```
ssh://luban@10.191.152.51:8022/home/luban/miniconda3/envs/py3.8-tf2.8-pt1.8/bin/
python3.8 -u /nfs/volume-247-2/pengpai/traffic_prediction/run/run.py --dataset
dataset --model Temporal --train Temporal --gpu 0
Namespace(dataset='dataset', gpu='0', model='Temporal', tpe=False, train='Temporal')
================================================
dataset cfg file...
dataset_name            SJ
past_time_len           12
future_time_len         12
train_frac              0.6
test_frac               0.2
enable_all_fea          False
enable_time_in_fea      False
scaler_func             standardScaler
label_index             0
type                    prediction
================================================
x shape  (15529, 1844, 12, 1)
y shape  (15529, 1844, 12, 1)
------------------------------------------
x shape  (5161, 1844, 12, 1)
y shape  (5161, 1844, 12, 1)
------------------------------------------
x shape  (5161, 1844, 12, 1)
y shape  (5161, 1844, 12, 1)
------------------------------------------
================================================
begin import model cfg file...
in_len                  12
out_len                 12
seg_len                 3
stride                  2
win_size                2
factor                  64
d_model                 32
d_ff                    32
n_heads                 4
e_layers                2
dropout                 0.2
block_depth             1
end
================================================
================================================
training cfg file...
batch_size              64
epoch_num               100
early_stop_patience     10
gpu                     0
visdom_ip               127.0.0.1
enable_label_input      False
training_loss           torch.nn.L1Loss()
mask                    False
eval_metric             masked_mae,masked_rmse
func                    torch.optim.Adam
lr                      1e-2
func                    torch.optim.lr_scheduler.MultiStepLR
gamma                   0.1
milestones              [8,20]
save_model              False
enable_few_shot         False
few_shot_ratio          0.2
```

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Temporal have 409433 parameters in total
Epoch     1/100 | total_time_cost: 152.23  | valid_loop_cost: 21.76   |
test_loop_cost: 10.24  | masked_mae    train:     30.992    valid:    24.040    test
:     25.023   | masked_rmse  train:     51.537    valid:    39.168    test:    41
.014    |
Epoch     2/100 | total_time_cost: 150.38  | valid_loop_cost: 21.52   |
test_loop_cost: 10.22  | masked_mae    train:     20.615    valid:    22.121    test
:     23.105   | masked_rmse  train:     33.514    valid:    37.001    test:    38
.906    |
Epoch     3/100 | total_time_cost: 141.27  | valid_loop_cost: 19.50   |
test_loop_cost: 9.33   | masked_mae    train:     19.617    valid:    21.826    test
:     22.828   | masked_rmse  train:     32.397    valid:    36.741    test:    38
.659    |
Epoch     4/100 | total_time_cost: 135.78  | valid_loop_cost: 19.27   |
test_loop_cost: 9.13   | masked_mae    train:     18.815    valid:    20.881    test
:     21.977   | masked_rmse  train:     31.620    valid:    35.902    test:    37
.922    |
Epoch     5/100 | total_time_cost: 135.91  | valid_loop_cost: 19.56   |
test_loop_cost: 9.27   | masked_mae    train:     18.653    valid:    20.789    test
:     22.005   | masked_rmse  train:     31.389    valid:    35.730    test:    37
.927    |
Epoch     6/100 | total_time_cost: 135.41  | valid_loop_cost: 19.10   |
test_loop_cost: 9.12   | masked_mae    train:     18.275    valid:    21.602    test
