

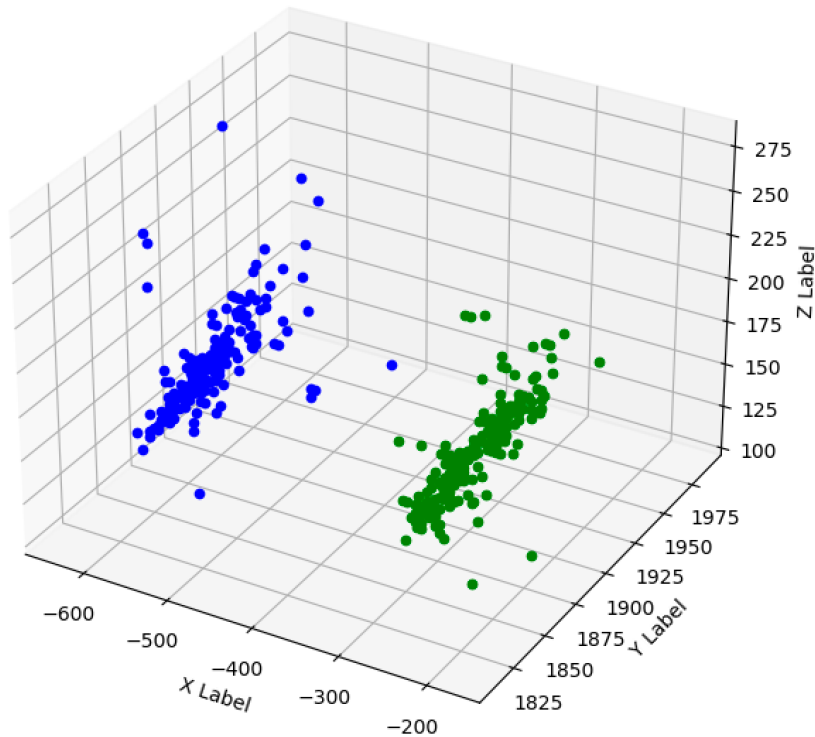
Physics Software 1/11

Shusaku Tsumura

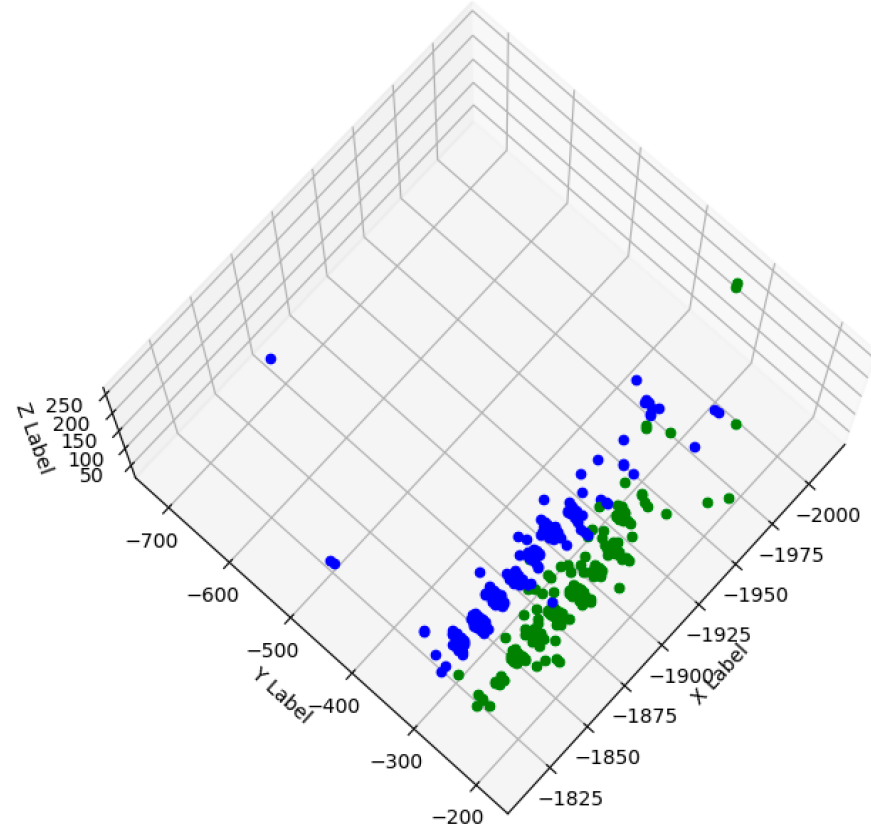
Display of Double Particle

- Two gamma rays are injected (in 5 cases of different angles)

