4_Model_Training

December 12, 2025

0.1 4. Model Training

GraphStorm allows you to train models using a YAML configuration file:

https://graphstorm.readthedocs.io/en/latest/cli/model-training-inference/configuration-run.html#model-training-and-inference-configurations

This allows you to define the configuration parameters, like the model_encoder_type, node_feat_name. GraphStorm also provides a set of parameters to control training hyper-parameters.

```
[1]: !cat ieee_nc_hgt.yaml
```

```
/bin/bash: switchml: line 1: syntax error: unexpected end of file
/bin/bash: error importing function definition for `switchml'
/bin/bash: module: line 1: syntax error: unexpected end of file
/bin/bash: error importing function definition for `module'
---
version: 1.0
gsf:
  basic:
    backend: gloo
    verbose: false
  gnn:
    model_encoder_type: rgcn
    fanout: "10, 10"
    num_layers: 2
    hidden_size: 128
    use_mini_batch_infer: true
    node_feat_name:
        - Address1:id_embeddings
        - Address2:id_embeddings
        - Card1:id_embeddings
        - Card2:id_embeddings
        - Card3:id_embeddings
        - Card4:id_embeddings
        - Card5:id_embeddings
        - Card6:id_embeddings
        - P_emaildomain:id_embeddings
        - ProductCD:id_embeddings
```

```
        - R_emaildomain:id_embeddings
        - Transaction:M1,M2,M3,M4,M5,M6,M7,M8,M9,C1,C2,C3,C4,C5,C6,C7,C8,C9,C10,
C11,C12,C13,C14,TransactionAmt
    input:
      restore_model_path: null
    output:
      save_model_path: null
      save_embed_path: null
    hyperparam:
      dropout: 0.2
      lr: 0.001
      lm_tune_lr: 0.0001
      num_epochs: 30
      batch_size: 1024
      wd_l2norm: 0
      no_validation: false
    rgcn:
      num_bases: -1
      use_self_loop: true
      sparse_optimizer_lr: 1e-2
      use_node_embeddings: false
    node_classification:
      target_ntype: "Transaction"
      label_field: "isFraud:Int"
      multilabel: false
      num_classes: 2
```

[1]:
```python
import sys

PYTHON = sys.executable
```

[ ]:
```
!pip install torch==2.3.0 --index-url https://download.pytorch.org/whl/cpu
!pip install dgl==2.3.0 -f https://data.dgl.ai/wheels/torch-2.3/repo.html
```

[ ]:
```
!pip install graphstorm
```

[ ]:
```
!pip install sentence_transformers
```

[4]:
```
!{PYTHON} -m graphstorm.run.gs_node_classification \
          --workspace ./ \
          --part-config ieee_gs/ieee-cis.json \
          --num-trainers 1 \
          --cf ieee_nc_hgt-Copy1.yaml \
          --eval-metric roc_auc \
          --save-model-path ./model-simple-hgt/ \
          --topk-model-to-save 1 \
          --num-epochs 30
```

```
/bin/bash: switchml: line 1: syntax error: unexpected end of file
/bin/bash: error importing function definition for `switchml'
/bin/bash: module: line 1: syntax error: unexpected end of file
/bin/bash: error importing function definition for `module'
/home/ec2-user/anaconda3/envs/python3/lib/python3.10/site-
packages/outdated/__init__.py:36: UserWarning: pkg_resources is deprecated as an
API. See https://setuptools.pypa.io/en/latest/pkg_resources.html. The
pkg_resources package is slated for removal as early as 2025-11-30. Refrain from
using this package or pin to Setuptools<81.
  from pkg_resources import parse_version
/bin/sh: switchml: line 1: syntax error: unexpected end of file
/bin/sh: error importing function definition for `switchml'
/bin/sh: module: line 1: syntax error: unexpected end of file
/bin/sh: error importing function definition for `module'
/bin/sh: switchml: line 1: syntax error: unexpected end of file
/bin/sh: error importing function definition for `switchml'
/bin/sh: module: line 1: syntax error: unexpected end of file
/bin/sh: error importing function definition for `module'
/home/ec2-user/anaconda3/envs/python3/lib/python3.10/site-
packages/torch/distributed/launch.py:183: FutureWarning: The module
torch.distributed.launch is deprecated
and will be removed in future. Use torchrun.
Note that --use-env is set by default in torchrun.
If your script expects `--local-rank` argument to be set, please
change it to read from `os.environ['LOCAL_RANK']` instead. See
https://pytorch.org/docs/stable/distributed.html#launch-utility for
further instructions

  warnings.warn(
/home/ec2-user/anaconda3/envs/python3/lib/python3.10/site-
packages/outdated/__init__.py:36: UserWarning: pkg_resources is deprecated as an
API. See https://setuptools.pypa.io/en/latest/pkg_resources.html. The
pkg_resources package is slated for removal as early as 2025-11-30. Refrain from
using this package or pin to Setuptools<81.
  from pkg_resources import parse_version
WARNING:root:Unknown arguments for command graphstorm.run.gs_node_classification
or graphstorm.run.gs_node_regression: []
INFO:root:Saved combined configuration to ./model-simple-
hgt/GRAPHSTORM_RUNTIME_UPDATED_TRAINING_CONFIG.yaml
/home/ec2-user/anaconda3/envs/python3/lib/python3.10/site-
packages/outdated/__init__.py:36: UserWarning: pkg_resources is deprecated as an
API. See https://setuptools.pypa.io/en/latest/pkg_resources.html. The
pkg_resources package is slated for removal as early as 2025-11-30. Refrain from
using this package or pin to Setuptools<81.
  from pkg_resources import parse_version
INFO:root:Copied graph construction config to ./model-simple-
hgt/data_transform_new.json
WARNING:root:remove_target_edge_type is set to True by default. If your edge
```