:     22.668   | masked_rmse  train:     31.017    valid:    36.418    test:    38
.516    |
not update for 1 epochs
Epoch     7/100 | total_time_cost: 135.31  | valid_loop_cost: 19.36   |
test_loop_cost: 9.19   | masked_mae    train:     18.237    valid:    21.068    test
:     22.263   | masked_rmse  train:     30.915    valid:    35.702    test:    37
.920    |
not update for 2 epochs
Epoch     8/100 | total_time_cost: 144.28  | valid_loop_cost: 20.84   |
test_loop_cost: 9.90   | masked_mae    train:     18.032    valid:    20.834    test
:     22.053   | masked_rmse  train:     30.709    valid:    35.835    test:    38
.067    |
not update for 3 epochs
Epoch     9/100 | total_time_cost: 147.98  | valid_loop_cost: 20.47   |
test_loop_cost: 9.87   | masked_mae    train:     17.443    valid:    20.080    test
:     21.385   | masked_rmse  train:     30.213    valid:    35.180    test:    37
.472    |
Epoch    10/100 | total_time_cost: 154.85  | valid_loop_cost: 21.80   |
test_loop_cost: 10.45  | masked_mae    train:     17.322    valid:    20.106    test
:     21.429   | masked_rmse  train:     30.110    valid:    35.197    test:    37
.502    |
not update for 1 epochs
Epoch    11/100 | total_time_cost: 149.04  | valid_loop_cost: 21.04   |
test_loop_cost: 9.98   | masked_mae    train:     17.273    valid:    20.082    test
:     21.407   | masked_rmse  train:     30.057    valid:    35.162    test:    37
.467    |
not update for 2 epochs
Epoch    12/100 | total_time_cost: 147.95  | valid_loop_cost: 20.95   |
test_loop_cost: 9.90   | masked_mae    train:     17.241    valid:    20.113    test
:     21.418   | masked_rmse  train:     30.020    valid:    35.186    test:    37
.475    |
not update for 3 epochs
Epoch    13/100 | total_time_cost: 147.83  | valid_loop_cost: 20.37   |
test_loop_cost: 9.88   | masked_mae    train:     17.204    valid:    20.078    test
:     21.425   | masked_rmse  train:     29.979    valid:    35.129    test:    37
.459    |
Epoch    14/100 | total_time_cost: 148.41  | valid_loop_cost: 20.64   |
```

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test_loop_cost: 9.92   | masked_mae     train:      17.172     valid:      20.034     test
:      21.372   | masked_rmse  train:     29.951    valid:     35.098    test:    37
.417     |
Epoch    15/100 | total_time_cost: 148.53   | valid_loop_cost: 20.93    |
test_loop_cost: 9.94   | masked_mae     train:      17.147     valid:      20.018     test
:      21.321   | masked_rmse  train:     29.909    valid:     35.143    test:    37
.430     |
Epoch    16/100 | total_time_cost: 148.58   | valid_loop_cost: 20.45    |
test_loop_cost: 9.89   | masked_mae     train:      17.118     valid:      19.966     test
:      21.271   | masked_rmse  train:     29.881    valid:     35.083    test:    37
.350     |
Epoch    17/100 | total_time_cost: 148.42   | valid_loop_cost: 20.51    |
test_loop_cost: 9.87   | masked_mae     train:      17.092     valid:      19.942     test
:      21.243   | masked_rmse  train:     29.841    valid:     35.066    test:    37
.336     |
Epoch    18/100 | total_time_cost: 146.91   | valid_loop_cost: 19.42    |
test_loop_cost: 9.12   | masked_mae     train:      17.055     valid:      19.885     test
:      21.233   | masked_rmse  train:     29.810    valid:     34.942    test:    37
.261     |
Epoch    19/100 | total_time_cost: 135.85   | valid_loop_cost: 19.36    |
test_loop_cost: 9.16   | masked_mae     train:      17.036     valid:      19.873     test
