Cannot import torchlars

Cannot load RSCNN: No module named 'pointnet2\_ops'

Cannot load PCT: No module named 'pointnet2\_ops'

Cannot load PointMLP: No module named 'pointnet2\_ops'

Cannot load PointNet2: No module named 'pointnet2\_ops'

out-of-distribution eval - Modelnet -> SONN ..

Arguments: Namespace(local\_rank=None, use\_sync\_bn=False, use\_amp=False, script\_mode='eval', config='cfgs/pn2-msg.yaml', seed=1, epochs=250, batch\_size=1, num\_workers=4, resume=None, apply\_fix\_cellphone=True, data\_root='./3D\_OS\_release\_data', checkpoints\_dir='outputs', exp\_name='PN++\_CE\_SR2', eval\_step=1, save\_step=10, ckpt\_path='/content/drive/MyDrive/Colab\_Notebook\_Giovanni/PN++\_CE\_SR2/models/model\_last.pth', src='SR2', sonn\_split='main\_split', sonn\_h5\_name='objectdataset.h5', augm\_set='rw', grad\_norm\_clip=-1, num\_points=1024, num\_points\_test=2048, wandb\_name=None, wandb\_group='md-2-sonn-augmCorr', wandb\_proj='benchmark-3d-ood-cla', loss='CE', cs=False, cs\_gan\_lr=0.0002, cs\_beta=0.1, save\_feats=None, corruption=None, tar1='none', tar2='none')

ModelNet40\_OOD - Reading data from h5py file: ./3D\_OS\_release\_data/modelnet40\_normal\_resampled/ood\_sets\_cache/SR2\_train.h5

ModelNet40\_OOD - split: train, categories: {'bed': 0, 'toilet': 1, 'desk': 2, 'monitor': 3, 'table': 2}

SR2 train data len: 1916

ModelNet40\_OOD - Reading data from h5py file: ./3D\_OS\_release\_data/modelnet40\_normal\_resampled/ood\_sets\_cache/SR2\_test.h5

ModelNet40\_OOD - split: test, categories: {'bed': 0, 'toilet': 1, 'desk': 2, 'monitor': 3, 'table': 2}

/usr/local/lib/python3.10/dist-packages/torch/utils/data/dataloader.py:557: UserWarning: This DataLoader will create 4 worker processes in total. Our suggested max number of worker in current system is 2, which is smaller than what this DataLoader is going to create. Please be aware that excessive worker creation might get DataLoader running slow or even freeze, lower the worker number to avoid potential slowness/freeze if necessary.

warnings.warn(\_create\_warning\_msg(

Src is SR2

ScanObject - num\_points: 2048, sonn\_split: main\_split, h5\_suffix: objectdataset.h5, split: all, class\_choice: {10: 0, 14: 1, 5: 2, 6: 3, 9: 2}, num samples: 788

ScanObject - num\_points: 2048, sonn\_split: main\_split, h5\_suffix: objectdataset.h5, split: all, class\_choice: {4: 0, 8: 1, 7: 2, 12: 3, 13: 4}, num samples: 1255

ScanObject - num\_points: 2048, sonn\_split: main\_split, h5\_suffix: objectdataset.h5, split: all, class\_choice: {0: 404, 1: 404, 2: 404, 3: 404, 11: 404}, num samples: 847

Clf - feature encoder: pn2-msg

Clf Head - num classes: 4, input dim: 1024, act: relu, dropout: 0.5

Model params count: 1.7373 M

Load weights: <All keys matched successfully>

100% 788/788 [02:42<00:00, 4.85it/s]

100% 1255/1255 [04:18<00:00, 4.85it/s]

100% 847/847 [02:55<00:00, 4.82it/s]

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Computing OOD metrics with MSP normality score...

AUROC - Src label: 1, Tar label: 0

Src Test - Clf Acc: 0.8274111675126904, Clf Bal Acc: 0.8276143373064273

SRC->TAR1: AUROC: 0.7103, FPR95: 0.8757, AUPR\_IN: 0.6333, AUPR\_OUT: 0.7561

SRC->TAR2: AUROC: 0.7158, FPR95: 0.8843, AUPR\_IN: 0.7216, AUPR\_OUT: 0.6788

SRC->TAR1+TAR2: AUROC: 0.7125, FPR95: 0.8792, AUPR\_IN: 0.5271, AUPR\_OUT: 0.8383

to spreadsheet: 0.7103267134507654,0.8756972111553785,0.633307565456668,0.7561292243720812,0.7158214420558675,0.8842975206611571,0.721616939934529,0.6787738402658601,0.7125408119895483,0.879162702188392,0.5271388482358629,0.8383425482931792

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Computing OOD metrics with MLS normality score...