classification task is not predicting the existence of the target edge, we
suggest you to set it to False.
Initialize the distributed services with graphbolt: False
/home/ec2-user/anaconda3/envs/python3/lib/python3.10/site-
packages/dgl/distributed/dist_context.py:248: DGLWarning: net_type is deprecated
and will be removed in future release.
  dgl_warning(
INFO:root:Start to load partition from
/home/ec2-user/SageMaker/ieee_gs/part0/graph.dgl which is 384639597 bytes. It
may take non-trivial time for large partition.
INFO:root:Finished loading partition from
/home/ec2-user/SageMaker/ieee_gs/part0/graph.dgl.
load ieee-cis
Start to create specified graph formats which may take non-trivial time.
Finished creating specified graph formats: ['csc']
WARNING:root:Unknown arguments for command graphstorm.run.gs_node_classification
or graphstorm.run.gs_node_regression: []
INFO:root:Saved combined configuration to ./model-simple-
hgt/GRAPHSTORM_RUNTIME_UPDATED_TRAINING_CONFIG.yaml
INFO:root:Copied graph construction config to ./model-simple-
hgt/data_transform_new.json
WARNING:root:remove_target_edge_type is set to True by default. If your edge
classification task is not predicting the existence of the target edge, we
suggest you to set it to False.
Initialize the distributed services with graphbolt: False
/home/ec2-user/anaconda3/envs/python3/lib/python3.10/site-
packages/dgl/distributed/dist_context.py:248: DGLWarning: net_type is deprecated
and will be removed in future release.
  dgl_warning(
[15:08:55] /opt/dgl/src/rpc/network/socket_communicator.cc:80: Trying to connect
receiver: 127.0.0.1:30050
INFO:root:Finished loading node data.
[15:18:55] /opt/dgl/src/rpc/network/socket_communicator.cc:80: Trying to connect
receiver: 127.0.0.1:30050
INFO:root:Finished loading edge data.
start graph service on server 0 for part 0
Server is waiting for connections on [127.0.0.1:30050]…
Client [375365] waits on 127.0.0.1:56679
Machine (0) group (0) client (0) connect to server successfuly!
INFO:root:part 0, train 472432
INFO:root:part 0, val 59054
INFO:root:part 0, test 59054
INFO:root:yaml_paths: ieee_nc_hgt-Copy1.yaml
INFO:root:_backend: gloo
INFO:root:_verbose: False
INFO:root:_model_encoder_type: rgcn
INFO:root:_fanout: 10, 10
INFO:root:_num_layers: 2

```
INFO:root:_hidden_size: 128
INFO:root:_use_mini_batch_infer: True
INFO:root:_node_feat_name: ['Address1:id_embeddings', 'Address2:id_embeddings',
'Card1:id_embeddings', 'Card2:id_embeddings', 'Card3:id_embeddings',
'Card4:id_embeddings', 'Card5:id_embeddings', 'Card6:id_embeddings',
'P_emaildomain:id_embeddings', 'ProductCD:id_embeddings',
'R_emaildomain:id_embeddings', 'Transaction:M1,M2,M3,M4,M5,M6,M7,M8,M9,C1,C2,C3,
C4,C5,C6,C7,C8,C9,C10,C11,C12,C13,C14,TransactionAmt']
INFO:root:_restore_model_path: None
INFO:root:_save_model_path: ./model-simple-hgt/
INFO:root:_save_embed_path: None
INFO:root:_dropout: 0.0
INFO:root:_lr: 0.001
INFO:root:_lm_tune_lr: 0.0001
INFO:root:_num_epochs: 30
INFO:root:_batch_size: 1024
INFO:root:_wd_l2norm: 0
INFO:root:_no_validation: False
INFO:root:_num_bases: -1
INFO:root:_use_self_loop: True
INFO:root:_sparse_optimizer_lr: 1e-2
INFO:root:_use_node_embeddings: False
INFO:root:_target_ntype: Transaction
INFO:root:_label_field: isFraud:Int
INFO:root:_multilabel: False
INFO:root:_num_classes: 2
INFO:root:_task_type: node_classification
INFO:root:_logging_level: info
INFO:root:_profile_path: None
INFO:root:_construct_feat_ntype: None
INFO:root:_eval_metric: ['roc_auc']
INFO:root:_topk_model_to_save: 1
INFO:root:_ip_config: /tmp/tmpph2wzqc7
INFO:root:_part_config: /home/ec2-user/SageMaker/ieee_gs/ieee-cis.json
INFO:root:local_rank: 0
INFO:root:_multi_tasks: None
/home/ec2-user/anaconda3/envs/python3/lib/python3.10/site-
packages/torch/nn/parallel/distributed.py:2308: UserWarning: You passed
find_unused_parameters=true to DistributedDataParallel, `_set_static_graph` will
detect unused parameters automatically, so you do not need to set
find_unused_parameters=true, just be sure these unused parameters will not
change during training loop while calling `_set_static_graph`.
  warnings.warn(
INFO:root:Part 0 | Epoch 00000 | Batch 000 | Loss: 2.8363 | Time: 0.2904
INFO:root:Part 0 | Epoch 00000 | Batch 020 | Loss: 0.1717 | Time: 0.1695
INFO:root:Part 0 | Epoch 00000 | Batch 040 | Loss: 0.1165 | Time: 0.1712
INFO:root:Part 0 | Epoch 00000 | Batch 060 | Loss: 0.1164 | Time: 0.1706
INFO:root:Part 0 | Epoch 00000 | Batch 080 | Loss: 0.1404 | Time: 0.1625
```

```
INFO:root:Part 0 | Epoch 00000 | Batch 100 | Loss: 0.1456 | Time: 0.1678
INFO:root:Part 0 | Epoch 00000 | Batch 120 | Loss: 0.1400 | Time: 0.1768
INFO:root:Part 0 | Epoch 00000 | Batch 140 | Loss: 0.1389 | Time: 0.1643
INFO:root:Part 0 | Epoch 00000 | Batch 160 | Loss: 0.1050 | Time: 0.1689
INFO:root:Part 0 | Epoch 00000 | Batch 180 | Loss: 0.1386 | Time: 0.1745
INFO:root:Part 0 | Epoch 00000 | Batch 200 | Loss: 0.1411 | Time: 0.1675
INFO:root:Part 0 | Epoch 00000 | Batch 220 | Loss: 0.1698 | Time: 0.1698
INFO:root:Part 0 | Epoch 00000 | Batch 240 | Loss: 0.0911 | Time: 0.1642
INFO:root:Part 0 | Epoch 00000 | Batch 260 | Loss: 0.1464 | Time: 0.1786
INFO:root:Part 0 | Epoch 00000 | Batch 280 | Loss: 0.1278 | Time: 0.1651
INFO:root:Part 0 | Epoch 00000 | Batch 300 | Loss: 0.1064 | Time: 0.1718
INFO:root:Part 0 | Epoch 00000 | Batch 320 | Loss: 0.1311 | Time: 0.1710
INFO:root:Part 0 | Epoch 00000 | Batch 340 | Loss: 0.1117 | Time: 0.1695
INFO:root:Part 0 | Epoch 00000 | Batch 360 | Loss: 0.1349 | Time: 0.1695
INFO:root:Part 0 | Epoch 00000 | Batch 380 | Loss: 0.1403 | Time: 0.1706
INFO:root:Part 0 | Epoch 00000 | Batch 400 | Loss: 0.1149 | Time: 0.1804
INFO:root:Part 0 | Epoch 00000 | Batch 420 | Loss: 0.1277 | Time: 0.1699
INFO:root:Part 0 | Epoch 00000 | Batch 440 | Loss: 0.1361 | Time: 0.1694
INFO:root:Part 0 | Epoch 00000 | Batch 460 | Loss: 0.1203 | Time: 0.1687
INFO:root:Epoch 0 take 79.452 seconds
INFO:root:Step 462 | Validation roc_auc: 0.8116
INFO:root:Step 462 | Test roc_auc: 0.8187
INFO:root:Step 462 | Best Validation roc_auc: 0.8116
INFO:root:Step 462 | Best Test roc_auc: 0.8187
INFO:root:Step 462 | Best Iteration roc_auc: 462.0000
INFO:root: Eval time: 27.2938, Evaluation step: 462.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-0
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00001 | Batch 000 | Loss: 0.1194 | Time: 0.1863
INFO:root:Part 0 | Epoch 00001 | Batch 020 | Loss: 0.1178 | Time: 0.1652
INFO:root:Part 0 | Epoch 00001 | Batch 040 | Loss: 0.1197 | Time: 0.1679
INFO:root:Part 0 | Epoch 00001 | Batch 060 | Loss: 0.1579 | Time: 0.1801
INFO:root:Part 0 | Epoch 00001 | Batch 080 | Loss: 0.1466 | Time: 0.1659
INFO:root:Part 0 | Epoch 00001 | Batch 100 | Loss: 0.1239 | Time: 0.1654
INFO:root:Part 0 | Epoch 00001 | Batch 120 | Loss: 0.1134 | Time: 0.1772
INFO:root:Part 0 | Epoch 00001 | Batch 140 | Loss: 0.1127 | Time: 0.1677
INFO:root:Part 0 | Epoch 00001 | Batch 160 | Loss: 0.1059 | Time: 0.1706
INFO:root:Part 0 | Epoch 00001 | Batch 180 | Loss: 0.1099 | Time: 0.1786
INFO:root:Part 0 | Epoch 00001 | Batch 200 | Loss: 0.1226 | Time: 0.1745
INFO:root:Part 0 | Epoch 00001 | Batch 220 | Loss: 0.1328 | Time: 0.1708
INFO:root:Part 0 | Epoch 00001 | Batch 240 | Loss: 0.1498 | Time: 0.1729
INFO:root:Part 0 | Epoch 00001 | Batch 260 | Loss: 0.1443 | Time: 0.1726
INFO:root:Part 0 | Epoch 00001 | Batch 280 | Loss: 0.1319 | Time: 0.1671
INFO:root:Part 0 | Epoch 00001 | Batch 300 | Loss: 0.1315 | Time: 0.1641
INFO:root:Part 0 | Epoch 00001 | Batch 320 | Loss: 0.1370 | Time: 0.1699
INFO:root:Part 0 | Epoch 00001 | Batch 340 | Loss: 0.1457 | Time: 0.1819
INFO:root:Part 0 | Epoch 00001 | Batch 360 | Loss: 0.1127 | Time: 0.1844
INFO:root:Part 0 | Epoch 00001 | Batch 380 | Loss: 0.1304 | Time: 0.1711
```

```
INFO:root:Part 0 | Epoch 00001 | Batch 400 | Loss: 0.1215 | Time: 0.1710
INFO:root:Part 0 | Epoch 00001 | Batch 420 | Loss: 0.1220 | Time: 0.1684
INFO:root:Part 0 | Epoch 00001 | Batch 440 | Loss: 0.1386 | Time: 0.1717
INFO:root:Part 0 | Epoch 00001 | Batch 460 | Loss: 0.1217 | Time: 0.1672
INFO:root:Epoch 1 take 79.627 seconds
INFO:root:Step 924 | Validation roc_auc: 0.8306
INFO:root:Step 924 | Test roc_auc: 0.8401
INFO:root:Step 924 | Best Validation roc_auc: 0.8306
INFO:root:Step 924 | Best Test roc_auc: 0.8401
INFO:root:Step 924 | Best Iteration roc_auc: 924.0000
INFO:root: Eval time: 26.9083, Evaluation step: 924.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-1
INFO:root:Time on save model: 0.014 seconds
INFO:root:Part 0 | Epoch 00002 | Batch 000 | Loss: 0.1416 | Time: 0.1857
INFO:root:Part 0 | Epoch 00002 | Batch 020 | Loss: 0.1435 | Time: 0.1731
INFO:root:Part 0 | Epoch 00002 | Batch 040 | Loss: 0.1398 | Time: 0.1707
INFO:root:Part 0 | Epoch 00002 | Batch 060 | Loss: 0.1208 | Time: 0.1861
INFO:root:Part 0 | Epoch 00002 | Batch 080 | Loss: 0.1083 | Time: 0.1684
INFO:root:Part 0 | Epoch 00002 | Batch 100 | Loss: 0.1166 | Time: 0.1691
INFO:root:Part 0 | Epoch 00002 | Batch 120 | Loss: 0.1297 | Time: 0.1681
INFO:root:Part 0 | Epoch 00002 | Batch 140 | Loss: 0.1465 | Time: 0.1678
INFO:root:Part 0 | Epoch 00002 | Batch 160 | Loss: 0.1197 | Time: 0.1680
INFO:root:Part 0 | Epoch 00002 | Batch 180 | Loss: 0.1079 | Time: 0.1689
INFO:root:Part 0 | Epoch 00002 | Batch 200 | Loss: 0.1235 | Time: 0.1865
INFO:root:Part 0 | Epoch 00002 | Batch 220 | Loss: 0.1306 | Time: 0.1696
INFO:root:Part 0 | Epoch 00002 | Batch 240 | Loss: 0.1115 | Time: 0.1789
INFO:root:Part 0 | Epoch 00002 | Batch 260 | Loss: 0.1235 | Time: 0.1713
INFO:root:Part 0 | Epoch 00002 | Batch 280 | Loss: 0.1205 | Time: 0.1701
INFO:root:Part 0 | Epoch 00002 | Batch 300 | Loss: 0.0950 | Time: 0.1831
INFO:root:Part 0 | Epoch 00002 | Batch 320 | Loss: 0.1073 | Time: 0.1713
INFO:root:Part 0 | Epoch 00002 | Batch 340 | Loss: 0.1302 | Time: 0.1717
INFO:root:Part 0 | Epoch 00002 | Batch 360 | Loss: 0.1054 | Time: 0.1791
INFO:root:Part 0 | Epoch 00002 | Batch 380 | Loss: 0.0892 | Time: 0.1663
INFO:root:Part 0 | Epoch 00002 | Batch 400 | Loss: 0.1201 | Time: 0.1792
INFO:root:Part 0 | Epoch 00002 | Batch 420 | Loss: 0.1509 | Time: 0.1795
INFO:root:Part 0 | Epoch 00002 | Batch 440 | Loss: 0.1183 | Time: 0.1748
INFO:root:Part 0 | Epoch 00002 | Batch 460 | Loss: 0.1079 | Time: 0.1764
INFO:root:Epoch 2 take 79.970 seconds
INFO:root:Step 1386 | Validation roc_auc: 0.8398
INFO:root:Step 1386 | Test roc_auc: 0.8470
INFO:root:Step 1386 | Best Validation roc_auc: 0.8398
INFO:root:Step 1386 | Best Test roc_auc: 0.8470
INFO:root:Step 1386 | Best Iteration roc_auc: 1386.0000
INFO:root: Eval time: 27.3703, Evaluation step: 1386.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-2
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00003 | Batch 000 | Loss: 0.1263 | Time: 0.1842
INFO:root:Part 0 | Epoch 00003 | Batch 020 | Loss: 0.1028 | Time: 0.1722
```

```
INFO:root:Part 0 | Epoch 00003 | Batch 040 | Loss: 0.0889 | Time: 0.1689
INFO:root:Part 0 | Epoch 00003 | Batch 060 | Loss: 0.0904 | Time: 0.1670
INFO:root:Part 0 | Epoch 00003 | Batch 080 | Loss: 0.1174 | Time: 0.1747
INFO:root:Part 0 | Epoch 00003 | Batch 100 | Loss: 0.0909 | Time: 0.1730
INFO:root:Part 0 | Epoch 00003 | Batch 120 | Loss: 0.1160 | Time: 0.1734
INFO:root:Part 0 | Epoch 00003 | Batch 140 | Loss: 0.1112 | Time: 0.1699
INFO:root:Part 0 | Epoch 00003 | Batch 160 | Loss: 0.1076 | Time: 0.1858
INFO:root:Part 0 | Epoch 00003 | Batch 180 | Loss: 0.1522 | Time: 0.1738
INFO:root:Part 0 | Epoch 00003 | Batch 200 | Loss: 0.1329 | Time: 0.1865
INFO:root:Part 0 | Epoch 00003 | Batch 220 | Loss: 0.1130 | Time: 0.1812
INFO:root:Part 0 | Epoch 00003 | Batch 240 | Loss: 0.1025 | Time: 0.1720
INFO:root:Part 0 | Epoch 00003 | Batch 260 | Loss: 0.0998 | Time: 0.1756
INFO:root:Part 0 | Epoch 00003 | Batch 280 | Loss: 0.1187 | Time: 0.1735
INFO:root:Part 0 | Epoch 00003 | Batch 300 | Loss: 0.1224 | Time: 0.1797
INFO:root:Part 0 | Epoch 00003 | Batch 320 | Loss: 0.1314 | Time: 0.1697
INFO:root:Part 0 | Epoch 00003 | Batch 340 | Loss: 0.0814 | Time: 0.1866
INFO:root:Part 0 | Epoch 00003 | Batch 360 | Loss: 0.1301 | Time: 0.1740
INFO:root:Part 0 | Epoch 00003 | Batch 380 | Loss: 0.1030 | Time: 0.1713
INFO:root:Part 0 | Epoch 00003 | Batch 400 | Loss: 0.1256 | Time: 0.1720
INFO:root:Part 0 | Epoch 00003 | Batch 420 | Loss: 0.1159 | Time: 0.1740
INFO:root:Part 0 | Epoch 00003 | Batch 440 | Loss: 0.1015 | Time: 0.1742
INFO:root:Part 0 | Epoch 00003 | Batch 460 | Loss: 0.1183 | Time: 0.1727
INFO:root:Epoch 3 take 81.329 seconds
INFO:root:Step 1848 | Validation roc_auc: 0.8553
INFO:root:Step 1848 | Test roc_auc: 0.8628
INFO:root:Step 1848 | Best Validation roc_auc: 0.8553
INFO:root:Step 1848 | Best Test roc_auc: 0.8628
INFO:root:Step 1848 | Best Iteration roc_auc: 1848.0000
INFO:root: Eval time: 27.2382, Evaluation step: 1848.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-3
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00004 | Batch 000 | Loss: 0.0936 | Time: 0.1847
INFO:root:Part 0 | Epoch 00004 | Batch 020 | Loss: 0.0960 | Time: 0.1726
INFO:root:Part 0 | Epoch 00004 | Batch 040 | Loss: 0.1163 | Time: 0.1737
INFO:root:Part 0 | Epoch 00004 | Batch 060 | Loss: 0.1460 | Time: 0.1712
INFO:root:Part 0 | Epoch 00004 | Batch 080 | Loss: 0.0850 | Time: 0.1707
INFO:root:Part 0 | Epoch 00004 | Batch 100 | Loss: 0.0835 | Time: 0.1738
INFO:root:Part 0 | Epoch 00004 | Batch 120 | Loss: 0.1027 | Time: 0.1735
INFO:root:Part 0 | Epoch 00004 | Batch 140 | Loss: 0.0951 | Time: 0.1706
INFO:root:Part 0 | Epoch 00004 | Batch 160 | Loss: 0.0887 | Time: 0.1737
INFO:root:Part 0 | Epoch 00004 | Batch 180 | Loss: 0.1158 | Time: 0.1723
INFO:root:Part 0 | Epoch 00004 | Batch 200 | Loss: 0.1089 | Time: 0.1741
INFO:root:Part 0 | Epoch 00004 | Batch 220 | Loss: 0.1370 | Time: 0.1666
INFO:root:Part 0 | Epoch 00004 | Batch 240 | Loss: 0.1086 | Time: 0.1709
INFO:root:Part 0 | Epoch 00004 | Batch 260 | Loss: 0.0869 | Time: 0.1743
INFO:root:Part 0 | Epoch 00004 | Batch 280 | Loss: 0.1118 | Time: 0.1773
INFO:root:Part 0 | Epoch 00004 | Batch 300 | Loss: 0.1179 | Time: 0.1768
INFO:root:Part 0 | Epoch 00004 | Batch 320 | Loss: 0.1068 | Time: 0.1708
```

