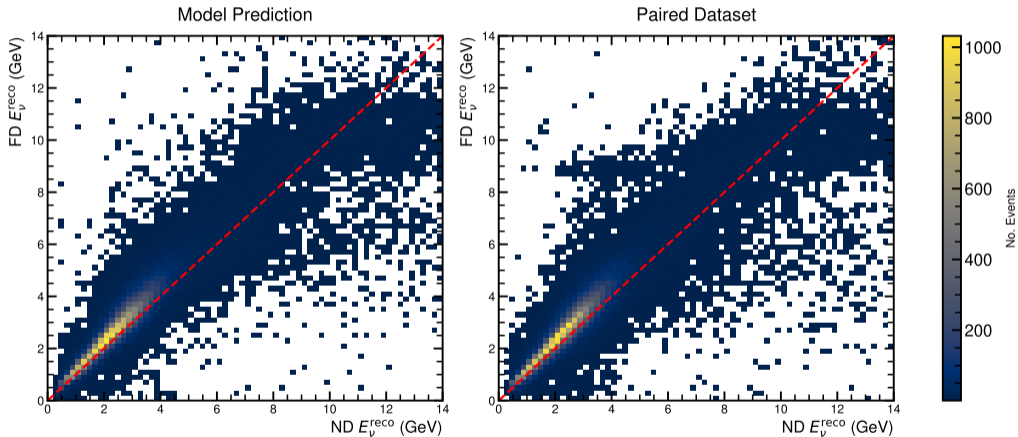
FD Neutrino Energy



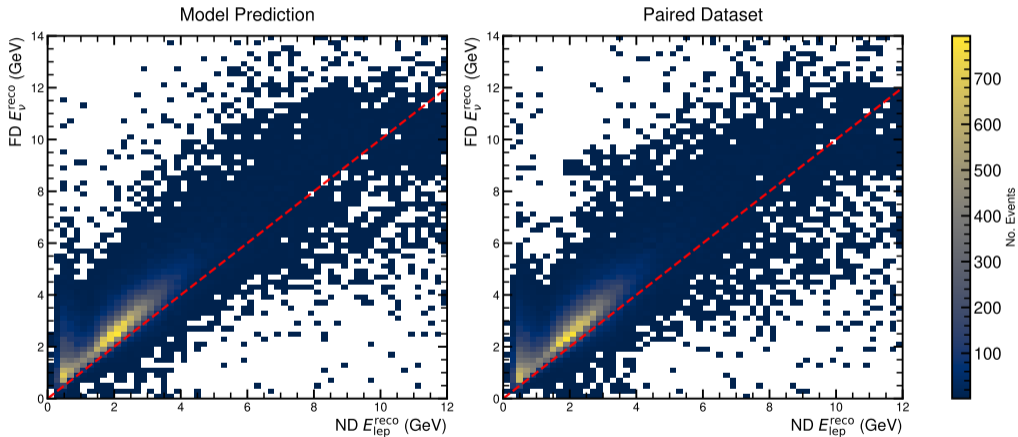
CVN numu Score



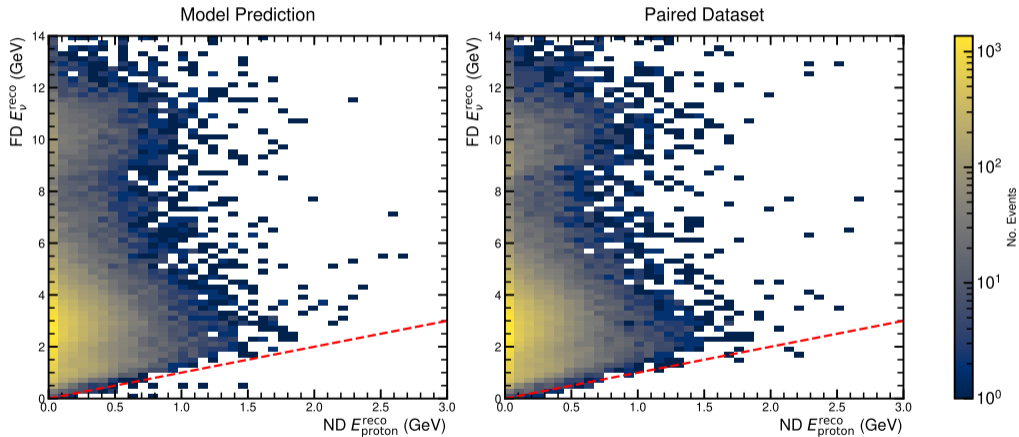
FD Nu Energy - ND Nu Energy



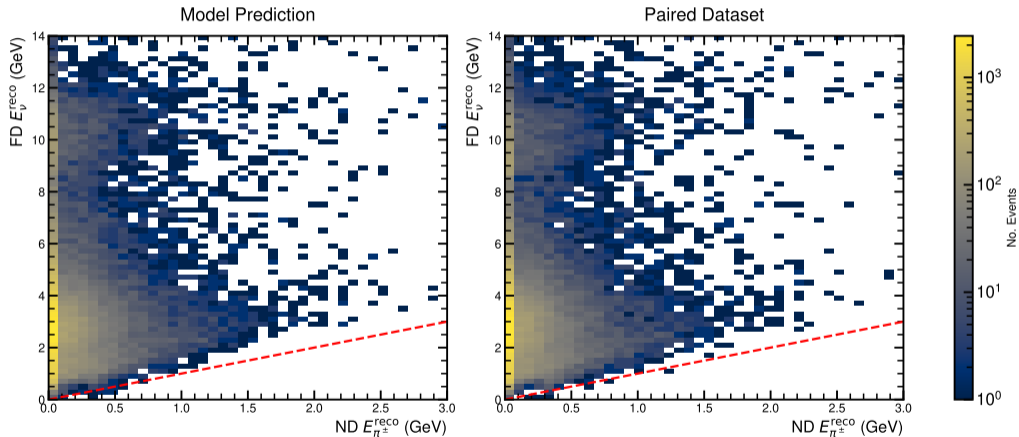
FD Nu Energy - ND Lepton Energy



