XXXI International Conference on Neutrino Physics and Astrophysics

Contribution ID: 110

Type: Poster

# Unbinned unfolding method with machine learning

Friday, 21 June 2024 17:30 (2 hours)

The choice of unfolding method for a cross-section measurement is tightly coupled to the model dependence of the efficiency correction and the overall impact of cross-section modeling uncertainties in the analysis. A key issue is the dimensionality used, as the kinematics of all outgoing particles in an event typically affects the reconstruction performance in a neutrino detector. OmniFold is an unfolding method that iteratively reweights a simulated dataset using machine learning to utilize arbitrarily high-dimensional information that has previously been applied to collider and cosmology datasets. Here, we demonstrate its use for neutrino physics using a public T2K near detector simulated dataset, and show its performance is comparable to or better than traditional approaches using a series of mock data sets.

### **Poster prize**

Yes

#### Given name

Masaki

#### Surname

Kawaue

### **First affiliation**

Kyoto university

### Second affiliation

### Institutional email

kawaue.masaki.25r@st.kyoto-u.ac.jp

## Gender

Male

# **Collaboration (if any)**

T2K

Primary author: KAWAUE, Masaki (Kyoto U)Presenter: KAWAUE, Masaki (Kyoto U)Session Classification: Poster session and reception 2

Track Classification: Neutrino interactions