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INFO:root:Part 0 | Epoch 00004 | Batch 340 | Loss: 0.1142 | Time: 0.1723
INFO:root:Part 0 | Epoch 00004 | Batch 360 | Loss: 0.1101 | Time: 0.1720
INFO:root:Part 0 | Epoch 00004 | Batch 380 | Loss: 0.1161 | Time: 0.1682
INFO:root:Part 0 | Epoch 00004 | Batch 400 | Loss: 0.1107 | Time: 0.1772
INFO:root:Part 0 | Epoch 00004 | Batch 420 | Loss: 0.0995 | Time: 0.1714
INFO:root:Part 0 | Epoch 00004 | Batch 440 | Loss: 0.1108 | Time: 0.1678
INFO:root:Part 0 | Epoch 00004 | Batch 460 | Loss: 0.1010 | Time: 0.1857
INFO:root:Epoch 4 take 80.664 seconds
INFO:root:Step 2310 | Validation roc_auc: 0.8630
INFO:root:Step 2310 | Test roc_auc: 0.8730
INFO:root:Step 2310 | Best Validation roc_auc: 0.8630
INFO:root:Step 2310 | Best Test roc_auc: 0.8730
INFO:root:Step 2310 | Best Iteration roc_auc: 2310.0000
INFO:root: Eval time: 27.1358, Evaluation step: 2310.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-4
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00005 | Batch 000 | Loss: 0.1221 | Time: 0.2104
INFO:root:Part 0 | Epoch 00005 | Batch 020 | Loss: 0.1048 | Time: 0.1693
INFO:root:Part 0 | Epoch 00005 | Batch 040 | Loss: 0.1018 | Time: 0.1745
INFO:root:Part 0 | Epoch 00005 | Batch 060 | Loss: 0.0857 | Time: 0.1783
INFO:root:Part 0 | Epoch 00005 | Batch 080 | Loss: 0.0815 | Time: 0.1767
INFO:root:Part 0 | Epoch 00005 | Batch 100 | Loss: 0.1006 | Time: 0.1670
INFO:root:Part 0 | Epoch 00005 | Batch 120 | Loss: 0.1181 | Time: 0.1685
INFO:root:Part 0 | Epoch 00005 | Batch 140 | Loss: 0.1128 | Time: 0.1732
INFO:root:Part 0 | Epoch 00005 | Batch 160 | Loss: 0.1153 | Time: 0.1730
INFO:root:Part 0 | Epoch 00005 | Batch 180 | Loss: 0.1072 | Time: 0.1778
INFO:root:Part 0 | Epoch 00005 | Batch 200 | Loss: 0.1014 | Time: 0.1710
INFO:root:Part 0 | Epoch 00005 | Batch 220 | Loss: 0.1030 | Time: 0.1756
INFO:root:Part 0 | Epoch 00005 | Batch 240 | Loss: 0.0883 | Time: 0.1701
INFO:root:Part 0 | Epoch 00005 | Batch 260 | Loss: 0.1100 | Time: 0.1778
INFO:root:Part 0 | Epoch 00005 | Batch 280 | Loss: 0.1250 | Time: 0.1703
INFO:root:Part 0 | Epoch 00005 | Batch 300 | Loss: 0.1155 | Time: 0.1729
INFO:root:Part 0 | Epoch 00005 | Batch 320 | Loss: 0.0908 | Time: 0.1783
INFO:root:Part 0 | Epoch 00005 | Batch 340 | Loss: 0.1288 | Time: 0.1716
INFO:root:Part 0 | Epoch 00005 | Batch 360 | Loss: 0.1015 | Time: 0.1941
INFO:root:Part 0 | Epoch 00005 | Batch 380 | Loss: 0.1076 | Time: 0.1723
INFO:root:Part 0 | Epoch 00005 | Batch 400 | Loss: 0.1152 | Time: 0.1742
INFO:root:Part 0 | Epoch 00005 | Batch 420 | Loss: 0.1032 | Time: 0.1737
INFO:root:Part 0 | Epoch 00005 | Batch 440 | Loss: 0.1195 | Time: 0.1678
INFO:root:Part 0 | Epoch 00005 | Batch 460 | Loss: 0.0875 | Time: 0.1690
INFO:root:Epoch 5 take 80.756 seconds
INFO:root:Step 2772 | Validation roc_auc: 0.8707
INFO:root:Step 2772 | Test roc_auc: 0.8745
INFO:root:Step 2772 | Best Validation roc_auc: 0.8707
INFO:root:Step 2772 | Best Test roc_auc: 0.8745
INFO:root:Step 2772 | Best Iteration roc_auc: 2772.0000
INFO:root: Eval time: 27.0034, Evaluation step: 2772.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-5
```

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INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00006 | Batch 000 | Loss: 0.1201 | Time: 0.2105
INFO:root:Part 0 | Epoch 00006 | Batch 020 | Loss: 0.1108 | Time: 0.1704
INFO:root:Part 0 | Epoch 00006 | Batch 040 | Loss: 0.1252 | Time: 0.1730
INFO:root:Part 0 | Epoch 00006 | Batch 060 | Loss: 0.1230 | Time: 0.1796
INFO:root:Part 0 | Epoch 00006 | Batch 080 | Loss: 0.1228 | Time: 0.1744
INFO:root:Part 0 | Epoch 00006 | Batch 100 | Loss: 0.1295 | Time: 0.1696
INFO:root:Part 0 | Epoch 00006 | Batch 120 | Loss: 0.1114 | Time: 0.1686
INFO:root:Part 0 | Epoch 00006 | Batch 140 | Loss: 0.0665 | Time: 0.1712
INFO:root:Part 0 | Epoch 00006 | Batch 160 | Loss: 0.1263 | Time: 0.1711
INFO:root:Part 0 | Epoch 00006 | Batch 180 | Loss: 0.0868 | Time: 0.1769
INFO:root:Part 0 | Epoch 00006 | Batch 200 | Loss: 0.1030 | Time: 0.1681
INFO:root:Part 0 | Epoch 00006 | Batch 220 | Loss: 0.1003 | Time: 0.1743
INFO:root:Part 0 | Epoch 00006 | Batch 240 | Loss: 0.0898 | Time: 0.1698
INFO:root:Part 0 | Epoch 00006 | Batch 260 | Loss: 0.0832 | Time: 0.1760
INFO:root:Part 0 | Epoch 00006 | Batch 280 | Loss: 0.1122 | Time: 0.1772
INFO:root:Part 0 | Epoch 00006 | Batch 300 | Loss: 0.0931 | Time: 0.1717
INFO:root:Part 0 | Epoch 00006 | Batch 320 | Loss: 0.1348 | Time: 0.1710
INFO:root:Part 0 | Epoch 00006 | Batch 340 | Loss: 0.1268 | Time: 0.1718
INFO:root:Part 0 | Epoch 00006 | Batch 360 | Loss: 0.1166 | Time: 0.1805
INFO:root:Part 0 | Epoch 00006 | Batch 380 | Loss: 0.0935 | Time: 0.1757
INFO:root:Part 0 | Epoch 00006 | Batch 400 | Loss: 0.0628 | Time: 0.1738
INFO:root:Part 0 | Epoch 00006 | Batch 420 | Loss: 0.1118 | Time: 0.1832
INFO:root:Part 0 | Epoch 00006 | Batch 440 | Loss: 0.1071 | Time: 0.1739
INFO:root:Part 0 | Epoch 00006 | Batch 460 | Loss: 0.1104 | Time: 0.1716
INFO:root:Epoch 6 take 81.220 seconds
INFO:root:Step 3234 | Validation roc_auc: 0.8840
INFO:root:Step 3234 | Test roc_auc: 0.8857
INFO:root:Step 3234 | Best Validation roc_auc: 0.8840
INFO:root:Step 3234 | Best Test roc_auc: 0.8857
INFO:root:Step 3234 | Best Iteration roc_auc: 3234.0000
INFO:root: Eval time: 27.5251, Evaluation step: 3234.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-6
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00007 | Batch 000 | Loss: 0.1006 | Time: 0.1868
INFO:root:Part 0 | Epoch 00007 | Batch 020 | Loss: 0.1044 | Time: 0.1726
INFO:root:Part 0 | Epoch 00007 | Batch 040 | Loss: 0.0834 | Time: 0.1781
INFO:root:Part 0 | Epoch 00007 | Batch 060 | Loss: 0.0923 | Time: 0.1700
INFO:root:Part 0 | Epoch 00007 | Batch 080 | Loss: 0.0778 | Time: 0.1925
INFO:root:Part 0 | Epoch 00007 | Batch 100 | Loss: 0.0711 | Time: 0.1848
INFO:root:Part 0 | Epoch 00007 | Batch 120 | Loss: 0.1019 | Time: 0.1782
INFO:root:Part 0 | Epoch 00007 | Batch 140 | Loss: 0.0927 | Time: 0.1701
INFO:root:Part 0 | Epoch 00007 | Batch 160 | Loss: 0.1044 | Time: 0.1708
INFO:root:Part 0 | Epoch 00007 | Batch 180 | Loss: 0.1225 | Time: 0.1680
INFO:root:Part 0 | Epoch 00007 | Batch 200 | Loss: 0.0917 | Time: 0.1677
INFO:root:Part 0 | Epoch 00007 | Batch 220 | Loss: 0.1101 | Time: 0.1774
INFO:root:Part 0 | Epoch 00007 | Batch 240 | Loss: 0.1070 | Time: 0.1759
INFO:root:Part 0 | Epoch 00007 | Batch 260 | Loss: 0.1047 | Time: 0.1808
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INFO:root:Part 0 | Epoch 00007 | Batch 280 | Loss: 0.1013 | Time: 0.1716
INFO:root:Part 0 | Epoch 00007 | Batch 300 | Loss: 0.1027 | Time: 0.1682
INFO:root:Part 0 | Epoch 00007 | Batch 320 | Loss: 0.1043 | Time: 0.1722
INFO:root:Part 0 | Epoch 00007 | Batch 340 | Loss: 0.0862 | Time: 0.1707
INFO:root:Part 0 | Epoch 00007 | Batch 360 | Loss: 0.1144 | Time: 0.1703
INFO:root:Part 0 | Epoch 00007 | Batch 380 | Loss: 0.1097 | Time: 0.1686
INFO:root:Part 0 | Epoch 00007 | Batch 400 | Loss: 0.0972 | Time: 0.1723
INFO:root:Part 0 | Epoch 00007 | Batch 420 | Loss: 0.0895 | Time: 0.1690
INFO:root:Part 0 | Epoch 00007 | Batch 440 | Loss: 0.0990 | Time: 0.1785
INFO:root:Part 0 | Epoch 00007 | Batch 460 | Loss: 0.1225 | Time: 0.1788
INFO:root:Epoch 7 take 80.292 seconds
INFO:root:Step 3696 | Validation roc_auc: 0.8935
INFO:root:Step 3696 | Test roc_auc: 0.9000
INFO:root:Step 3696 | Best Validation roc_auc: 0.8935
INFO:root:Step 3696 | Best Test roc_auc: 0.9000
INFO:root:Step 3696 | Best Iteration roc_auc: 3696.0000
INFO:root: Eval time: 27.0211, Evaluation step: 3696.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-7
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00008 | Batch 000 | Loss: 0.0990 | Time: 0.2041
INFO:root:Part 0 | Epoch 00008 | Batch 020 | Loss: 0.0840 | Time: 0.1785
INFO:root:Part 0 | Epoch 00008 | Batch 040 | Loss: 0.0839 | Time: 0.1951
INFO:root:Part 0 | Epoch 00008 | Batch 060 | Loss: 0.1004 | Time: 0.1684
INFO:root:Part 0 | Epoch 00008 | Batch 080 | Loss: 0.1190 | Time: 0.1801
INFO:root:Part 0 | Epoch 00008 | Batch 100 | Loss: 0.1085 | Time: 0.1921
INFO:root:Part 0 | Epoch 00008 | Batch 120 | Loss: 0.1094 | Time: 0.1785
INFO:root:Part 0 | Epoch 00008 | Batch 140 | Loss: 0.1074 | Time: 0.1821
INFO:root:Part 0 | Epoch 00008 | Batch 160 | Loss: 0.0892 | Time: 0.1865
INFO:root:Part 0 | Epoch 00008 | Batch 180 | Loss: 0.0855 | Time: 0.1673
INFO:root:Part 0 | Epoch 00008 | Batch 200 | Loss: 0.0795 | Time: 0.1818
INFO:root:Part 0 | Epoch 00008 | Batch 220 | Loss: 0.1072 | Time: 0.1796
INFO:root:Part 0 | Epoch 00008 | Batch 240 | Loss: 0.1021 | Time: 0.1705
INFO:root:Part 0 | Epoch 00008 | Batch 260 | Loss: 0.0912 | Time: 0.1664
INFO:root:Part 0 | Epoch 00008 | Batch 280 | Loss: 0.1004 | Time: 0.1692
INFO:root:Part 0 | Epoch 00008 | Batch 300 | Loss: 0.0733 | Time: 0.1801
INFO:root:Part 0 | Epoch 00008 | Batch 320 | Loss: 0.0912 | Time: 0.1806
INFO:root:Part 0 | Epoch 00008 | Batch 340 | Loss: 0.0991 | Time: 0.1789
INFO:root:Part 0 | Epoch 00008 | Batch 360 | Loss: 0.1064 | Time: 0.1912
INFO:root:Part 0 | Epoch 00008 | Batch 380 | Loss: 0.0959 | Time: 0.1808
INFO:root:Part 0 | Epoch 00008 | Batch 400 | Loss: 0.0971 | Time: 0.1841
INFO:root:Part 0 | Epoch 00008 | Batch 420 | Loss: 0.0929 | Time: 0.1840
INFO:root:Part 0 | Epoch 00008 | Batch 440 | Loss: 0.0807 | Time: 0.1822
INFO:root:Part 0 | Epoch 00008 | Batch 460 | Loss: 0.0513 | Time: 0.1878
INFO:root:Epoch 8 take 83.439 seconds
INFO:root:Step 4158 | Validation roc_auc: 0.8939
INFO:root:Step 4158 | Test roc_auc: 0.9005
INFO:root:Step 4158 | Best Validation roc_auc: 0.8939
INFO:root:Step 4158 | Best Test roc_auc: 0.9005
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INFO:root:Step 4158 | Best Iteration roc_auc: 4158.0000
INFO:root: Eval time: 27.3509, Evaluation step: 4158.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-8
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00009 | Batch 000 | Loss: 0.0571 | Time: 0.2006
INFO:root:Part 0 | Epoch 00009 | Batch 020 | Loss: 0.1014 | Time: 0.1815
INFO:root:Part 0 | Epoch 00009 | Batch 040 | Loss: 0.0954 | Time: 0.1674
INFO:root:Part 0 | Epoch 00009 | Batch 060 | Loss: 0.0831 | Time: 0.1809
INFO:root:Part 0 | Epoch 00009 | Batch 080 | Loss: 0.0690 | Time: 0.1773
INFO:root:Part 0 | Epoch 00009 | Batch 100 | Loss: 0.0749 | Time: 0.1724
INFO:root:Part 0 | Epoch 00009 | Batch 120 | Loss: 0.1084 | Time: 0.1716
INFO:root:Part 0 | Epoch 00009 | Batch 140 | Loss: 0.1155 | Time: 0.1745
INFO:root:Part 0 | Epoch 00009 | Batch 160 | Loss: 0.0957 | Time: 0.1771
INFO:root:Part 0 | Epoch 00009 | Batch 180 | Loss: 0.0881 | Time: 0.1671
INFO:root:Part 0 | Epoch 00009 | Batch 200 | Loss: 0.0773 | Time: 0.1760
INFO:root:Part 0 | Epoch 00009 | Batch 220 | Loss: 0.1135 | Time: 0.1752
INFO:root:Part 0 | Epoch 00009 | Batch 240 | Loss: 0.0801 | Time: 0.1701
INFO:root:Part 0 | Epoch 00009 | Batch 260 | Loss: 0.0956 | Time: 0.1725
INFO:root:Part 0 | Epoch 00009 | Batch 280 | Loss: 0.1030 | Time: 0.1774
INFO:root:Part 0 | Epoch 00009 | Batch 300 | Loss: 0.1110 | Time: 0.1680
INFO:root:Part 0 | Epoch 00009 | Batch 320 | Loss: 0.0807 | Time: 0.1678
INFO:root:Part 0 | Epoch 00009 | Batch 340 | Loss: 0.0797 | Time: 0.1775
INFO:root:Part 0 | Epoch 00009 | Batch 360 | Loss: 0.0883 | Time: 0.1673
INFO:root:Part 0 | Epoch 00009 | Batch 380 | Loss: 0.0867 | Time: 0.1694
INFO:root:Part 0 | Epoch 00009 | Batch 400 | Loss: 0.1062 | Time: 0.1680
INFO:root:Part 0 | Epoch 00009 | Batch 420 | Loss: 0.0847 | Time: 0.1727
INFO:root:Part 0 | Epoch 00009 | Batch 440 | Loss: 0.0803 | Time: 0.1920
INFO:root:Part 0 | Epoch 00009 | Batch 460 | Loss: 0.0938 | Time: 0.1676
INFO:root:Epoch 9 take 80.521 seconds
INFO:root:Step 4620 | Validation roc_auc: 0.8955
INFO:root:Step 4620 | Test roc_auc: 0.9030
INFO:root:Step 4620 | Best Validation roc_auc: 0.8955
INFO:root:Step 4620 | Best Test roc_auc: 0.9030
INFO:root:Step 4620 | Best Iteration roc_auc: 4620.0000
INFO:root: Eval time: 26.4609, Evaluation step: 4620.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-9
INFO:root:Time on save model: 0.007 seconds
INFO:root:Part 0 | Epoch 00010 | Batch 000 | Loss: 0.1150 | Time: 0.1787
INFO:root:Part 0 | Epoch 00010 | Batch 020 | Loss: 0.0923 | Time: 0.1670
INFO:root:Part 0 | Epoch 00010 | Batch 040 | Loss: 0.0881 | Time: 0.1652
INFO:root:Part 0 | Epoch 00010 | Batch 060 | Loss: 0.0822 | Time: 0.1692
INFO:root:Part 0 | Epoch 00010 | Batch 080 | Loss: 0.0776 | Time: 0.1651
INFO:root:Part 0 | Epoch 00010 | Batch 100 | Loss: 0.0975 | Time: 0.1765
INFO:root:Part 0 | Epoch 00010 | Batch 120 | Loss: 0.0909 | Time: 0.1727
INFO:root:Part 0 | Epoch 00010 | Batch 140 | Loss: 0.1012 | Time: 0.1716
INFO:root:Part 0 | Epoch 00010 | Batch 160 | Loss: 0.0944 | Time: 0.1695
INFO:root:Part 0 | Epoch 00010 | Batch 180 | Loss: 0.1287 | Time: 0.1683
INFO:root:Part 0 | Epoch 00010 | Batch 200 | Loss: 0.0770 | Time: 0.1711
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INFO:root:Part 0 | Epoch 00010 | Batch 220 | Loss: 0.0712 | Time: 0.1723
INFO:root:Part 0 | Epoch 00010 | Batch 240 | Loss: 0.0764 | Time: 0.1709
INFO:root:Part 0 | Epoch 00010 | Batch 260 | Loss: 0.0754 | Time: 0.1768
INFO:root:Part 0 | Epoch 00010 | Batch 280 | Loss: 0.0780 | Time: 0.1731
INFO:root:Part 0 | Epoch 00010 | Batch 300 | Loss: 0.0847 | Time: 0.1741
INFO:root:Part 0 | Epoch 00010 | Batch 320 | Loss: 0.1000 | Time: 0.1747
INFO:root:Part 0 | Epoch 00010 | Batch 340 | Loss: 0.1118 | Time: 0.1715
INFO:root:Part 0 | Epoch 00010 | Batch 360 | Loss: 0.1128 | Time: 0.1684
INFO:root:Part 0 | Epoch 00010 | Batch 380 | Loss: 0.0815 | Time: 0.1685
INFO:root:Part 0 | Epoch 00010 | Batch 400 | Loss: 0.0981 | Time: 0.1737
INFO:root:Part 0 | Epoch 00010 | Batch 420 | Loss: 0.0976 | Time: 0.1753
INFO:root:Part 0 | Epoch 00010 | Batch 440 | Loss: 0.0787 | Time: 0.1741