AUROC - Src label: 1, Tar label: 0

Src Test - Clf Acc: 0.8274111675126904, Clf Bal Acc: 0.8276143373064273

SRC->TAR1: AUROC: 0.7106, FPR95: 0.8797, AUPR\_IN: 0.6227, AUPR\_OUT: 0.7665

SRC->TAR2: AUROC: 0.6944, FPR95: 0.9126, AUPR\_IN: 0.6927, AUPR\_OUT: 0.6627

SRC->TAR1+TAR2: AUROC: 0.7041, FPR95: 0.8930, AUPR\_IN: 0.5029, AUPR\_OUT: 0.8388

to spreadsheet: 0.7106123728436509,0.8796812749003984,0.6226759489149332,0.7664814678792524,0.6943542152356181,0.9126328217237308,0.6926633633545113,0.6627340930348296,0.7040611551966462,0.8929590865842055,0.5029063145309158,0.8387902443652389

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Computing OOD metrics with entropy normality score...

AUROC - Src label: 1, Tar label: 0

Src Test - Clf Acc: 0.8274111675126904, Clf Bal Acc: 0.8276143373064273

SRC->TAR1: AUROC: 0.7134, FPR95: 0.8781, AUPR\_IN: 0.6344, AUPR\_OUT: 0.7665

SRC->TAR2: AUROC: 0.7167, FPR95: 0.8926, AUPR\_IN: 0.7220, AUPR\_OUT: 0.6857

SRC->TAR1+TAR2: AUROC: 0.7147, FPR95: 0.8839, AUPR\_IN: 0.5279, AUPR\_OUT: 0.8442

to spreadsheet: 0.7133971727303982,0.8780876494023905,0.6343968341027498,0.7665132379320152,0.7166949340461108,0.8925619834710744,0.7220446042989459,0.6857128674477235,0.7147260042405831,0.8839200761179828,0.5278952627936299,0.8442376049946412

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Computing OOD metrics with distance from train features...

0% 0/1916 [00:00<?, ?it/s]/usr/local/lib/python3.10/dist-packages/torch/utils/data/dataloader.py:557: UserWarning: This DataLoader will create 4 worker processes in total. Our suggested max number of worker in current system is 2, which is smaller than what this DataLoader is going to create. Please be aware that excessive worker creation might get DataLoader running slow or even freeze, lower the worker number to avoid potential slowness/freeze if necessary.

warnings.warn(\_create\_warning\_msg(

100% 1916/1916 [06:48<00:00, 4.69it/s]

100% 788/788 [02:49<00:00, 4.64it/s]

100% 1255/1255 [04:31<00:00, 4.63it/s]

100% 847/847 [03:04<00:00, 4.59it/s]

Euclidean distances in a non-normalized space:

AUROC - Src label: 1, Tar label: 0

Src Test - Clf Acc: 0.8312182741116751, Clf Bal Acc: 0.8223141496891665

SRC->TAR1: AUROC: 0.7670, FPR95: 0.7825, AUPR\_IN: 0.6820, AUPR\_OUT: 0.8176

SRC->TAR2: AUROC: 0.7659, FPR95: 0.7839, AUPR\_IN: 0.7295, AUPR\_OUT: 0.7555

SRC->TAR1+TAR2: AUROC: 0.7666, FPR95: 0.7831, AUPR\_IN: 0.5534, AUPR\_OUT: 0.8812

to spreadsheet: 0.7670020425910571,0.7824701195219124,0.6819725260222861,0.8175771955404096,0.7659475964736694,0.7839433293978748,0.7294586095572989,0.7554777201553093,0.7665771539795313,0.7830637488106565,0.5533550830209654,0.8812006977349655

Euclidean distances with prototypes:

AUROC - Src label: 1, Tar label: 0

Src Test - Clf Acc: 0.1713197969543147, Clf Bal Acc: 0.25

SRC->TAR1: AUROC: 0.7493, FPR95: 0.8327, AUPR\_IN: 0.6869, AUPR\_OUT: 0.7979

SRC->TAR2: AUROC: 0.7300, FPR95: 0.8701, AUPR\_IN: 0.7451, AUPR\_OUT: 0.6932

SRC->TAR1+TAR2: AUROC: 0.7415, FPR95: 0.8478, AUPR\_IN: 0.5805, AUPR\_OUT: 0.8601

to spreadsheet: 0.7492507128845026,0.8326693227091634,0.6868600047230435,0.7978868470080802,0.7299606254382442,0.8701298701298701,0.7450730357113726,0.6931561324013746,0.7414777804073471,0.8477640342530923,0.5805299009905338,0.8600666014848025