:      21.191   | masked_rmse  train:     29.771    valid:     34.988    test:    37
.287     |
Epoch    20/100 | total_time_cost: 135.53   | valid_loop_cost: 19.00    |
test_loop_cost: 9.13   | masked_mae     train:      17.001     valid:      19.888     test
:      21.290   | masked_rmse  train:     29.733    valid:     35.054    test:    37
.427     |
not update for 1 epochs
Epoch    21/100 | total_time_cost: 135.83   | valid_loop_cost: 19.19    |
test_loop_cost: 9.15   | masked_mae     train:      16.924     valid:      19.892     test
:      21.230   | masked_rmse  train:     29.672    valid:     35.040    test:    37
.347     |
not update for 2 epochs
Epoch    22/100 | total_time_cost: 136.93   | valid_loop_cost: 20.36    |
test_loop_cost: 9.86   | masked_mae     train:      16.908     valid:      19.891     test
:      21.229   | masked_rmse  train:     29.657    valid:     35.011    test:    37
.319     |
not update for 3 epochs
Epoch    23/100 | total_time_cost: 148.09   | valid_loop_cost: 20.56    |
test_loop_cost: 9.89   | masked_mae     train:      16.908     valid:      19.912     test
:      21.225   | masked_rmse  train:     29.654    valid:     35.039    test:    37
.317     |
not update for 4 epochs
Epoch    24/100 | total_time_cost: 148.47   | valid_loop_cost: 20.44    |
test_loop_cost: 9.92   | masked_mae     train:      16.896     valid:      19.898     test
:      21.239   | masked_rmse  train:     29.641    valid:     35.015    test:    37
.326     |
not update for 5 epochs
Epoch    25/100 | total_time_cost: 148.81   | valid_loop_cost: 20.81    |
test_loop_cost: 9.89   | masked_mae     train:      16.895     valid:      19.902     test
:      21.222   | masked_rmse  train:     29.634    valid:     35.019    test:    37
.309     |
not update for 6 epochs
Epoch    26/100 | total_time_cost: 148.55   | valid_loop_cost: 20.62    |
test_loop_cost: 9.94   | masked_mae     train:      16.890     valid:      19.865     test
:      21.165   | masked_rmse  train:     29.630    valid:     34.990    test:    37
.248     |
Epoch    27/100 | total_time_cost: 148.51   | valid_loop_cost: 20.62    |
test_loop_cost: 9.90   | masked_mae     train:      16.888     valid:      19.893     test
:      21.197   | masked_rmse  train:     29.626    valid:     35.021    test:    37
.287     |
```

```
not update for 1 epochs
Epoch    28/100 | total_time_cost: 147.98  | valid_loop_cost: 20.93    |
test_loop_cost:  9.86  | masked_mae    train:    16.881   valid:    19.905    test
:    21.235   | masked_rmse  train:    29.614   valid:    35.026   test:    37
.318    |
not update for 2 epochs
Epoch    29/100 | total_time_cost: 147.88  | valid_loop_cost: 20.65    |
test_loop_cost:  9.87  | masked_mae    train:    16.877   valid:    19.876    test
:    21.191   | masked_rmse  train:    29.613   valid:    34.982   test:    37
.264    |
not update for 3 epochs
Epoch    30/100 | total_time_cost: 148.04  | valid_loop_cost: 20.63    |
test_loop_cost:  9.86  | masked_mae    train:    16.874   valid:    19.850    test
:    21.208   | masked_rmse  train:    29.609   valid:    34.972   test:    37
.291    |
Epoch    31/100 | total_time_cost: 148.09  | valid_loop_cost: 20.48    |
test_loop_cost:  9.86  | masked_mae    train:    16.867   valid:    19.881    test
:    21.193   | masked_rmse  train:    29.602   valid:    35.002   test:    37
.280    |
not update for 1 epochs
Epoch    32/100 | total_time_cost: 148.19  | valid_loop_cost: 20.51    |
test_loop_cost:  9.87  | masked_mae    train:    16.869   valid:    19.912    test
:    21.227   | masked_rmse  train:    29.605   valid:    35.020   test:    37