INFO:root:Part 0 | Epoch 00010 | Batch 460 | Loss: 0.0911 | Time: 0.1719
INFO:root:Epoch 10 take 80.229 seconds
INFO:root:Step 5082 | Validation roc_auc: 0.9043
INFO:root:Step 5082 | Test roc_auc: 0.9120
INFO:root:Step 5082 | Best Validation roc_auc: 0.9043
INFO:root:Step 5082 | Best Test roc_auc: 0.9120
INFO:root:Step 5082 | Best Iteration roc_auc: 5082.0000
INFO:root: Eval time: 26.7195, Evaluation step: 5082.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-10
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00011 | Batch 000 | Loss: 0.0883 | Time: 0.1834
INFO:root:Part 0 | Epoch 00011 | Batch 020 | Loss: 0.0646 | Time: 0.1701
INFO:root:Part 0 | Epoch 00011 | Batch 040 | Loss: 0.0699 | Time: 0.1708
INFO:root:Part 0 | Epoch 00011 | Batch 060 | Loss: 0.1231 | Time: 0.1696
INFO:root:Part 0 | Epoch 00011 | Batch 080 | Loss: 0.1071 | Time: 0.1793
INFO:root:Part 0 | Epoch 00011 | Batch 100 | Loss: 0.0926 | Time: 0.1662
INFO:root:Part 0 | Epoch 00011 | Batch 120 | Loss: 0.0944 | Time: 0.1707
INFO:root:Part 0 | Epoch 00011 | Batch 140 | Loss: 0.1054 | Time: 0.1682
INFO:root:Part 0 | Epoch 00011 | Batch 160 | Loss: 0.0776 | Time: 0.1723
INFO:root:Part 0 | Epoch 00011 | Batch 180 | Loss: 0.1003 | Time: 0.1718
INFO:root:Part 0 | Epoch 00011 | Batch 200 | Loss: 0.0941 | Time: 0.1686
INFO:root:Part 0 | Epoch 00011 | Batch 220 | Loss: 0.0885 | Time: 0.1648
INFO:root:Part 0 | Epoch 00011 | Batch 240 | Loss: 0.0795 | Time: 0.1655
INFO:root:Part 0 | Epoch 00011 | Batch 260 | Loss: 0.0747 | Time: 0.1788
INFO:root:Part 0 | Epoch 00011 | Batch 280 | Loss: 0.0784 | Time: 0.1726
INFO:root:Part 0 | Epoch 00011 | Batch 300 | Loss: 0.0677 | Time: 0.1751
INFO:root:Part 0 | Epoch 00011 | Batch 320 | Loss: 0.1049 | Time: 0.1742
INFO:root:Part 0 | Epoch 00011 | Batch 340 | Loss: 0.0725 | Time: 0.1745
INFO:root:Part 0 | Epoch 00011 | Batch 360 | Loss: 0.0718 | Time: 0.1763
INFO:root:Part 0 | Epoch 00011 | Batch 380 | Loss: 0.0827 | Time: 0.1669
INFO:root:Part 0 | Epoch 00011 | Batch 400 | Loss: 0.0689 | Time: 0.1648
INFO:root:Part 0 | Epoch 00011 | Batch 420 | Loss: 0.0973 | Time: 0.1684
INFO:root:Part 0 | Epoch 00011 | Batch 440 | Loss: 0.0846 | Time: 0.1640
INFO:root:Part 0 | Epoch 00011 | Batch 460 | Loss: 0.0740 | Time: 0.1736
INFO:root:Epoch 11 take 79.691 seconds
INFO:root:Step 5544 | Validation roc_auc: 0.9055
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INFO:root:Step 5544 | Test roc_auc: 0.9131
INFO:root:Step 5544 | Best Validation roc_auc: 0.9055
INFO:root:Step 5544 | Best Test roc_auc: 0.9131
INFO:root:Step 5544 | Best Iteration roc_auc: 5544.0000
INFO:root: Eval time: 25.6842, Evaluation step: 5544.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-11
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00012 | Batch 000 | Loss: 0.0859 | Time: 0.2100
INFO:root:Part 0 | Epoch 00012 | Batch 020 | Loss: 0.0809 | Time: 0.1663
INFO:root:Part 0 | Epoch 00012 | Batch 040 | Loss: 0.0836 | Time: 0.1684
INFO:root:Part 0 | Epoch 00012 | Batch 060 | Loss: 0.0653 | Time: 0.1675
INFO:root:Part 0 | Epoch 00012 | Batch 080 | Loss: 0.0621 | Time: 0.1778
INFO:root:Part 0 | Epoch 00012 | Batch 100 | Loss: 0.0986 | Time: 0.1733
INFO:root:Part 0 | Epoch 00012 | Batch 120 | Loss: 0.0775 | Time: 0.1699
INFO:root:Part 0 | Epoch 00012 | Batch 140 | Loss: 0.0726 | Time: 0.1768
INFO:root:Part 0 | Epoch 00012 | Batch 160 | Loss: 0.0874 | Time: 0.1805
INFO:root:Part 0 | Epoch 00012 | Batch 180 | Loss: 0.0917 | Time: 0.1805
INFO:root:Part 0 | Epoch 00012 | Batch 200 | Loss: 0.0943 | Time: 0.1781
INFO:root:Part 0 | Epoch 00012 | Batch 220 | Loss: 0.0543 | Time: 0.1759
INFO:root:Part 0 | Epoch 00012 | Batch 240 | Loss: 0.0668 | Time: 0.1686
INFO:root:Part 0 | Epoch 00012 | Batch 260 | Loss: 0.0743 | Time: 0.1722
INFO:root:Part 0 | Epoch 00012 | Batch 280 | Loss: 0.0641 | Time: 0.1711
INFO:root:Part 0 | Epoch 00012 | Batch 300 | Loss: 0.0834 | Time: 0.1738
INFO:root:Part 0 | Epoch 00012 | Batch 320 | Loss: 0.0539 | Time: 0.1668
INFO:root:Part 0 | Epoch 00012 | Batch 340 | Loss: 0.0904 | Time: 0.1738
INFO:root:Part 0 | Epoch 00012 | Batch 360 | Loss: 0.0702 | Time: 0.1712
INFO:root:Part 0 | Epoch 00012 | Batch 380 | Loss: 0.0765 | Time: 0.1702
INFO:root:Part 0 | Epoch 00012 | Batch 400 | Loss: 0.0834 | Time: 0.1631
INFO:root:Part 0 | Epoch 00012 | Batch 420 | Loss: 0.0839 | Time: 0.1746
INFO:root:Part 0 | Epoch 00012 | Batch 440 | Loss: 0.0760 | Time: 0.1665
INFO:root:Part 0 | Epoch 00012 | Batch 460 | Loss: 0.1135 | Time: 0.1681
INFO:root:Epoch 12 take 79.827 seconds
INFO:root:Step 6006 | Validation roc_auc: 0.9084
INFO:root:Step 6006 | Test roc_auc: 0.9146
INFO:root:Step 6006 | Best Validation roc_auc: 0.9084
INFO:root:Step 6006 | Best Test roc_auc: 0.9146
INFO:root:Step 6006 | Best Iteration roc_auc: 6006.0000
INFO:root: Eval time: 26.1732, Evaluation step: 6006.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-12
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00013 | Batch 000 | Loss: 0.1019 | Time: 0.1920
INFO:root:Part 0 | Epoch 00013 | Batch 020 | Loss: 0.0966 | Time: 0.1784
INFO:root:Part 0 | Epoch 00013 | Batch 040 | Loss: 0.0758 | Time: 0.1751
INFO:root:Part 0 | Epoch 00013 | Batch 060 | Loss: 0.0767 | Time: 0.1669
INFO:root:Part 0 | Epoch 00013 | Batch 080 | Loss: 0.0924 | Time: 0.1701
INFO:root:Part 0 | Epoch 00013 | Batch 100 | Loss: 0.0613 | Time: 0.1701
INFO:root:Part 0 | Epoch 00013 | Batch 120 | Loss: 0.0865 | Time: 0.1759
INFO:root:Part 0 | Epoch 00013 | Batch 140 | Loss: 0.0867 | Time: 0.1676
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INFO:root:Part 0 | Epoch 00013 | Batch 160 | Loss: 0.0791 | Time: 0.1701
INFO:root:Part 0 | Epoch 00013 | Batch 180 | Loss: 0.0676 | Time: 0.1762
INFO:root:Part 0 | Epoch 00013 | Batch 200 | Loss: 0.0860 | Time: 0.1734
INFO:root:Part 0 | Epoch 00013 | Batch 220 | Loss: 0.1110 | Time: 0.1683
INFO:root:Part 0 | Epoch 00013 | Batch 240 | Loss: 0.0793 | Time: 0.1681
INFO:root:Part 0 | Epoch 00013 | Batch 260 | Loss: 0.0934 | Time: 0.1667
INFO:root:Part 0 | Epoch 00013 | Batch 280 | Loss: 0.0688 | Time: 0.1831
INFO:root:Part 0 | Epoch 00013 | Batch 300 | Loss: 0.0707 | Time: 0.1738
INFO:root:Part 0 | Epoch 00013 | Batch 320 | Loss: 0.0942 | Time: 0.1736
INFO:root:Part 0 | Epoch 00013 | Batch 340 | Loss: 0.0696 | Time: 0.1768
INFO:root:Part 0 | Epoch 00013 | Batch 360 | Loss: 0.0776 | Time: 0.1707
INFO:root:Part 0 | Epoch 00013 | Batch 380 | Loss: 0.0694 | Time: 0.1642
INFO:root:Part 0 | Epoch 00013 | Batch 400 | Loss: 0.0795 | Time: 0.1701
INFO:root:Part 0 | Epoch 00013 | Batch 420 | Loss: 0.0691 | Time: 0.1712
INFO:root:Part 0 | Epoch 00013 | Batch 440 | Loss: 0.1103 | Time: 0.1732
INFO:root:Part 0 | Epoch 00013 | Batch 460 | Loss: 0.0965 | Time: 0.1701
INFO:root:Epoch 13 take 80.411 seconds
INFO:root:Step 6468 | Validation roc_auc: 0.9103
INFO:root:Step 6468 | Test roc_auc: 0.9159
INFO:root:Step 6468 | Best Validation roc_auc: 0.9103
INFO:root:Step 6468 | Best Test roc_auc: 0.9159
INFO:root:Step 6468 | Best Iteration roc_auc: 6468.0000
INFO:root: Eval time: 25.7995, Evaluation step: 6468.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-13
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00014 | Batch 000 | Loss: 0.0608 | Time: 0.1933
INFO:root:Part 0 | Epoch 00014 | Batch 020 | Loss: 0.0616 | Time: 0.1757
INFO:root:Part 0 | Epoch 00014 | Batch 040 | Loss: 0.0849 | Time: 0.1745
INFO:root:Part 0 | Epoch 00014 | Batch 060 | Loss: 0.0939 | Time: 0.1707
INFO:root:Part 0 | Epoch 00014 | Batch 080 | Loss: 0.0816 | Time: 0.1725
INFO:root:Part 0 | Epoch 00014 | Batch 100 | Loss: 0.0706 | Time: 0.1722
INFO:root:Part 0 | Epoch 00014 | Batch 120 | Loss: 0.0703 | Time: 0.1758
INFO:root:Part 0 | Epoch 00014 | Batch 140 | Loss: 0.1045 | Time: 0.1815
INFO:root:Part 0 | Epoch 00014 | Batch 160 | Loss: 0.0754 | Time: 0.1785
INFO:root:Part 0 | Epoch 00014 | Batch 180 | Loss: 0.0887 | Time: 0.1722
INFO:root:Part 0 | Epoch 00014 | Batch 200 | Loss: 0.0978 | Time: 0.1716
INFO:root:Part 0 | Epoch 00014 | Batch 220 | Loss: 0.0755 | Time: 0.1830
INFO:root:Part 0 | Epoch 00014 | Batch 240 | Loss: 0.1004 | Time: 0.1803
INFO:root:Part 0 | Epoch 00014 | Batch 260 | Loss: 0.0883 | Time: 0.1771
INFO:root:Part 0 | Epoch 00014 | Batch 280 | Loss: 0.0787 | Time: 0.1719
INFO:root:Part 0 | Epoch 00014 | Batch 300 | Loss: 0.0655 | Time: 0.1722
INFO:root:Part 0 | Epoch 00014 | Batch 320 | Loss: 0.0859 | Time: 0.1684
INFO:root:Part 0 | Epoch 00014 | Batch 340 | Loss: 0.0586 | Time: 0.1879
INFO:root:Part 0 | Epoch 00014 | Batch 360 | Loss: 0.0903 | Time: 0.1718
INFO:root:Part 0 | Epoch 00014 | Batch 380 | Loss: 0.0916 | Time: 0.1788
INFO:root:Part 0 | Epoch 00014 | Batch 400 | Loss: 0.0547 | Time: 0.1871
INFO:root:Part 0 | Epoch 00014 | Batch 420 | Loss: 0.0896 | Time: 0.1703
INFO:root:Part 0 | Epoch 00014 | Batch 440 | Loss: 0.0809 | Time: 0.1699
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INFO:root:Part 0 | Epoch 00014 | Batch 460 | Loss: 0.0658 | Time: 0.1709
INFO:root:Epoch 14 take 80.447 seconds
INFO:root:Step 6930 | Validation roc_auc: 0.9162
INFO:root:Step 6930 | Test roc_auc: 0.9215
INFO:root:Step 6930 | Best Validation roc_auc: 0.9162
INFO:root:Step 6930 | Best Test roc_auc: 0.9215
INFO:root:Step 6930 | Best Iteration roc_auc: 6930.0000
INFO:root: Eval time: 26.5607, Evaluation step: 6930.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-14
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00015 | Batch 000 | Loss: 0.0735 | Time: 0.1871
INFO:root:Part 0 | Epoch 00015 | Batch 020 | Loss: 0.0981 | Time: 0.1829
INFO:root:Part 0 | Epoch 00015 | Batch 040 | Loss: 0.0626 | Time: 0.1709
INFO:root:Part 0 | Epoch 00015 | Batch 060 | Loss: 0.0930 | Time: 0.1677
INFO:root:Part 0 | Epoch 00015 | Batch 080 | Loss: 0.0628 | Time: 0.1736
INFO:root:Part 0 | Epoch 00015 | Batch 100 | Loss: 0.0767 | Time: 0.1732
INFO:root:Part 0 | Epoch 00015 | Batch 120 | Loss: 0.0816 | Time: 0.1748
INFO:root:Part 0 | Epoch 00015 | Batch 140 | Loss: 0.0696 | Time: 0.1713
INFO:root:Part 0 | Epoch 00015 | Batch 160 | Loss: 0.0664 | Time: 0.1703
INFO:root:Part 0 | Epoch 00015 | Batch 180 | Loss: 0.0712 | Time: 0.1704
INFO:root:Part 0 | Epoch 00015 | Batch 200 | Loss: 0.0767 | Time: 0.1782
INFO:root:Part 0 | Epoch 00015 | Batch 220 | Loss: 0.0762 | Time: 0.1718
INFO:root:Part 0 | Epoch 00015 | Batch 240 | Loss: 0.0643 | Time: 0.1724
INFO:root:Part 0 | Epoch 00015 | Batch 260 | Loss: 0.0832 | Time: 0.1699
INFO:root:Part 0 | Epoch 00015 | Batch 280 | Loss: 0.0620 | Time: 0.1680
INFO:root:Part 0 | Epoch 00015 | Batch 300 | Loss: 0.0688 | Time: 0.1790
INFO:root:Part 0 | Epoch 00015 | Batch 320 | Loss: 0.0678 | Time: 0.1668
INFO:root:Part 0 | Epoch 00015 | Batch 340 | Loss: 0.0548 | Time: 0.1790
INFO:root:Part 0 | Epoch 00015 | Batch 360 | Loss: 0.0640 | Time: 0.1773
INFO:root:Part 0 | Epoch 00015 | Batch 380 | Loss: 0.0701 | Time: 0.1692
INFO:root:Part 0 | Epoch 00015 | Batch 400 | Loss: 0.0718 | Time: 0.1665
INFO:root:Part 0 | Epoch 00015 | Batch 420 | Loss: 0.1097 | Time: 0.1706
INFO:root:Part 0 | Epoch 00015 | Batch 440 | Loss: 0.0652 | Time: 0.1714
INFO:root:Part 0 | Epoch 00015 | Batch 460 | Loss: 0.0785 | Time: 0.1709
INFO:root:Epoch 15 take 80.365 seconds
INFO:root:Step 7392 | Validation roc_auc: 0.9170
INFO:root:Step 7392 | Test roc_auc: 0.9218
INFO:root:Step 7392 | Best Validation roc_auc: 0.9170
INFO:root:Step 7392 | Best Test roc_auc: 0.9218
INFO:root:Step 7392 | Best Iteration roc_auc: 7392.0000
INFO:root: Eval time: 26.6591, Evaluation step: 7392.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-15
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00016 | Batch 000 | Loss: 0.0674 | Time: 0.2044
INFO:root:Part 0 | Epoch 00016 | Batch 020 | Loss: 0.0637 | Time: 0.1677
INFO:root:Part 0 | Epoch 00016 | Batch 040 | Loss: 0.0922 | Time: 0.1735
INFO:root:Part 0 | Epoch 00016 | Batch 060 | Loss: 0.0824 | Time: 0.1707
INFO:root:Part 0 | Epoch 00016 | Batch 080 | Loss: 0.0760 | Time: 0.1718
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INFO:root:Part 0 | Epoch 00016 | Batch 100 | Loss: 0.0652 | Time: 0.1720
INFO:root:Part 0 | Epoch 00016 | Batch 120 | Loss: 0.0749 | Time: 0.1719
INFO:root:Part 0 | Epoch 00016 | Batch 140 | Loss: 0.0633 | Time: 0.1660
INFO:root:Part 0 | Epoch 00016 | Batch 160 | Loss: 0.0679 | Time: 0.1687
INFO:root:Part 0 | Epoch 00016 | Batch 180 | Loss: 0.0747 | Time: 0.1697
INFO:root:Part 0 | Epoch 00016 | Batch 200 | Loss: 0.0778 | Time: 0.1716
INFO:root:Part 0 | Epoch 00016 | Batch 220 | Loss: 0.0879 | Time: 0.1667
INFO:root:Part 0 | Epoch 00016 | Batch 240 | Loss: 0.0727 | Time: 0.1639
INFO:root:Part 0 | Epoch 00016 | Batch 260 | Loss: 0.0707 | Time: 0.1654
INFO:root:Part 0 | Epoch 00016 | Batch 280 | Loss: 0.0823 | Time: 0.1668
INFO:root:Part 0 | Epoch 00016 | Batch 300 | Loss: 0.0966 | Time: 0.1785
INFO:root:Part 0 | Epoch 00016 | Batch 320 | Loss: 0.0757 | Time: 0.1696
INFO:root:Part 0 | Epoch 00016 | Batch 340 | Loss: 0.0561 | Time: 0.1693
INFO:root:Part 0 | Epoch 00016 | Batch 360 | Loss: 0.0858 | Time: 0.1688
INFO:root:Part 0 | Epoch 00016 | Batch 380 | Loss: 0.0405 | Time: 0.1676
INFO:root:Part 0 | Epoch 00016 | Batch 400 | Loss: 0.0867 | Time: 0.1681
INFO:root:Part 0 | Epoch 00016 | Batch 420 | Loss: 0.0639 | Time: 0.1689
INFO:root:Part 0 | Epoch 00016 | Batch 440 | Loss: 0.0719 | Time: 0.1708
INFO:root:Part 0 | Epoch 00016 | Batch 460 | Loss: 0.1109 | Time: 0.1699
INFO:root:Epoch 16 take 79.730 seconds
INFO:root:Step 7854 | Validation roc_auc: 0.9199
INFO:root:Step 7854 | Test roc_auc: 0.9241
INFO:root:Step 7854 | Best Validation roc_auc: 0.9199
INFO:root:Step 7854 | Best Test roc_auc: 0.9241
INFO:root:Step 7854 | Best Iteration roc_auc: 7854.0000
INFO:root: Eval time: 27.6802, Evaluation step: 7854.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-16
