Weekly report

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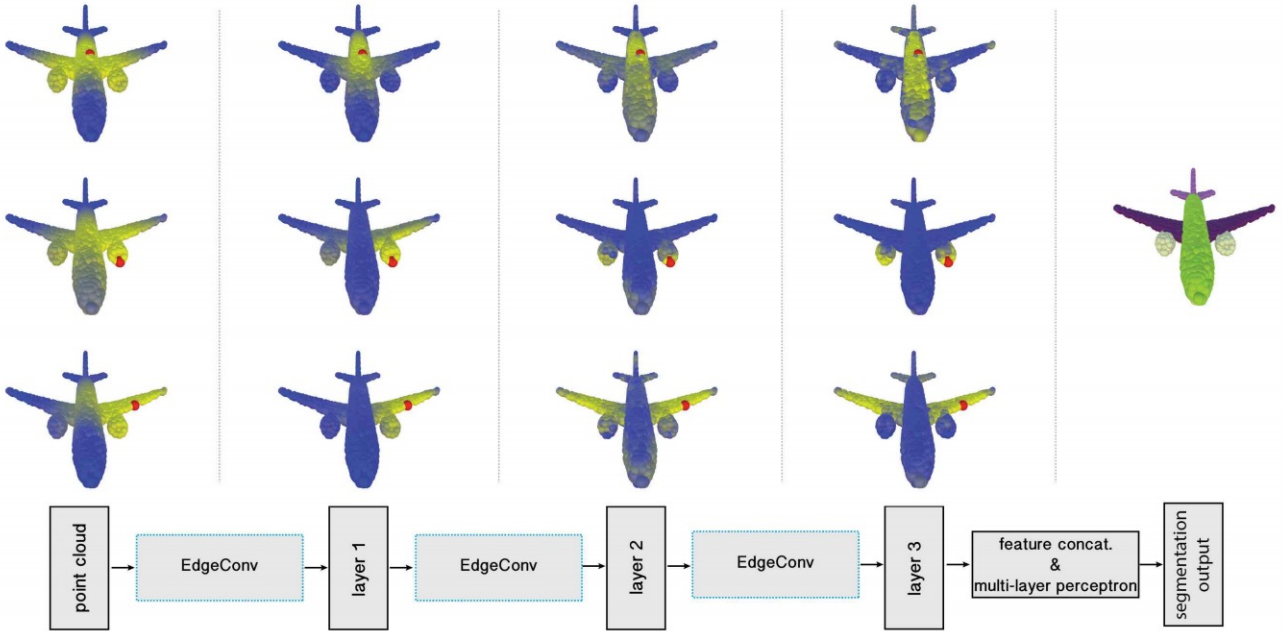
Working status

- **Calorimeter clustering with DGCNN**
  - Input: point cloud (x, y, z) and the truth label (wings, body, engine, tail).
  - Result: predict the classes of points -> clustering.
  - Checked the model and tried with the tutorial.

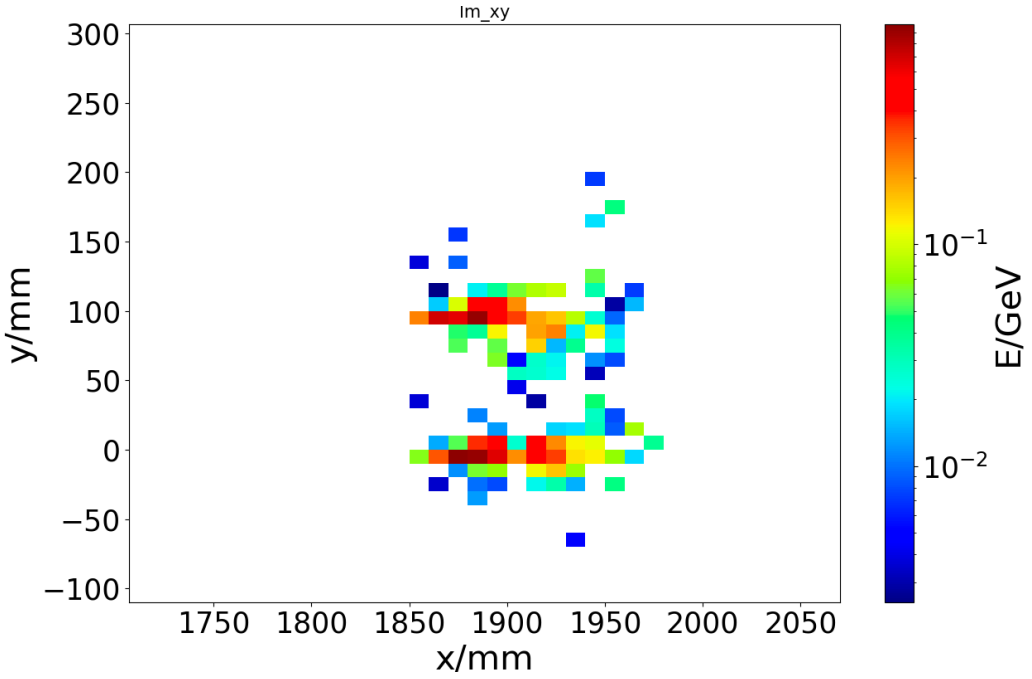


Trained from myself with [dgcnn.pytorch]

