

”Freight Train” production model on the NOvA experiment and NOvA efforts at Argonne Leadership Computing Facility

A large obstacle for any experiment is how to store, move, and process a large amount of data effectively. On the NuMI Off-axis ν_e Appearance (NO ν A) experiment this is a rather substantial obstacle. The traditional method of grabbing a file is by categorizing all the files we care about by event-type and then going through each tape and gathering all files of that type. This is not ideal as it leads to multiple readings of the same tape. The Freight Train model of production at NO ν A aims to address this inefficiency. Additionally, NO ν A has implemented a scheme to run a pre-reconstruction filter (neural network-based) to remove the most obvious cosmic rays from our large recorded cosmic ray sample to reduce processing needs. This step is processed at the Argonne Leadership Computing Facility (ALCF), leveraging the additional GPU resources offered by the Theta GPU system.

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