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00017 | Batch 000 | Loss: 0.0782 | Time: 0.1778
INFO:root:Part 0 | Epoch 00017 | Batch 020 | Loss: 0.0798 | Time: 0.1704
INFO:root:Part 0 | Epoch 00017 | Batch 040 | Loss: 0.0767 | Time: 0.1657
INFO:root:Part 0 | Epoch 00017 | Batch 060 | Loss: 0.0689 | Time: 0.1672
INFO:root:Part 0 | Epoch 00017 | Batch 080 | Loss: 0.0807 | Time: 0.1736
INFO:root:Part 0 | Epoch 00017 | Batch 100 | Loss: 0.0563 | Time: 0.1771
INFO:root:Part 0 | Epoch 00017 | Batch 120 | Loss: 0.0741 | Time: 0.1667
INFO:root:Part 0 | Epoch 00017 | Batch 140 | Loss: 0.0893 | Time: 0.1684
INFO:root:Part 0 | Epoch 00017 | Batch 160 | Loss: 0.0640 | Time: 0.1648
INFO:root:Part 0 | Epoch 00017 | Batch 180 | Loss: 0.0747 | Time: 0.1671
INFO:root:Part 0 | Epoch 00017 | Batch 200 | Loss: 0.0714 | Time: 0.1665
INFO:root:Part 0 | Epoch 00017 | Batch 220 | Loss: 0.0960 | Time: 0.1677
INFO:root:Part 0 | Epoch 00017 | Batch 240 | Loss: 0.0809 | Time: 0.1695
INFO:root:Part 0 | Epoch 00017 | Batch 260 | Loss: 0.0769 | Time: 0.1653
INFO:root:Part 0 | Epoch 00017 | Batch 280 | Loss: 0.0729 | Time: 0.1708
INFO:root:Part 0 | Epoch 00017 | Batch 300 | Loss: 0.1097 | Time: 0.1674
INFO:root:Part 0 | Epoch 00017 | Batch 320 | Loss: 0.1000 | Time: 0.1784
INFO:root:Part 0 | Epoch 00017 | Batch 340 | Loss: 0.0662 | Time: 0.1724
INFO:root:Part 0 | Epoch 00017 | Batch 360 | Loss: 0.0788 | Time: 0.1722
INFO:root:Part 0 | Epoch 00017 | Batch 380 | Loss: 0.0553 | Time: 0.1680
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INFO:root:Part 0 | Epoch 00017 | Batch 400 | Loss: 0.0804 | Time: 0.1667
INFO:root:Part 0 | Epoch 00017 | Batch 420 | Loss: 0.0747 | Time: 0.1651
INFO:root:Part 0 | Epoch 00017 | Batch 440 | Loss: 0.0570 | Time: 0.1694
INFO:root:Part 0 | Epoch 00017 | Batch 460 | Loss: 0.0921 | Time: 0.1680
INFO:root:Epoch 17 take 78.758 seconds
INFO:root:Step 8316 | Validation roc_auc: 0.9252
INFO:root:Step 8316 | Test roc_auc: 0.9288
INFO:root:Step 8316 | Best Validation roc_auc: 0.9252
INFO:root:Step 8316 | Best Test roc_auc: 0.9288
INFO:root:Step 8316 | Best Iteration roc_auc: 8316.0000
INFO:root: Eval time: 26.3176, Evaluation step: 8316.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-17
INFO:root:Time on save model: 0.007 seconds
INFO:root:Part 0 | Epoch 00018 | Batch 000 | Loss: 0.0561 | Time: 0.2096
INFO:root:Part 0 | Epoch 00018 | Batch 020 | Loss: 0.0560 | Time: 0.1805
INFO:root:Part 0 | Epoch 00018 | Batch 040 | Loss: 0.0612 | Time: 0.1686
INFO:root:Part 0 | Epoch 00018 | Batch 060 | Loss: 0.0831 | Time: 0.1749
INFO:root:Part 0 | Epoch 00018 | Batch 080 | Loss: 0.0834 | Time: 0.1685
INFO:root:Part 0 | Epoch 00018 | Batch 100 | Loss: 0.0584 | Time: 0.1691
INFO:root:Part 0 | Epoch 00018 | Batch 120 | Loss: 0.0798 | Time: 0.1698
INFO:root:Part 0 | Epoch 00018 | Batch 140 | Loss: 0.0674 | Time: 0.1709
INFO:root:Part 0 | Epoch 00018 | Batch 160 | Loss: 0.0510 | Time: 0.1698
INFO:root:Part 0 | Epoch 00018 | Batch 180 | Loss: 0.0722 | Time: 0.1717
INFO:root:Part 0 | Epoch 00018 | Batch 200 | Loss: 0.0746 | Time: 0.1757
INFO:root:Part 0 | Epoch 00018 | Batch 220 | Loss: 0.0646 | Time: 0.1720
INFO:root:Part 0 | Epoch 00018 | Batch 240 | Loss: 0.0703 | Time: 0.1694
INFO:root:Part 0 | Epoch 00018 | Batch 260 | Loss: 0.0749 | Time: 0.1687
INFO:root:Part 0 | Epoch 00018 | Batch 280 | Loss: 0.0748 | Time: 0.1708
INFO:root:Part 0 | Epoch 00018 | Batch 300 | Loss: 0.0831 | Time: 0.1717
INFO:root:Part 0 | Epoch 00018 | Batch 320 | Loss: 0.0796 | Time: 0.1918
INFO:root:Part 0 | Epoch 00018 | Batch 340 | Loss: 0.0610 | Time: 0.1722
INFO:root:Part 0 | Epoch 00018 | Batch 360 | Loss: 0.0997 | Time: 0.1774
INFO:root:Part 0 | Epoch 00018 | Batch 380 | Loss: 0.0720 | Time: 0.1782
INFO:root:Part 0 | Epoch 00018 | Batch 400 | Loss: 0.0805 | Time: 0.1780
INFO:root:Part 0 | Epoch 00018 | Batch 420 | Loss: 0.0753 | Time: 0.1727
INFO:root:Part 0 | Epoch 00018 | Batch 440 | Loss: 0.0722 | Time: 0.1701
INFO:root:Part 0 | Epoch 00018 | Batch 460 | Loss: 0.0721 | Time: 0.1692
INFO:root:Epoch 18 take 80.636 seconds
INFO:root:Step 8778 | Validation roc_auc: 0.9213
INFO:root:Step 8778 | Test roc_auc: 0.9255
INFO:root:Step 8778 | Best Validation roc_auc: 0.9252
INFO:root:Step 8778 | Best Test roc_auc: 0.9288
INFO:root:Step 8778 | Best Iteration roc_auc: 8316.0000
INFO:root: Eval time: 27.8312, Evaluation step: 8778.
INFO:root:Part 0 | Epoch 00019 | Batch 000 | Loss: 0.0896 | Time: 0.2017
INFO:root:Part 0 | Epoch 00019 | Batch 020 | Loss: 0.0686 | Time: 0.1674
INFO:root:Part 0 | Epoch 00019 | Batch 040 | Loss: 0.0798 | Time: 0.1682
INFO:root:Part 0 | Epoch 00019 | Batch 060 | Loss: 0.0734 | Time: 0.1718
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INFO:root:Part 0 | Epoch 00019 | Batch 080 | Loss: 0.0686 | Time: 0.1683
INFO:root:Part 0 | Epoch 00019 | Batch 100 | Loss: 0.0764 | Time: 0.1756
INFO:root:Part 0 | Epoch 00019 | Batch 120 | Loss: 0.0948 | Time: 0.1719
INFO:root:Part 0 | Epoch 00019 | Batch 140 | Loss: 0.0537 | Time: 0.1789
INFO:root:Part 0 | Epoch 00019 | Batch 160 | Loss: 0.0687 | Time: 0.1710
INFO:root:Part 0 | Epoch 00019 | Batch 180 | Loss: 0.0738 | Time: 0.1728
INFO:root:Part 0 | Epoch 00019 | Batch 200 | Loss: 0.0710 | Time: 0.1739
INFO:root:Part 0 | Epoch 00019 | Batch 220 | Loss: 0.0877 | Time: 0.1736
INFO:root:Part 0 | Epoch 00019 | Batch 240 | Loss: 0.0631 | Time: 0.1809
INFO:root:Part 0 | Epoch 00019 | Batch 260 | Loss: 0.0818 | Time: 0.1716
INFO:root:Part 0 | Epoch 00019 | Batch 280 | Loss: 0.0563 | Time: 0.1713
INFO:root:Part 0 | Epoch 00019 | Batch 300 | Loss: 0.0648 | Time: 0.1676
INFO:root:Part 0 | Epoch 00019 | Batch 320 | Loss: 0.0766 | Time: 0.1855
INFO:root:Part 0 | Epoch 00019 | Batch 340 | Loss: 0.0737 | Time: 0.1733
INFO:root:Part 0 | Epoch 00019 | Batch 360 | Loss: 0.0621 | Time: 0.1684
INFO:root:Part 0 | Epoch 00019 | Batch 380 | Loss: 0.0762 | Time: 0.1699
INFO:root:Part 0 | Epoch 00019 | Batch 400 | Loss: 0.0653 | Time: 0.1689
INFO:root:Part 0 | Epoch 00019 | Batch 420 | Loss: 0.0767 | Time: 0.1801
INFO:root:Part 0 | Epoch 00019 | Batch 440 | Loss: 0.0739 | Time: 0.1698
INFO:root:Part 0 | Epoch 00019 | Batch 460 | Loss: 0.0899 | Time: 0.1737
INFO:root:Epoch 19 take 80.881 seconds
INFO:root:Step 9240 | Validation roc_auc: 0.9246
INFO:root:Step 9240 | Test roc_auc: 0.9275
INFO:root:Step 9240 | Best Validation roc_auc: 0.9252
INFO:root:Step 9240 | Best Test roc_auc: 0.9288
INFO:root:Step 9240 | Best Iteration roc_auc: 8316.0000
INFO:root: Eval time: 27.5928, Evaluation step: 9240.
INFO:root:Part 0 | Epoch 00020 | Batch 000 | Loss: 0.0722 | Time: 0.2077
INFO:root:Part 0 | Epoch 00020 | Batch 020 | Loss: 0.0751 | Time: 0.1696
INFO:root:Part 0 | Epoch 00020 | Batch 040 | Loss: 0.0743 | Time: 0.1785
INFO:root:Part 0 | Epoch 00020 | Batch 060 | Loss: 0.0639 | Time: 0.1721
INFO:root:Part 0 | Epoch 00020 | Batch 080 | Loss: 0.0655 | Time: 0.1817
INFO:root:Part 0 | Epoch 00020 | Batch 100 | Loss: 0.0923 | Time: 0.1691
INFO:root:Part 0 | Epoch 00020 | Batch 120 | Loss: 0.0610 | Time: 0.1705
INFO:root:Part 0 | Epoch 00020 | Batch 140 | Loss: 0.0514 | Time: 0.1721
INFO:root:Part 0 | Epoch 00020 | Batch 160 | Loss: 0.0785 | Time: 0.1809
INFO:root:Part 0 | Epoch 00020 | Batch 180 | Loss: 0.0606 | Time: 0.1725
INFO:root:Part 0 | Epoch 00020 | Batch 200 | Loss: 0.0951 | Time: 0.1721
INFO:root:Part 0 | Epoch 00020 | Batch 220 | Loss: 0.0821 | Time: 0.1723
INFO:root:Part 0 | Epoch 00020 | Batch 240 | Loss: 0.0996 | Time: 0.1707
INFO:root:Part 0 | Epoch 00020 | Batch 260 | Loss: 0.0926 | Time: 0.1672
INFO:root:Part 0 | Epoch 00020 | Batch 280 | Loss: 0.0689 | Time: 0.1691
INFO:root:Part 0 | Epoch 00020 | Batch 300 | Loss: 0.0905 | Time: 0.1701
INFO:root:Part 0 | Epoch 00020 | Batch 320 | Loss: 0.0794 | Time: 0.1744
INFO:root:Part 0 | Epoch 00020 | Batch 340 | Loss: 0.0825 | Time: 0.1698
INFO:root:Part 0 | Epoch 00020 | Batch 360 | Loss: 0.0888 | Time: 0.1699
INFO:root:Part 0 | Epoch 00020 | Batch 380 | Loss: 0.0813 | Time: 0.1727
INFO:root:Part 0 | Epoch 00020 | Batch 400 | Loss: 0.0770 | Time: 0.1725
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INFO:root:Part 0 | Epoch 00020 | Batch 420 | Loss: 0.0650 | Time: 0.1708
INFO:root:Part 0 | Epoch 00020 | Batch 440 | Loss: 0.0661 | Time: 0.1745
INFO:root:Part 0 | Epoch 00020 | Batch 460 | Loss: 0.0807 | Time: 0.1730
INFO:root:Epoch 20 take 80.841 seconds
INFO:root:Step 9702 | Validation roc_auc: 0.9224
INFO:root:Step 9702 | Test roc_auc: 0.9264
INFO:root:Step 9702 | Best Validation roc_auc: 0.9252
INFO:root:Step 9702 | Best Test roc_auc: 0.9288
INFO:root:Step 9702 | Best Iteration roc_auc: 8316.0000
INFO:root: Eval time: 26.8712, Evaluation step: 9702.
INFO:root:Part 0 | Epoch 00021 | Batch 000 | Loss: 0.0682 | Time: 0.2161
INFO:root:Part 0 | Epoch 00021 | Batch 020 | Loss: 0.0944 | Time: 0.1828
INFO:root:Part 0 | Epoch 00021 | Batch 040 | Loss: 0.0743 | Time: 0.1789
INFO:root:Part 0 | Epoch 00021 | Batch 060 | Loss: 0.0740 | Time: 0.1826
INFO:root:Part 0 | Epoch 00021 | Batch 080 | Loss: 0.0745 | Time: 0.1767
INFO:root:Part 0 | Epoch 00021 | Batch 100 | Loss: 0.0753 | Time: 0.1685
INFO:root:Part 0 | Epoch 00021 | Batch 120 | Loss: 0.0707 | Time: 0.1715
INFO:root:Part 0 | Epoch 00021 | Batch 140 | Loss: 0.0671 | Time: 0.1805
INFO:root:Part 0 | Epoch 00021 | Batch 160 | Loss: 0.1237 | Time: 0.1687
INFO:root:Part 0 | Epoch 00021 | Batch 180 | Loss: 0.0591 | Time: 0.1662
INFO:root:Part 0 | Epoch 00021 | Batch 200 | Loss: 0.0753 | Time: 0.1752
INFO:root:Part 0 | Epoch 00021 | Batch 220 | Loss: 0.0700 | Time: 0.1633
INFO:root:Part 0 | Epoch 00021 | Batch 240 | Loss: 0.0720 | Time: 0.1696
INFO:root:Part 0 | Epoch 00021 | Batch 260 | Loss: 0.0801 | Time: 0.1660
INFO:root:Part 0 | Epoch 00021 | Batch 280 | Loss: 0.0625 | Time: 0.1733
INFO:root:Part 0 | Epoch 00021 | Batch 300 | Loss: 0.0740 | Time: 0.1717
INFO:root:Part 0 | Epoch 00021 | Batch 320 | Loss: 0.0720 | Time: 0.1878
INFO:root:Part 0 | Epoch 00021 | Batch 340 | Loss: 0.0896 | Time: 0.1698
INFO:root:Part 0 | Epoch 00021 | Batch 360 | Loss: 0.0641 | Time: 0.1681
INFO:root:Part 0 | Epoch 00021 | Batch 380 | Loss: 0.0643 | Time: 0.1652
INFO:root:Part 0 | Epoch 00021 | Batch 400 | Loss: 0.0704 | Time: 0.1673
INFO:root:Part 0 | Epoch 00021 | Batch 420 | Loss: 0.0701 | Time: 0.1836
INFO:root:Part 0 | Epoch 00021 | Batch 440 | Loss: 0.0792 | Time: 0.1692
INFO:root:Part 0 | Epoch 00021 | Batch 460 | Loss: 0.0467 | Time: 0.1654
INFO:root:Epoch 21 take 79.801 seconds
INFO:root:Step 10164 | Validation roc_auc: 0.9256
INFO:root:Step 10164 | Test roc_auc: 0.9294
INFO:root:Step 10164 | Best Validation roc_auc: 0.9256
INFO:root:Step 10164 | Best Test roc_auc: 0.9294
INFO:root:Step 10164 | Best Iteration roc_auc: 10164.0000
INFO:root: Eval time: 26.4648, Evaluation step: 10164.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-21
INFO:root:Time on save model: 0.007 seconds
INFO:root:Part 0 | Epoch 00022 | Batch 000 | Loss: 0.0738 | Time: 0.1793
INFO:root:Part 0 | Epoch 00022 | Batch 020 | Loss: 0.0566 | Time: 0.1780
INFO:root:Part 0 | Epoch 00022 | Batch 040 | Loss: 0.0801 | Time: 0.1652
INFO:root:Part 0 | Epoch 00022 | Batch 060 | Loss: 0.0653 | Time: 0.1665
INFO:root:Part 0 | Epoch 00022 | Batch 080 | Loss: 0.0446 | Time: 0.1711
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INFO:root:Part 0 | Epoch 00022 | Batch 100 | Loss: 0.0795 | Time: 0.1722
INFO:root:Part 0 | Epoch 00022 | Batch 120 | Loss: 0.0686 | Time: 0.1653
INFO:root:Part 0 | Epoch 00022 | Batch 140 | Loss: 0.0756 | Time: 0.1662
INFO:root:Part 0 | Epoch 00022 | Batch 160 | Loss: 0.0704 | Time: 0.1727
INFO:root:Part 0 | Epoch 00022 | Batch 180 | Loss: 0.0804 | Time: 0.1777
INFO:root:Part 0 | Epoch 00022 | Batch 200 | Loss: 0.0754 | Time: 0.1656
INFO:root:Part 0 | Epoch 00022 | Batch 220 | Loss: 0.0574 | Time: 0.1656
INFO:root:Part 0 | Epoch 00022 | Batch 240 | Loss: 0.0931 | Time: 0.1682
INFO:root:Part 0 | Epoch 00022 | Batch 260 | Loss: 0.0485 | Time: 0.1781
INFO:root:Part 0 | Epoch 00022 | Batch 280 | Loss: 0.0683 | Time: 0.1672
INFO:root:Part 0 | Epoch 00022 | Batch 300 | Loss: 0.0829 | Time: 0.1706
INFO:root:Part 0 | Epoch 00022 | Batch 320 | Loss: 0.0648 | Time: 0.1745
INFO:root:Part 0 | Epoch 00022 | Batch 340 | Loss: 0.0757 | Time: 0.1712
INFO:root:Part 0 | Epoch 00022 | Batch 360 | Loss: 0.0559 | Time: 0.1690
INFO:root:Part 0 | Epoch 00022 | Batch 380 | Loss: 0.0861 | Time: 0.1675
INFO:root:Part 0 | Epoch 00022 | Batch 400 | Loss: 0.0676 | Time: 0.1690
INFO:root:Part 0 | Epoch 00022 | Batch 420 | Loss: 0.0920 | Time: 0.1722
INFO:root:Part 0 | Epoch 00022 | Batch 440 | Loss: 0.0683 | Time: 0.1702
INFO:root:Part 0 | Epoch 00022 | Batch 460 | Loss: 0.0713 | Time: 0.1733
INFO:root:Epoch 22 take 79.631 seconds
INFO:root:Step 10626 | Validation roc_auc: 0.9267
INFO:root:Step 10626 | Test roc_auc: 0.9301
INFO:root:Step 10626 | Best Validation roc_auc: 0.9267
INFO:root:Step 10626 | Best Test roc_auc: 0.9301
INFO:root:Step 10626 | Best Iteration roc_auc: 10626.0000
INFO:root: Eval time: 27.3605, Evaluation step: 10626.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-22
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00023 | Batch 000 | Loss: 0.0522 | Time: 0.2013
INFO:root:Part 0 | Epoch 00023 | Batch 020 | Loss: 0.0511 | Time: 0.1694
INFO:root:Part 0 | Epoch 00023 | Batch 040 | Loss: 0.0724 | Time: 0.1771
INFO:root:Part 0 | Epoch 00023 | Batch 060 | Loss: 0.0781 | Time: 0.1661
INFO:root:Part 0 | Epoch 00023 | Batch 080 | Loss: 0.0765 | Time: 0.1791
INFO:root:Part 0 | Epoch 00023 | Batch 100 | Loss: 0.0713 | Time: 0.1697
INFO:root:Part 0 | Epoch 00023 | Batch 120 | Loss: 0.0476 | Time: 0.1855
INFO:root:Part 0 | Epoch 00023 | Batch 140 | Loss: 0.0622 | Time: 0.1828
INFO:root:Part 0 | Epoch 00023 | Batch 160 | Loss: 0.0587 | Time: 0.1682