The easiest case :



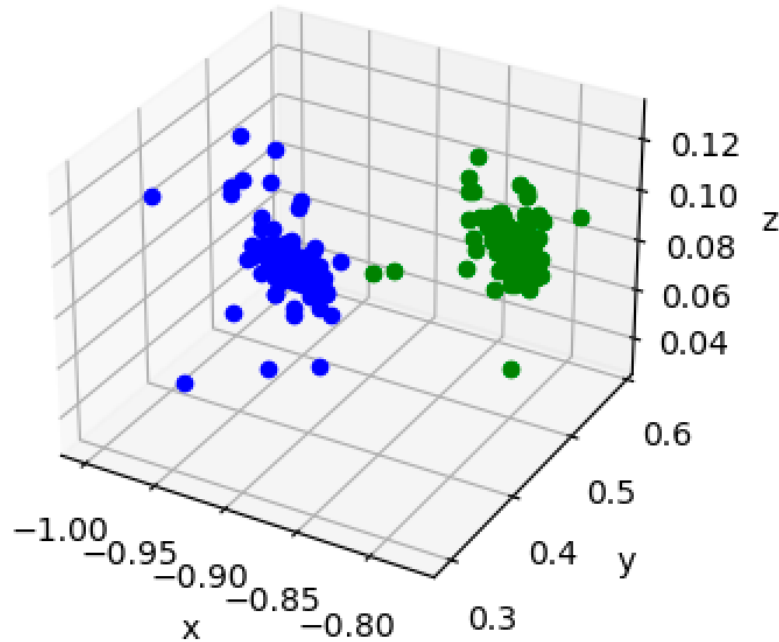
The most difficult case :



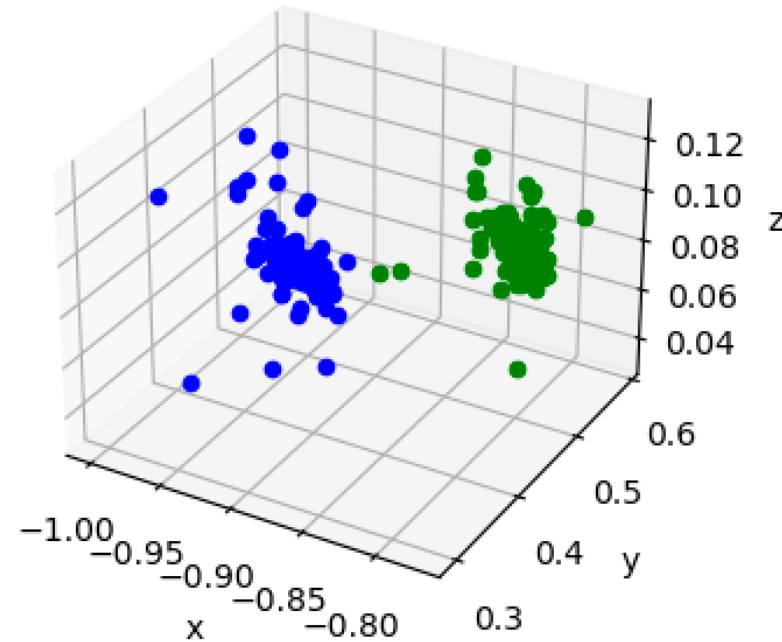
Comparison between prediction and true label