.303    |
not update for 2 epochs
Epoch    33/100 | total_time_cost: 139.90  | valid_loop_cost: 18.98    |
test_loop_cost:  9.11  | masked_mae    train:    16.864   valid:    19.878    test
:    21.189   | masked_rmse  train:    29.593   valid:    34.987   test:    37
.265    |
not update for 3 epochs
Epoch    34/100 | total_time_cost: 135.67  | valid_loop_cost: 18.98    |
test_loop_cost:  9.12  | masked_mae    train:    16.855   valid:    19.872    test
:    21.172   | masked_rmse  train:    29.586   valid:    35.006   test:    37
.269    |
not update for 4 epochs
Epoch    35/100 | total_time_cost: 135.54  | valid_loop_cost: 18.97    |
test_loop_cost:  9.10  | masked_mae    train:    16.855   valid:    19.890    test
:    21.218   | masked_rmse  train:    29.588   valid:    34.988   test:    37
.278    |
not update for 5 epochs
Epoch    36/100 | total_time_cost: 135.21  | valid_loop_cost: 18.79    |
test_loop_cost:  9.10  | masked_mae    train:    16.850   valid:    19.896    test
:    21.213   | masked_rmse  train:    29.581   valid:    34.995   test:    37
.278    |
not update for 6 epochs
Epoch    37/100 | total_time_cost: 146.39  | valid_loop_cost: 20.67    |
test_loop_cost:  9.90  | masked_mae    train:    16.847   valid:    19.863    test
:    21.178   | masked_rmse  train:    29.569   valid:    34.979   test:    37
.258    |
not update for 7 epochs
Epoch    38/100 | total_time_cost: 148.07  | valid_loop_cost: 20.38    |
test_loop_cost:  9.87  | masked_mae    train:    16.841   valid:    19.860    test
:    21.155   | masked_rmse  train:    29.574   valid:    34.982   test:    37
.239    |
not update for 8 epochs
Epoch    39/100 | total_time_cost: 148.20  | valid_loop_cost: 20.52    |
test_loop_cost:  9.87  | masked_mae    train:    16.838   valid:    19.870    test
:    21.185   | masked_rmse  train:    29.569   valid:    35.003   test:    37
.281    |
not update for 9 epochs
Epoch    40/100 | total_time_cost: 147.85  | valid_loop_cost: 20.43    |
```

```
test_loop_cost:   9.89   | masked_mae    train:      16.830    valid:     19.858     test
:     21.148    | masked_rmse  train:     29.558    valid:     34.976    test:     37
.230      |
not update for 10 epochs
=======================================
best epoch:
Epoch    30/100 | total_time_cost: 148.04   | valid_loop_cost: 20.63    |
test_loop_cost:   9.86   | masked_mae    train:      16.874    valid:     19.850     test
:     21.208    | masked_rmse  train:     29.609    valid:     34.972    test:     37
.291      |
-------------------------------------------
```

| horizon | train masked_mae | valid masked_mae | test masked_mae | train masked_rmse | valid masked_rmse | test masked_rmse |
|---|---|---|---|---|---|---|
| 0 | 14.285 | 15.757 | 16.480 | 23.727 | 26.244 | 27.470 |
| 1 | 15.069 | 16.908 | 17.749 | 25.607 | 28.941 | 30.432 |
| 2 | 15.622 | 17.808 | 18.786 | 26.942 | 30.964 | 32.695 |
| 3 | 16.016 | 18.533 | 19.614 | 27.974 | 32.609 | 34.526 |
| 4 | 16.394 | 19.177 | 20.364 | 28.883 | 33.998 | 36.112 |
| 5 | 16.837 | 19.833 | 21.118 | 29.766 | 35.263 | 37.546 |
| 6 | 17.293 | 20.486 | 21.865 | 30.594 | 36.420 | 38.855 |
| 7 | 17.640 | 21.033 | 22.517 | 31.269 | 37.414 | 40.005 |
| 8 | 17.857 | 21.450 | 23.064 | 31.788 | 38.242 | 40.997 |
| 9 | 18.055 | 21.822 | 23.586 | 32.259 | 39.005 | 41.936 |
| 10 | 18.401 | 22.326 | 24.240 | 32.844 | 39.822 | 42.916 |
| 11 | 19.015 | 23.068 | 25.111 | 33.651 | 40.748 | 44.007 |

```
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Process finished with exit code 0
```