INFO:root:Part 0 | Epoch 00023 | Batch 180 | Loss: 0.0739 | Time: 0.1690
INFO:root:Part 0 | Epoch 00023 | Batch 200 | Loss: 0.0725 | Time: 0.1788
INFO:root:Part 0 | Epoch 00023 | Batch 220 | Loss: 0.0859 | Time: 0.1933
INFO:root:Part 0 | Epoch 00023 | Batch 240 | Loss: 0.0743 | Time: 0.1794
INFO:root:Part 0 | Epoch 00023 | Batch 260 | Loss: 0.0720 | Time: 0.1812
INFO:root:Part 0 | Epoch 00023 | Batch 280 | Loss: 0.0631 | Time: 0.1788
INFO:root:Part 0 | Epoch 00023 | Batch 300 | Loss: 0.0655 | Time: 0.1848
INFO:root:Part 0 | Epoch 00023 | Batch 320 | Loss: 0.0734 | Time: 0.1816
INFO:root:Part 0 | Epoch 00023 | Batch 340 | Loss: 0.0736 | Time: 0.1872
INFO:root:Part 0 | Epoch 00023 | Batch 360 | Loss: 0.0711 | Time: 0.1795
INFO:root:Part 0 | Epoch 00023 | Batch 380 | Loss: 0.0580 | Time: 0.1827
```

```
INFO:root:Part 0 | Epoch 00023 | Batch 400 | Loss: 0.0725 | Time: 0.1762
INFO:root:Part 0 | Epoch 00023 | Batch 420 | Loss: 0.0694 | Time: 0.1757
INFO:root:Part 0 | Epoch 00023 | Batch 440 | Loss: 0.0881 | Time: 0.1818
INFO:root:Part 0 | Epoch 00023 | Batch 460 | Loss: 0.0654 | Time: 0.1810
INFO:root:Epoch 23 take 82.095 seconds
INFO:root:Step 11088 | Validation roc_auc: 0.9272
INFO:root:Step 11088 | Test roc_auc: 0.9314
INFO:root:Step 11088 | Best Validation roc_auc: 0.9272
INFO:root:Step 11088 | Best Test roc_auc: 0.9314
INFO:root:Step 11088 | Best Iteration roc_auc: 11088.0000
INFO:root: Eval time: 27.1720, Evaluation step: 11088.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-23
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00024 | Batch 000 | Loss: 0.0609 | Time: 0.2185
INFO:root:Part 0 | Epoch 00024 | Batch 020 | Loss: 0.0745 | Time: 0.1789
INFO:root:Part 0 | Epoch 00024 | Batch 040 | Loss: 0.0583 | Time: 0.1769
INFO:root:Part 0 | Epoch 00024 | Batch 060 | Loss: 0.0740 | Time: 0.1776
INFO:root:Part 0 | Epoch 00024 | Batch 080 | Loss: 0.0544 | Time: 0.1716
INFO:root:Part 0 | Epoch 00024 | Batch 100 | Loss: 0.0494 | Time: 0.1702
INFO:root:Part 0 | Epoch 00024 | Batch 120 | Loss: 0.0564 | Time: 0.1776
INFO:root:Part 0 | Epoch 00024 | Batch 140 | Loss: 0.0651 | Time: 0.1698
INFO:root:Part 0 | Epoch 00024 | Batch 160 | Loss: 0.0749 | Time: 0.1652
INFO:root:Part 0 | Epoch 00024 | Batch 180 | Loss: 0.0574 | Time: 0.1731
INFO:root:Part 0 | Epoch 00024 | Batch 200 | Loss: 0.0555 | Time: 0.1798
INFO:root:Part 0 | Epoch 00024 | Batch 220 | Loss: 0.0876 | Time: 0.1802
INFO:root:Part 0 | Epoch 00024 | Batch 240 | Loss: 0.0602 | Time: 0.1795
INFO:root:Part 0 | Epoch 00024 | Batch 260 | Loss: 0.0791 | Time: 0.1820
INFO:root:Part 0 | Epoch 00024 | Batch 280 | Loss: 0.0483 | Time: 0.1676
INFO:root:Part 0 | Epoch 00024 | Batch 300 | Loss: 0.0752 | Time: 0.1671
INFO:root:Part 0 | Epoch 00024 | Batch 320 | Loss: 0.0781 | Time: 0.1779
INFO:root:Part 0 | Epoch 00024 | Batch 340 | Loss: 0.0821 | Time: 0.1904
INFO:root:Part 0 | Epoch 00024 | Batch 360 | Loss: 0.0718 | Time: 0.1808
INFO:root:Part 0 | Epoch 00024 | Batch 380 | Loss: 0.0593 | Time: 0.1809
INFO:root:Part 0 | Epoch 00024 | Batch 400 | Loss: 0.0828 | Time: 0.1699
INFO:root:Part 0 | Epoch 00024 | Batch 420 | Loss: 0.0789 | Time: 0.1708
INFO:root:Part 0 | Epoch 00024 | Batch 440 | Loss: 0.0709 | Time: 0.1685
INFO:root:Part 0 | Epoch 00024 | Batch 460 | Loss: 0.0849 | Time: 0.1716
INFO:root:Epoch 24 take 81.737 seconds
INFO:root:Step 11550 | Validation roc_auc: 0.9317
INFO:root:Step 11550 | Test roc_auc: 0.9348
INFO:root:Step 11550 | Best Validation roc_auc: 0.9317
INFO:root:Step 11550 | Best Test roc_auc: 0.9348
INFO:root:Step 11550 | Best Iteration roc_auc: 11550.0000
INFO:root: Eval time: 27.3338, Evaluation step: 11550.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-24
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00025 | Batch 000 | Loss: 0.0662 | Time: 0.1887
INFO:root:Part 0 | Epoch 00025 | Batch 020 | Loss: 0.0656 | Time: 0.1786
```

```
INFO:root:Part 0 | Epoch 00025 | Batch 040 | Loss: 0.0792 | Time: 0.1809
INFO:root:Part 0 | Epoch 00025 | Batch 060 | Loss: 0.0579 | Time: 0.1757
INFO:root:Part 0 | Epoch 00025 | Batch 080 | Loss: 0.0791 | Time: 0.1738
INFO:root:Part 0 | Epoch 00025 | Batch 100 | Loss: 0.0858 | Time: 0.1743
INFO:root:Part 0 | Epoch 00025 | Batch 120 | Loss: 0.0693 | Time: 0.1839
INFO:root:Part 0 | Epoch 00025 | Batch 140 | Loss: 0.0560 | Time: 0.1698
INFO:root:Part 0 | Epoch 00025 | Batch 160 | Loss: 0.0741 | Time: 0.1716
INFO:root:Part 0 | Epoch 00025 | Batch 180 | Loss: 0.0606 | Time: 0.1741
INFO:root:Part 0 | Epoch 00025 | Batch 200 | Loss: 0.0716 | Time: 0.1871
INFO:root:Part 0 | Epoch 00025 | Batch 220 | Loss: 0.0663 | Time: 0.1699
INFO:root:Part 0 | Epoch 00025 | Batch 240 | Loss: 0.0507 | Time: 0.1692
INFO:root:Part 0 | Epoch 00025 | Batch 260 | Loss: 0.0608 | Time: 0.1732
INFO:root:Part 0 | Epoch 00025 | Batch 280 | Loss: 0.1011 | Time: 0.1705
INFO:root:Part 0 | Epoch 00025 | Batch 300 | Loss: 0.0623 | Time: 0.1680
INFO:root:Part 0 | Epoch 00025 | Batch 320 | Loss: 0.0621 | Time: 0.1708
INFO:root:Part 0 | Epoch 00025 | Batch 340 | Loss: 0.0430 | Time: 0.1741
INFO:root:Part 0 | Epoch 00025 | Batch 360 | Loss: 0.0928 | Time: 0.1731
INFO:root:Part 0 | Epoch 00025 | Batch 380 | Loss: 0.0734 | Time: 0.1815
INFO:root:Part 0 | Epoch 00025 | Batch 400 | Loss: 0.0796 | Time: 0.1705
INFO:root:Part 0 | Epoch 00025 | Batch 420 | Loss: 0.0668 | Time: 0.1695
INFO:root:Part 0 | Epoch 00025 | Batch 440 | Loss: 0.0825 | Time: 0.1706
INFO:root:Part 0 | Epoch 00025 | Batch 460 | Loss: 0.0855 | Time: 0.1670
INFO:root:Epoch 25 take 80.902 seconds
INFO:root:Step 12012 | Validation roc_auc: 0.9290
INFO:root:Step 12012 | Test roc_auc: 0.9318
INFO:root:Step 12012 | Best Validation roc_auc: 0.9317
INFO:root:Step 12012 | Best Test roc_auc: 0.9348
INFO:root:Step 12012 | Best Iteration roc_auc: 11550.0000
INFO:root: Eval time: 27.7576, Evaluation step: 12012.
INFO:root:Part 0 | Epoch 00026 | Batch 000 | Loss: 0.0613 | Time: 0.2062
INFO:root:Part 0 | Epoch 00026 | Batch 020 | Loss: 0.0704 | Time: 0.1816
INFO:root:Part 0 | Epoch 00026 | Batch 040 | Loss: 0.0585 | Time: 0.1691
INFO:root:Part 0 | Epoch 00026 | Batch 060 | Loss: 0.0703 | Time: 0.1699
INFO:root:Part 0 | Epoch 00026 | Batch 080 | Loss: 0.0732 | Time: 0.1760
INFO:root:Part 0 | Epoch 00026 | Batch 100 | Loss: 0.0618 | Time: 0.1735
INFO:root:Part 0 | Epoch 00026 | Batch 120 | Loss: 0.0704 | Time: 0.1737
INFO:root:Part 0 | Epoch 00026 | Batch 140 | Loss: 0.0723 | Time: 0.1697
INFO:root:Part 0 | Epoch 00026 | Batch 160 | Loss: 0.0661 | Time: 0.1696
INFO:root:Part 0 | Epoch 00026 | Batch 180 | Loss: 0.0643 | Time: 0.1685
INFO:root:Part 0 | Epoch 00026 | Batch 200 | Loss: 0.0620 | Time: 0.1699
INFO:root:Part 0 | Epoch 00026 | Batch 220 | Loss: 0.0733 | Time: 0.1698
INFO:root:Part 0 | Epoch 00026 | Batch 240 | Loss: 0.0574 | Time: 0.1787
INFO:root:Part 0 | Epoch 00026 | Batch 260 | Loss: 0.0638 | Time: 0.1820
INFO:root:Part 0 | Epoch 00026 | Batch 280 | Loss: 0.0683 | Time: 0.1792
INFO:root:Part 0 | Epoch 00026 | Batch 300 | Loss: 0.0627 | Time: 0.1730
INFO:root:Part 0 | Epoch 00026 | Batch 320 | Loss: 0.0849 | Time: 0.1732
INFO:root:Part 0 | Epoch 00026 | Batch 340 | Loss: 0.0783 | Time: 0.1700
INFO:root:Part 0 | Epoch 00026 | Batch 360 | Loss: 0.0592 | Time: 0.1686
```

```
INFO:root:Part 0 | Epoch 00026 | Batch 380 | Loss: 0.0803 | Time: 0.1660
INFO:root:Part 0 | Epoch 00026 | Batch 400 | Loss: 0.0676 | Time: 0.1715
INFO:root:Part 0 | Epoch 00026 | Batch 420 | Loss: 0.0809 | Time: 0.1718
INFO:root:Part 0 | Epoch 00026 | Batch 440 | Loss: 0.0429 | Time: 0.1680
INFO:root:Part 0 | Epoch 00026 | Batch 460 | Loss: 0.0550 | Time: 0.1682
INFO:root:Epoch 26 take 80.760 seconds
INFO:root:Step 12474 | Validation roc_auc: 0.9291
INFO:root:Step 12474 | Test roc_auc: 0.9329
INFO:root:Step 12474 | Best Validation roc_auc: 0.9317
INFO:root:Step 12474 | Best Test roc_auc: 0.9348
INFO:root:Step 12474 | Best Iteration roc_auc: 11550.0000
INFO:root: Eval time: 26.8197, Evaluation step: 12474.
INFO:root:Part 0 | Epoch 00027 | Batch 000 | Loss: 0.0683 | Time: 0.2098
INFO:root:Part 0 | Epoch 00027 | Batch 020 | Loss: 0.0425 | Time: 0.1728
INFO:root:Part 0 | Epoch 00027 | Batch 040 | Loss: 0.0481 | Time: 0.1714
INFO:root:Part 0 | Epoch 00027 | Batch 060 | Loss: 0.0629 | Time: 0.1785
INFO:root:Part 0 | Epoch 00027 | Batch 080 | Loss: 0.0674 | Time: 0.1662
INFO:root:Part 0 | Epoch 00027 | Batch 100 | Loss: 0.0568 | Time: 0.1709
INFO:root:Part 0 | Epoch 00027 | Batch 120 | Loss: 0.0561 | Time: 0.1668
INFO:root:Part 0 | Epoch 00027 | Batch 140 | Loss: 0.0714 | Time: 0.1750
INFO:root:Part 0 | Epoch 00027 | Batch 160 | Loss: 0.0823 | Time: 0.1701
INFO:root:Part 0 | Epoch 00027 | Batch 180 | Loss: 0.0553 | Time: 0.1647
INFO:root:Part 0 | Epoch 00027 | Batch 200 | Loss: 0.0562 | Time: 0.1717
INFO:root:Part 0 | Epoch 00027 | Batch 220 | Loss: 0.0854 | Time: 0.1658
INFO:root:Part 0 | Epoch 00027 | Batch 240 | Loss: 0.0878 | Time: 0.1696
INFO:root:Part 0 | Epoch 00027 | Batch 260 | Loss: 0.0546 | Time: 0.1664
INFO:root:Part 0 | Epoch 00027 | Batch 280 | Loss: 0.0514 | Time: 0.1724
INFO:root:Part 0 | Epoch 00027 | Batch 300 | Loss: 0.0830 | Time: 0.1690
INFO:root:Part 0 | Epoch 00027 | Batch 320 | Loss: 0.0573 | Time: 0.1707
INFO:root:Part 0 | Epoch 00027 | Batch 340 | Loss: 0.0562 | Time: 0.1758
INFO:root:Part 0 | Epoch 00027 | Batch 360 | Loss: 0.0491 | Time: 0.1692
INFO:root:Part 0 | Epoch 00027 | Batch 380 | Loss: 0.0731 | Time: 0.1697
INFO:root:Part 0 | Epoch 00027 | Batch 400 | Loss: 0.0677 | Time: 0.1692
INFO:root:Part 0 | Epoch 00027 | Batch 420 | Loss: 0.0627 | Time: 0.1716
INFO:root:Part 0 | Epoch 00027 | Batch 440 | Loss: 0.0935 | Time: 0.1703
INFO:root:Part 0 | Epoch 00027 | Batch 460 | Loss: 0.0647 | Time: 0.1669
INFO:root:Epoch 27 take 79.395 seconds
INFO:root:Step 12936 | Validation roc_auc: 0.9353
INFO:root:Step 12936 | Test roc_auc: 0.9363
INFO:root:Step 12936 | Best Validation roc_auc: 0.9353
INFO:root:Step 12936 | Best Test roc_auc: 0.9363
INFO:root:Step 12936 | Best Iteration roc_auc: 12936.0000
INFO:root: Eval time: 26.6021, Evaluation step: 12936.
INFO:root:successfully save the model to ./model-simple-hgt/epoch-27
INFO:root:Time on save model: 0.008 seconds
INFO:root:Part 0 | Epoch 00028 | Batch 000 | Loss: 0.0742 | Time: 0.1778
INFO:root:Part 0 | Epoch 00028 | Batch 020 | Loss: 0.0659 | Time: 0.1677
INFO:root:Part 0 | Epoch 00028 | Batch 040 | Loss: 0.0702 | Time: 0.1778
```

```
INFO:root:Part 0 | Epoch 00028 | Batch 060 | Loss: 0.0577 | Time: 0.1741
INFO:root:Part 0 | Epoch 00028 | Batch 080 | Loss: 0.0736 | Time: 0.1748
INFO:root:Part 0 | Epoch 00028 | Batch 100 | Loss: 0.0648 | Time: 0.1776
INFO:root:Part 0 | Epoch 00028 | Batch 120 | Loss: 0.0799 | Time: 0.1818
INFO:root:Part 0 | Epoch 00028 | Batch 140 | Loss: 0.0661 | Time: 0.1711
INFO:root:Part 0 | Epoch 00028 | Batch 160 | Loss: 0.0549 | Time: 0.1714
INFO:root:Part 0 | Epoch 00028 | Batch 180 | Loss: 0.0459 | Time: 0.1687
INFO:root:Part 0 | Epoch 00028 | Batch 200 | Loss: 0.1044 | Time: 0.1789
INFO:root:Part 0 | Epoch 00028 | Batch 220 | Loss: 0.0575 | Time: 0.1741
INFO:root:Part 0 | Epoch 00028 | Batch 240 | Loss: 0.0592 | Time: 0.1713
INFO:root:Part 0 | Epoch 00028 | Batch 260 | Loss: 0.0720 | Time: 0.1693
INFO:root:Part 0 | Epoch 00028 | Batch 280 | Loss: 0.0782 | Time: 0.1698
INFO:root:Part 0 | Epoch 00028 | Batch 300 | Loss: 0.0637 | Time: 0.1754
INFO:root:Part 0 | Epoch 00028 | Batch 320 | Loss: 0.0477 | Time: 0.1723
INFO:root:Part 0 | Epoch 00028 | Batch 340 | Loss: 0.0791 | Time: 0.1706
INFO:root:Part 0 | Epoch 00028 | Batch 360 | Loss: 0.0420 | Time: 0.1733
INFO:root:Part 0 | Epoch 00028 | Batch 380 | Loss: 0.0599 | Time: 0.1756
INFO:root:Part 0 | Epoch 00028 | Batch 400 | Loss: 0.0572 | Time: 0.1696
INFO:root:Part 0 | Epoch 00028 | Batch 420 | Loss: 0.0819 | Time: 0.1830
INFO:root:Part 0 | Epoch 00028 | Batch 440 | Loss: 0.0544 | Time: 0.1724
INFO:root:Part 0 | Epoch 00028 | Batch 460 | Loss: 0.0651 | Time: 0.1866
INFO:root:Epoch 28 take 80.638 seconds
INFO:root:Step 13398 | Validation roc_auc: 0.9338
INFO:root:Step 13398 | Test roc_auc: 0.9367
INFO:root:Step 13398 | Best Validation roc_auc: 0.9353
INFO:root:Step 13398 | Best Test roc_auc: 0.9363
INFO:root:Step 13398 | Best Iteration roc_auc: 12936.0000
INFO:root: Eval time: 26.9077, Evaluation step: 13398.
INFO:root:Part 0 | Epoch 00029 | Batch 000 | Loss: 0.0663 | Time: 0.2024
INFO:root:Part 0 | Epoch 00029 | Batch 020 | Loss: 0.0654 | Time: 0.1702
INFO:root:Part 0 | Epoch 00029 | Batch 040 | Loss: 0.0490 | Time: 0.1779
INFO:root:Part 0 | Epoch 00029 | Batch 060 | Loss: 0.0647 | Time: 0.1813
INFO:root:Part 0 | Epoch 00029 | Batch 080 | Loss: 0.0662 | Time: 0.1738
INFO:root:Part 0 | Epoch 00029 | Batch 100 | Loss: 0.0653 | Time: 0.1700
INFO:root:Part 0 | Epoch 00029 | Batch 120 | Loss: 0.0696 | Time: 0.1718
INFO:root:Part 0 | Epoch 00029 | Batch 140 | Loss: 0.0578 | Time: 0.1750
INFO:root:Part 0 | Epoch 00029 | Batch 160 | Loss: 0.0430 | Time: 0.1824
INFO:root:Part 0 | Epoch 00029 | Batch 180 | Loss: 0.0655 | Time: 0.1711
INFO:root:Part 0 | Epoch 00029 | Batch 200 | Loss: 0.0590 | Time: 0.1717
INFO:root:Part 0 | Epoch 00029 | Batch 220 | Loss: 0.0852 | Time: 0.1723
INFO:root:Part 0 | Epoch 00029 | Batch 240 | Loss: 0.0508 | Time: 0.1749
INFO:root:Part 0 | Epoch 00029 | Batch 260 | Loss: 0.0672 | Time: 0.1718
INFO:root:Part 0 | Epoch 00029 | Batch 280 | Loss: 0.0615 | Time: 0.1753
INFO:root:Part 0 | Epoch 00029 | Batch 300 | Loss: 0.0652 | Time: 0.1741
INFO:root:Part 0 | Epoch 00029 | Batch 320 | Loss: 0.0834 | Time: 0.1761
INFO:root:Part 0 | Epoch 00029 | Batch 340 | Loss: 0.0890 | Time: 0.1732
INFO:root:Part 0 | Epoch 00029 | Batch 360 | Loss: 0.0633 | Time: 0.1685
INFO:root:Part 0 | Epoch 00029 | Batch 380 | Loss: 0.0706 | Time: 0.1724
```