Good example :

predicted label

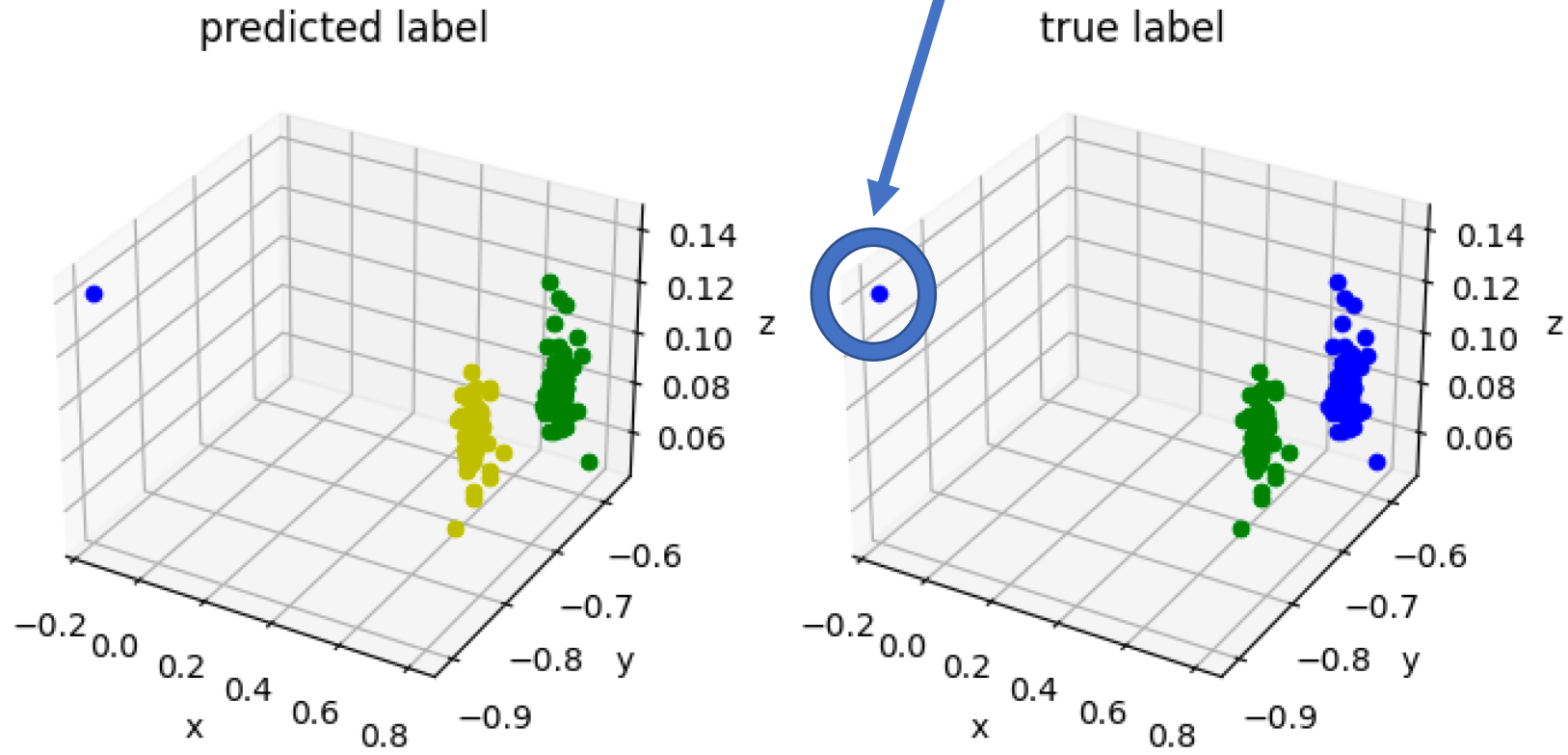


true label



