Contribution ID: **55**   Type: **not specified**

Applying Deep Learning Techniques for LArTPC Data Reconstruction

Saturday, 1 December 2018 10:45 (15 minutes)

Deep Learning is making revolutionary advancements in the field of artificial intelligence and computer vision (CV). Recently successful applications of Convolutional Neural Networks (CNNs), a type of Deep Learning (DL) algorithm, include analyzing data recorded by liquid argon time projection chambers (LArTPCs), a class of particle imaging detectors that can record the trajectory of charged particles in either 2D image or 3D volumetric data. These algorithms aim to fully exploit the detailed topological and calorimetric information recorded by LArTPCs with breathtaking resolution (~3mm/pixel). Our research focus is to build a full chain of DL-based data reconstruction algorithms for LArTPC data. The applications of our algorithm include interaction vertex localization, electromagnetic shower particle identification at the pixel-level, and clustering of energy depositions. I present recent progress made on our research for reconstructing 2D and 3D LArTPC data.

Session

Works in Progress (15+5 min)

Primary authors: DOMINE, Laura (Stanford University/SLAC);   TERAO, Kazuhiro (SLAC)

Presenter: DOMINE, Laura (Stanford University/SLAC)

Session Classification: Works in Progress