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INFO:root:Part 0 | Epoch 00029 | Batch 400 | Loss: 0.0715 | Time: 0.1667
INFO:root:Part 0 | Epoch 00029 | Batch 420 | Loss: 0.0559 | Time: 0.1675
INFO:root:Part 0 | Epoch 00029 | Batch 440 | Loss: 0.0690 | Time: 0.1685
INFO:root:Part 0 | Epoch 00029 | Batch 460 | Loss: 0.0792 | Time: 0.1826
INFO:root:Epoch 29 take 80.688 seconds
INFO:root:Step 13860 | Validation roc_auc: 0.9341
INFO:root:Step 13860 | Test roc_auc: 0.9356
INFO:root:Step 13860 | Best Validation roc_auc: 0.9353
INFO:root:Step 13860 | Best Test roc_auc: 0.9363
INFO:root:Step 13860 | Best Iteration roc_auc: 12936.0000
INFO:root: Eval time: 26.9376, Evaluation step: 13860.
INFO:root:Peak RAM Mem alloc: 2880.3789 MB
INFO:root:best_test_score: {'roc_auc': 0.936303549620026}
INFO:root:best_val_score: {'roc_auc': 0.9353232242436053}
INFO:root:peak_GPU_mem_alloc_MB: 0.0
INFO:root:peak_RAM_mem_alloc_MB: 2880.37890625
INFO:root:best validation iteration: 12936
INFO:root:best model path: ./model-simple-hgt/epoch-27
Client[0] in group[0] is exiting…
Server (0) shutdown.
Server is exiting…
2025-11-28 16:14:43,877 INFO Start doing node id remapping
/bin/sh: switchml: line 1: syntax error: unexpected end of file
/bin/sh: error importing function definition for `switchml'
/bin/sh: module: line 1: syntax error: unexpected end of file
/bin/sh: error importing function definition for `module'
2025-11-28 16:14:44,078 INFO cd /home/ec2-user/SageMaker; (export PYTHONPATH= ;
/home/ec2-user/anaconda3/envs/python3/bin/python -m
graphstorm.gconstruct.remap_result --cf ieee_nc_hgt-Copy1.yaml --eval-metric
roc_auc --save-model-path ./model-simple-hgt/ --topk-model-to-save 1 --num-
epochs 30 --ip-config /tmp/tmpph2wzqc7 --part-config
/home/ec2-user/SageMaker/ieee_gs/ieee-cis.json --rank 0 --world-size 1 --with-
shared-fs True --num-processes 1 --output-chunk-size 100000 --preserve-input
False)
/home/ec2-user/anaconda3/envs/python3/lib/python3.10/site-
packages/outdated/__init__.py:36: UserWarning: pkg_resources is deprecated as an
API. See https://setuptools.pypa.io/en/latest/pkg_resources.html. The
pkg_resources package is slated for removal as early as 2025-11-30. Refrain from
using this package or pin to Setuptools<81.
  from pkg_resources import parse_version
INFO:root:Saved combined configuration to ./model-simple-
hgt/GRAPHSTORM_RUNTIME_UPDATED_TRAINING_CONFIG.yaml
INFO:root:Copied graph construction config to ./model-simple-
hgt/data_transform_new.json
INFO:root:Node embedding directory is not provided. Skip remapping node
embeddings.
INFO:root:Prediction result directory is not provided. Skip remapping prediction
result.
```