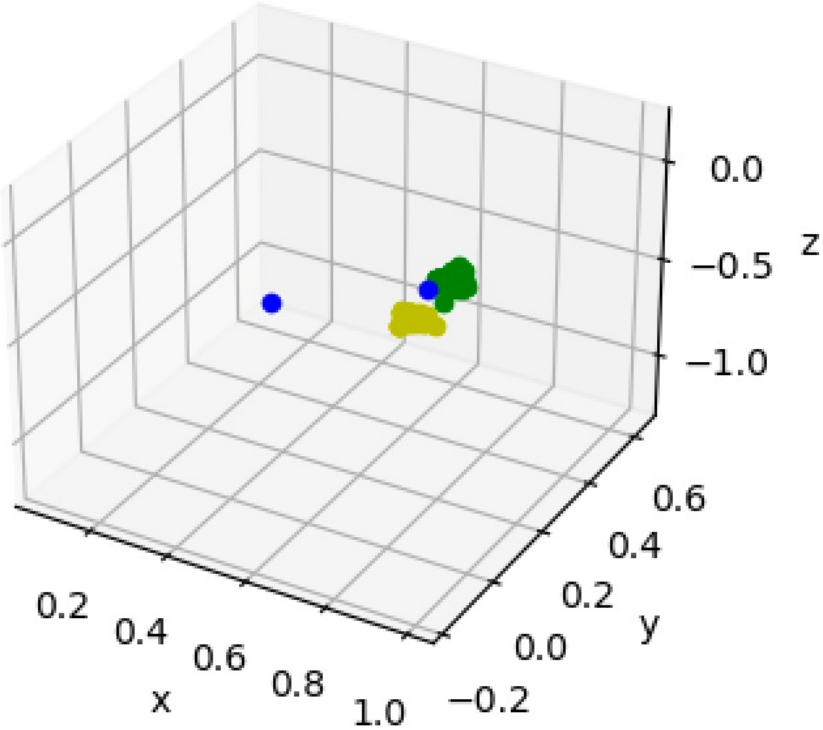
Comparison between prediction and true label

