

Collaborative Development of Deep Neural Networks for Particle Imaging Detectors

High resolution particle imaging detectors such as Time Projection Chambers (TPCs) are recently employed in many experiments to study the fine details of particle interactions. While much progress is made in the hardware R&D to construct a large scale TPCs, there remains much challenge to efficiently analyze highly detailed particle images and extract physics out. We formed a cross-experimental collaboration, DeepLearnPhysics (DLP) group, to co-develop software tools and algorithms to attack this common challenge. The DLP group consists of physicists from Short Baseline Neutrino (SBN) program, DUNE, NEXT and nEXO experiments, and shares software development effort and holds hands-on deep learning (DL) workshops for helping physicists to learn modern computer vision algorithms. In this poster we present our DL techniques R&D effort by physicists across many experiments and outreach activities to raise machine learning expertise in our community.

Authorship annotation

for the DeepLearnPhysics collaboration

Session and Location

Monday Session, Poster Wall #117 (Auditorium Gallery Left)

Poster included in proceedings:

yes

Primary author: Dr TERA0, KAZUHIRO (SLAC National Accelerator Laboratory)

Co-authors: Dr ADAMS, Corey Adams (Harvard University); Ms DOMINE, Laura (Stanford University/SLAC); SHARANKOVA, Ralitsa (Tufts University)

Presenter: Dr TERA0, KAZUHIRO (SLAC National Accelerator Laboratory)

Track Classification: Poster (not participating in poster prize competition)