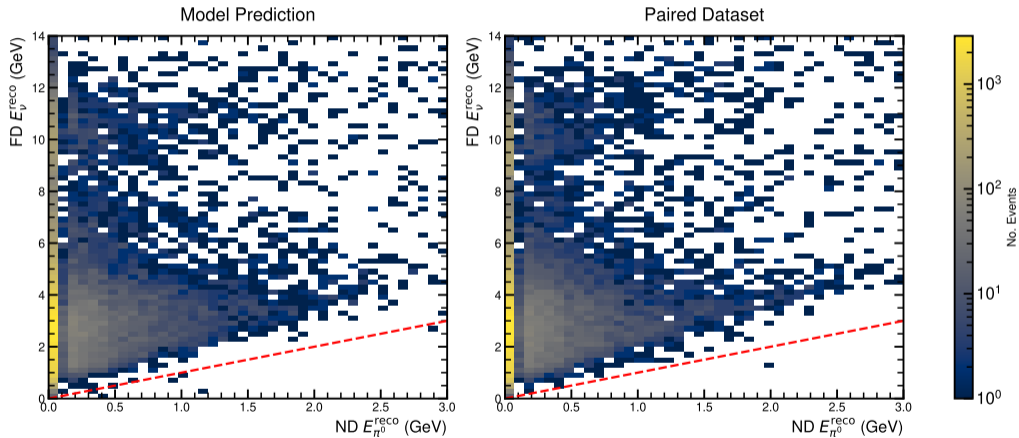
FD Nu Energy - ND Proton Energy



FD Nu Energy - ND π^\pm Energy

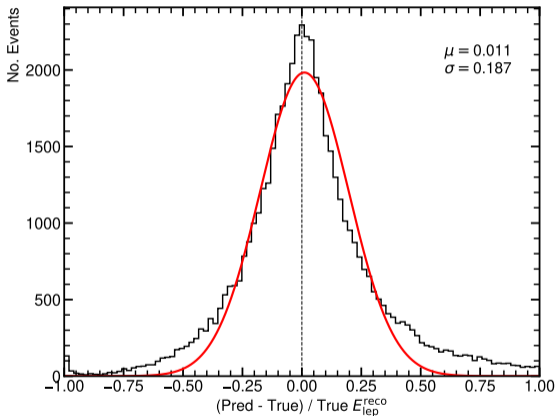
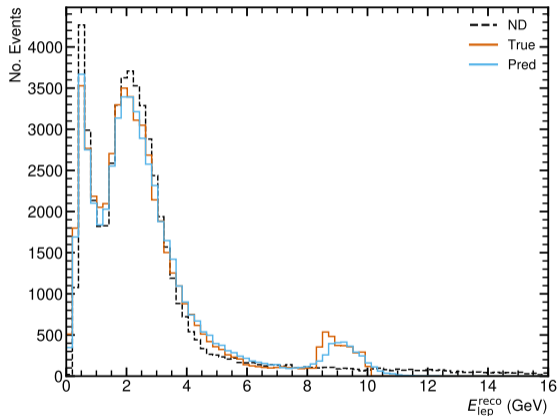


FD Nu Energy - ND π^0 Energy



Backup

FD Lepton Energy



FD Hadron Energy