The case in which there is a distant hit

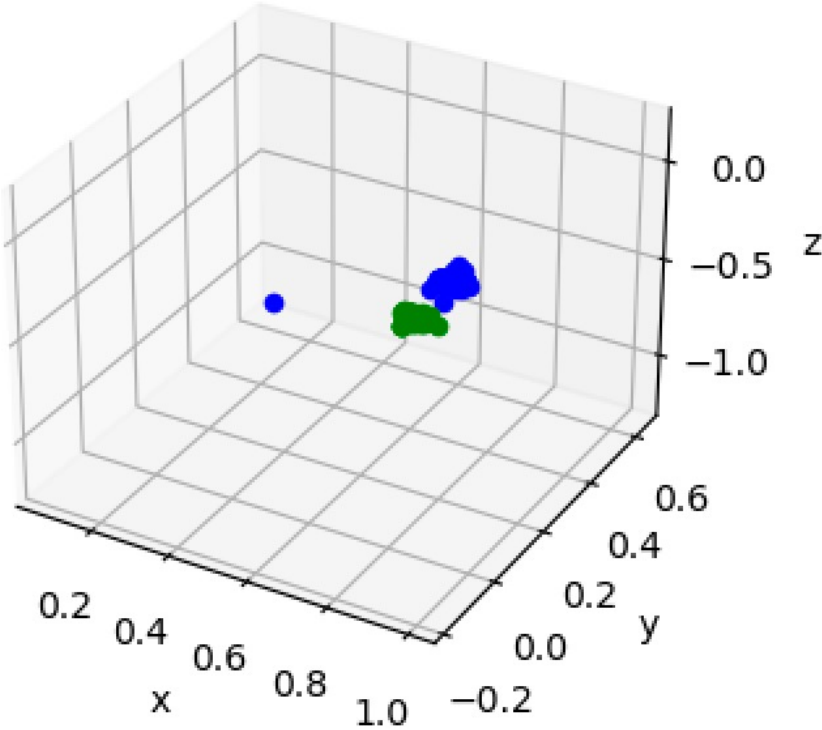


Comparison between prediction and true label

predicted label

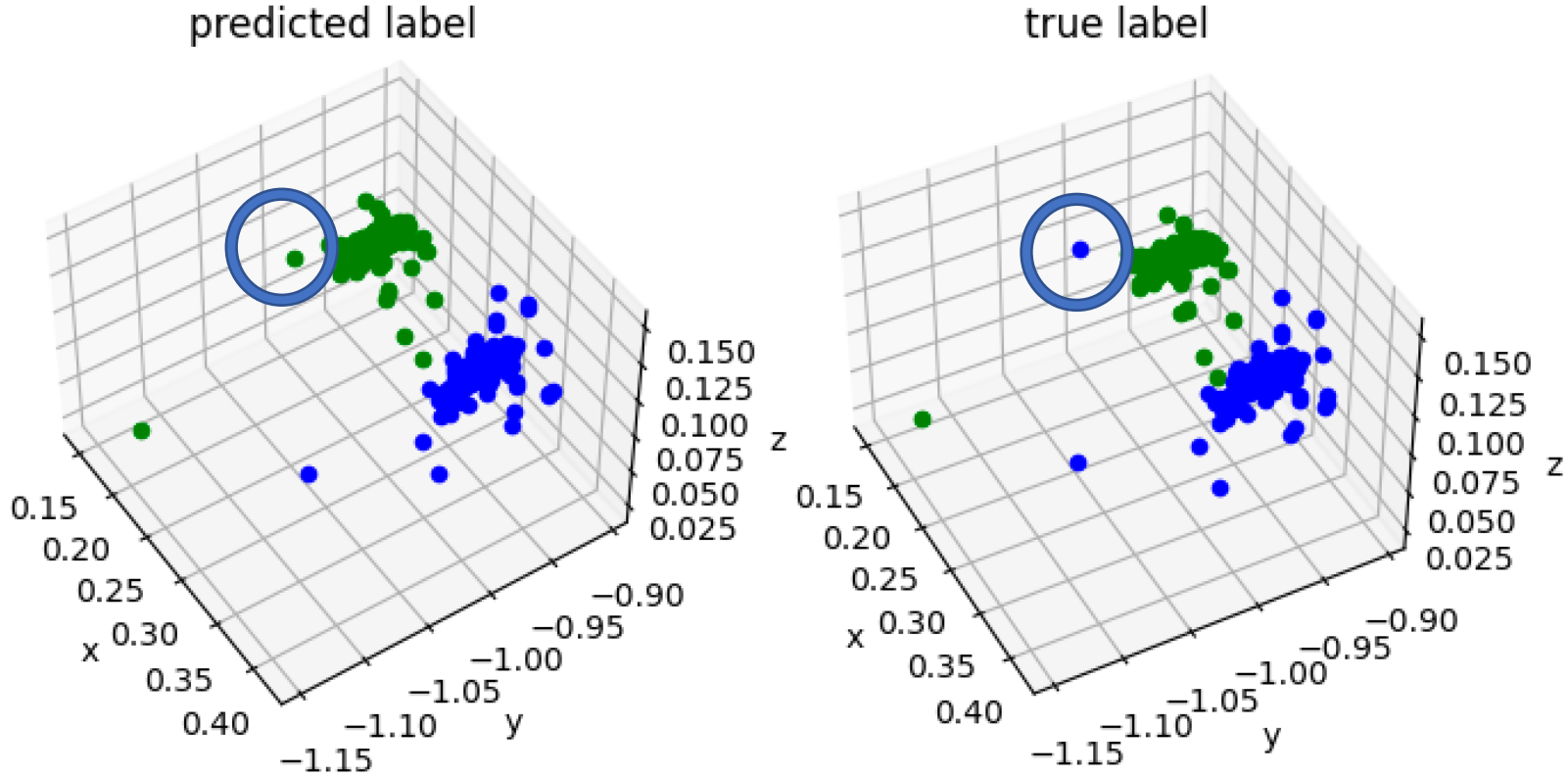


true label



Comparison between prediction and true label

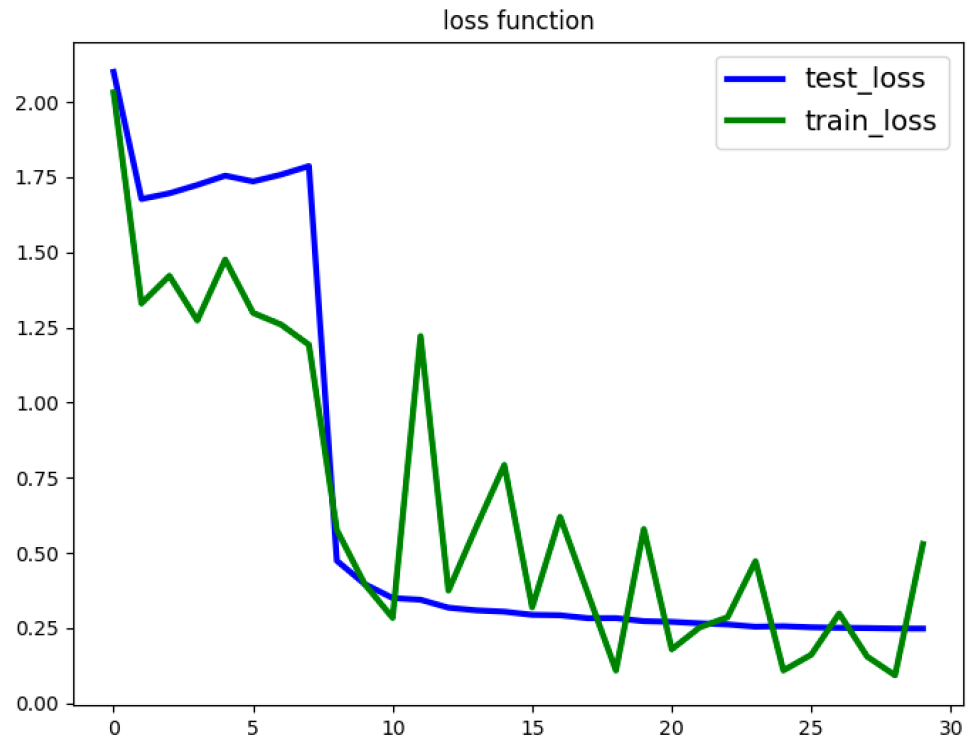
Confusion example :



backup

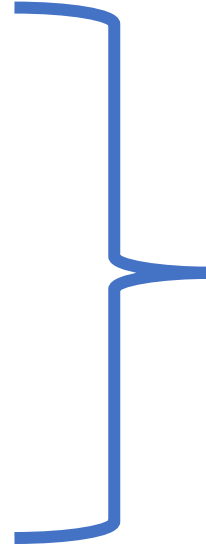
Learning

- The easiest case :



GravNet

- kekcc : 1 hour
lcio_particle_gun.py 1000 events *100 → bsub 100 times
(Generation of double particles)
ddsim 100 files
Marlin 100 files
(Reconstruction)
LCIO files → npz files(100000 files) : 20 min /1000 files
(Conversion of files)
- kekcc → bepp 100000 files 2h → shorten to about 30 min
- Bepp
GravNet training 23 min /4 batch • 1 epoch
12 min /10 batch • 1 epoch → 30 epoch 5h
→ 6 min / 100 batch • 1 epoch



~30 GB
in total