Cosine similarities on the hypersphere:

AUROC - Src label: 1, Tar label: 0

Src Test - Clf Acc: 0.8401015228426396, Clf Bal Acc: 0.8347786811201445

SRC->TAR1: AUROC: 0.7534, FPR95: 0.8510, AUPR\_IN: 0.6864, AUPR\_OUT: 0.7892

SRC->TAR2: AUROC: 0.7474, FPR95: 0.8689, AUPR\_IN: 0.7300, AUPR\_OUT: 0.7141

SRC->TAR1+TAR2: AUROC: 0.7510, FPR95: 0.8582, AUPR\_IN: 0.5627, AUPR\_OUT: 0.8610

to spreadsheet: 0.7534011163467955,0.850996015936255,0.6864059026666336,0.7892495759855196,0.7474349600560952,0.8689492325855962,0.7299778674015289,0.7141252780511187,0.7509970562239492,0.8582302568981922,0.5626519623723004,0.8609760757333367

Cosine similarities with prototypes:

AUROC - Src label: 1, Tar label: 0

Src Test - Clf Acc: 0.1713197969543147, Clf Bal Acc: 0.25

SRC->TAR1: AUROC: 0.7221, FPR95: 0.9060, AUPR\_IN: 0.6542, AUPR\_OUT: 0.7600

SRC->TAR2: AUROC: 0.7247, FPR95: 0.9233, AUPR\_IN: 0.7235, AUPR\_OUT: 0.6803

SRC->TAR1+TAR2: AUROC: 0.7232, FPR95: 0.9129, AUPR\_IN: 0.5414, AUPR\_OUT: 0.8403

to spreadsheet: 0.7220943636621029,0.9059760956175299,0.6541863017317543,0.7599565917352082,0.7247249174452681,0.9232585596221959,0.7235291047554677,0.6803025446622185,0.7231543441827217,0.9129400570884871,0.5414232735675925,0.8403337060326946

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Computing OOD metrics with ODIN normality score...

0% 0/788 [00:00<?, ?it/s]/usr/local/lib/python3.10/dist-packages/torch/utils/data/dataloader.py:557: UserWarning: This DataLoader will create 4 worker processes in total. Our suggested max number of worker in current system is 2, which is smaller than what this DataLoader is going to create. Please be aware that excessive worker creation might get DataLoader running slow or even freeze, lower the worker number to avoid potential slowness/freeze if necessary.

warnings.warn(\_create\_warning\_msg(

100% 788/788 [06:36<00:00, 1.99it/s]

100% 1255/1255 [10:30<00:00, 1.99it/s]

100% 847/847 [07:09<00:00, 1.97it/s]

AUROC - Src label: 1, Tar label: 0

SRC->TAR1: AUROC: 0.7220, FPR95: 0.8303, AUPR\_IN: 0.6321, AUPR\_OUT: 0.7807

SRC->TAR2: AUROC: 0.7071, FPR95: 0.8619, AUPR\_IN: 0.7049, AUPR\_OUT: 0.6850

SRC->TAR1+TAR2: AUROC: 0.7160, FPR95: 0.8430, AUPR\_IN: 0.5151, AUPR\_OUT: 0.8499

to spreadsheet: 0.7219558314963498,0.8302788844621514,0.6321309167364833,0.7806887582967139,0.7070662954949987,0.8618654073199528,0.7049467088707613,0.685034335190248,0.7159560993397635,0.8430066603235015,0.5150988238726402,0.8499271094017417

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Computing OOD metrics with Energy normality score...