```
WARNING:root:No nodes to remap, skipping remapping edge/node predictions and
node embeddings. Embeddings will remain in PyTorch format.
2025-11-28 16:14:51,328 INFO Finish doing node id remapping
```

```
[ ]: !{PYTHON} -m graphstorm.run.gs_node_classification \
             --workspace ./ \
             --part-config ieee_gs/ieee-cis.json \
             --num-trainers 1 \
             --cf ieee_nc_hgt.yaml \
             --eval-metric roc_auc \
             --save-model-path ./model-simple-hgt/ \
             --topk-model-to-save 1 \
             --num-epochs 30
```

```
[10]: os.environ["DGL_LOG_LEVEL"] = "DEBUG"
      os.environ["DGL_RPC_SOCKET_IFNAME"] = "lo"
```

```
[6]: !pip install h5py==3.11.0
```

```
/bin/bash: switchml: line 1: syntax error: unexpected end of file
/bin/bash: error importing function definition for `switchml'
/bin/bash: module: line 1: syntax error: unexpected end of file
/bin/bash: error importing function definition for `module'
Collecting h5py==3.11.0
  Downloading
h5py-3.11.0-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata
(2.5 kB)
Requirement already satisfied: numpy>=1.17.3 in
/home/ec2-user/anaconda3/envs/python3/lib/python3.10/site-packages (from
h5py==3.11.0) (1.26.4)
Downloading
h5py-3.11.0-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (5.3 MB)
                            5.3/5.3 MB
149.4 MB/s   0:00:00
Installing collected packages: h5py
  Attempting uninstall: h5py
    Found existing installation: h5py 3.15.1
    Uninstalling h5py-3.15.1:
      Successfully uninstalled h5py-3.15.1
Successfully installed h5py-3.11.0
```

```
[ ]:
```