Working status

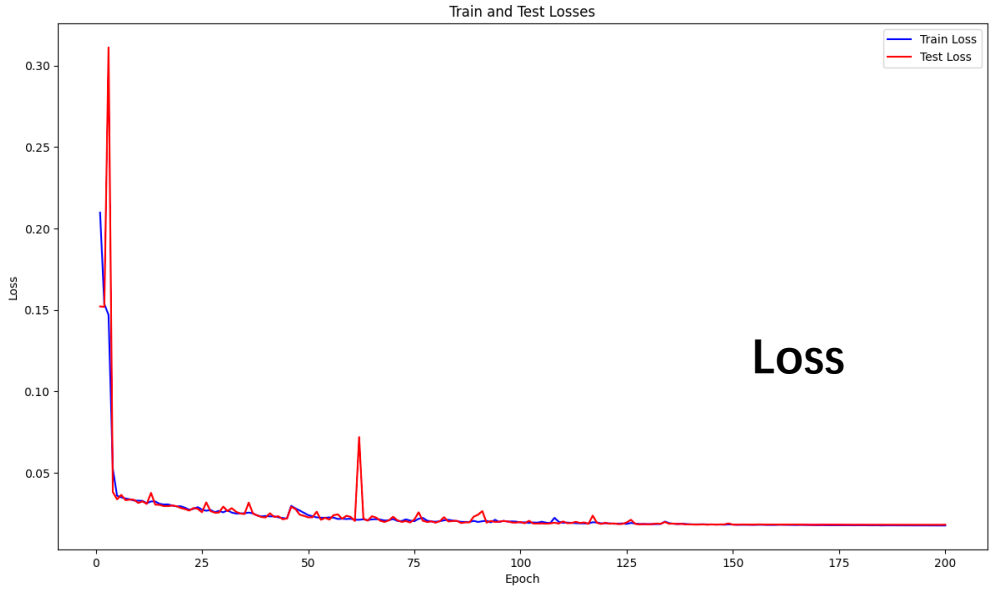
- **Try with CEPC simulation:**
  - CEPC_v4 Si-W ECAL and RPC HCAL, high granularity hits, cell size $1\times1\times1\ cm^3$.
  - ParticleGun events with 2 nearby photons at the beginning.

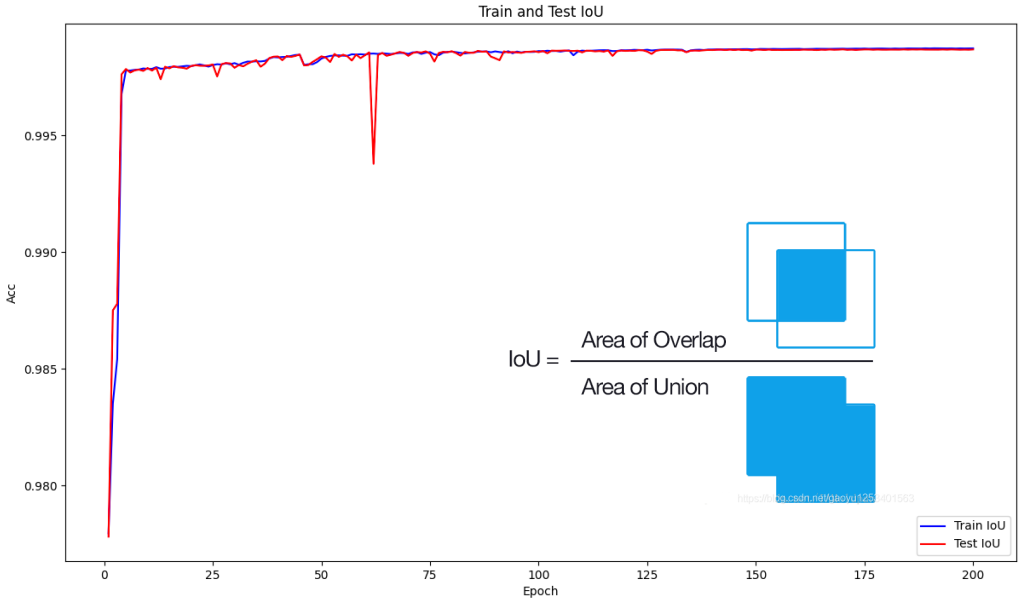
```
gun = GtGunTool("GtGunTool")
gun.Particles = ["gamma", "gamma"]
gun.EnergyMins = [3, 3]
gun.EnergyMaxs = [7, 7]
gun.ThetaMins = [88, 90]
gun.ThetaMaxs = [90, 92]
gun.PhiMins = [0., 0.]
gun.PhiMaxs = [3., 3.]
```



Working status

- **Try with CEPC simulation**
  - CEPC_v4 Si-W ECAL and RPC HCAL, high granularity hits, cell size $1\times1\times1\ cm^3$.
  - 6k events for training, 2k for test, 200 epochs. Run with 4 GPU cores and 2 CPU cores.





  - Model evaluate after training & testing:
    - Test :: test acc: 0.993378, test avg acc: 0.983487, test iou: 0.998689