0% 0/788 [00:00<?, ?it/s]/usr/local/lib/python3.10/dist-packages/torch/utils/data/dataloader.py:557: UserWarning: This DataLoader will create 4 worker processes in total. Our suggested max number of worker in current system is 2, which is smaller than what this DataLoader is going to create. Please be aware that excessive worker creation might get DataLoader running slow or even freeze, lower the worker number to avoid potential slowness/freeze if necessary.

warnings.warn(\_create\_warning\_msg(

100% 788/788 [03:00<00:00, 4.36it/s]

100% 1255/1255 [04:50<00:00, 4.32it/s]

100% 847/847 [03:14<00:00, 4.36it/s]

AUROC - Src label: 1, Tar label: 0

SRC->TAR1: AUROC: 0.7115, FPR95: 0.8606, AUPR\_IN: 0.6229, AUPR\_OUT: 0.7678

SRC->TAR2: AUROC: 0.6916, FPR95: 0.8902, AUPR\_IN: 0.6859, AUPR\_OUT: 0.6614

SRC->TAR1+TAR2: AUROC: 0.7035, FPR95: 0.8725, AUPR\_IN: 0.4985, AUPR\_OUT: 0.8390

to spreadsheet: 0.7114759237163022,0.8605577689243028,0.6229095717626043,0.7678479534320749,0.691588406978347,0.8902007083825265,0.685914780735023,0.6613577023056136,0.7034622573618551,0.8725023786869648,0.4984734536829483,0.8389843339035715

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Computing OOD metrics with GradNorm normality score...

0% 0/788 [00:00<?, ?it/s]/usr/local/lib/python3.10/dist-packages/torch/utils/data/dataloader.py:557: UserWarning: This DataLoader will create 4 worker processes in total. Our suggested max number of worker in current system is 2, which is smaller than what this DataLoader is going to create. Please be aware that excessive worker creation might get DataLoader running slow or even freeze, lower the worker number to avoid potential slowness/freeze if necessary.

warnings.warn(\_create\_warning\_msg(

100% 788/788 [03:15<00:00, 4.04it/s]

100% 1255/1255 [05:10<00:00, 4.04it/s]

100% 847/847 [03:30<00:00, 4.02it/s]

AUROC - Src label: 1, Tar label: 0

SRC->TAR1: AUROC: 0.7010, FPR95: 0.8470, AUPR\_IN: 0.6039, AUPR\_OUT: 0.7601

SRC->TAR2: AUROC: 0.6845, FPR95: 0.8843, AUPR\_IN: 0.6791, AUPR\_OUT: 0.6560

SRC->TAR1+TAR2: AUROC: 0.6943, FPR95: 0.8620, AUPR\_IN: 0.4810, AUPR\_OUT: 0.8341

to spreadsheet: 0.7009722531195017,0.847011952191235,0.6039107091408814,0.7600780053171605,0.6844881007317556,0.8842975206611571,0.6790658875581508,0.6559617899995055,0.6943299709727744,0.8620361560418649,0.48095092794594024,0.8341370637523784

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Building React validation loader...

ModelNet40\_OOD - Reading data from h5py file: ./3D\_OS\_release\_data/modelnet40\_normal\_resampled/ood\_sets\_cache/SR2\_test.h5

ModelNet40\_OOD - split: test, categories: {'bed': 0, 'toilet': 1, 'desk': 2, 'monitor': 3, 'table': 2}

React Val - SR2 data len: 486

/usr/local/lib/python3.10/dist-packages/torch/utils/data/dataloader.py:557: UserWarning: This DataLoader will create 4 worker processes in total. Our suggested max number of worker in current system is 2, which is smaller than what this DataLoader is going to create. Please be aware that excessive worker creation might get DataLoader running slow or even freeze, lower the worker number to avoid potential slowness/freeze if necessary.

warnings.warn(\_create\_warning\_msg(

100% 486/486 [01:51<00:00, 4.34it/s]

t = 1.6736

Computing OOD metrics with React (+Energy) normality score, ID-dependent threshold (=1.6736)...

React - using SR2 test to compute threshold

100% 788/788 [03:02<00:00, 4.33it/s]

100% 1255/1255 [04:48<00:00, 4.35it/s]

100% 847/847 [03:14<00:00, 4.36it/s]

AUROC - Src label: 1, Tar label: 0

SRC->TAR1: AUROC: 0.7101, FPR95: 0.8582, AUPR\_IN: 0.6368, AUPR\_OUT: 0.7655

SRC->TAR2: AUROC: 0.6898, FPR95: 0.9020, AUPR\_IN: 0.6976, AUPR\_OUT: 0.6582

SRC->TAR1+TAR2: AUROC: 0.7019, FPR95: 0.8758, AUPR\_IN: 0.5208, AUPR\_OUT: 0.8373

to spreadsheet: 0.710055210629563,0.8581673306772908,0.6368410948565535,0.7655041745475041,0.6897575198221253,0.9020070838252656,0.6975932169946878,0.6582192680169432,0.7018762648094394,0.8758325404376784,0.5207716287917055,0.8373388456018758

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