

第五次实验

58119125

蒋卓洋

一. 实验要求: 训练满足以下条件的 TransE、 TransH 模型, 并获取测试性能

1. Embedding size = 100

2. 数据集为 WN18RR

二. 实验过程:

1. WN18RR 数据集引入

```
train_dataloader = TrainDataLoader{
    in_path= "./benchmarks/WN18RR/",
    .....}

test_dataloader = TestDataLoader("./benchmarks/WN18RR/", "link")
```

2. 调整模型参数:

(1) TransE 模型

- nbatches=50
- dim=100 (Embedding size = 100)
- train_times=10

(2) TransH 模型

- nbatches=50
- dim=100 (Embedding size = 100)
- train_times=10

3. 模型训练

(1) TransE 模型训练

```
jonarch@ubuntu:~/Desktop/OpenE-OpenE-Pytorch$ cd opene
jonarch@ubuntu:~/Desktop/OpenE-OpenE-Pytorch$ bash make.sh
mkdir: cannot create directory 'release': file exists
jonarch@ubuntu:~/Desktop/OpenE-OpenE-Pytorch$ cd ../
jonarch@ubuntu:~/Desktop/OpenE-OpenE-Pytorch$ python train_transE_WN18RR.py
Input Files Path : ./benchmarks/WN18RR/
The toolkit is importing datasets.
The total of relations is 11.
The total of entities is 40943.
The total of train triples is 86835.
Input Files Path : ./benchmarks/WN18RR/
The total of test triples is 3134.
The total of valid triples is 3034.
Finish initializing...
Epoch 0 | Loss: 4.823599 | 100%
10/10 [05:03:00:00, 30.35s/it] | 3134/3134 [08:20:00:00, 6.26it/s]
```

图 1.TransE 模型训练

(2) TransH 模型训练

```
jonarch@ubuntu:~/Desktop/OpenE-OpenE-Pytorch$ python train_transH_WN18RR.py
Input Files Path : ./benchmarks/WN18RR/
The toolkit is importing datasets.
The total of relations is 11.
The total of entities is 40943.
The total of train triples is 86835.
Input Files Path : ./benchmarks/WN18RR/
The total of test triples is 3134.
The total of valid triples is 3034.
Finish initializing...
Epoch 0 | Loss: 3.072564 | 100%
10/10 [08:58:00:00, 53.07s/it] | 3134/3134 [11:18:00:00, 4.62it/s]
```

图 2.TransH 模型训练

三. 实验结果:

1. TransE 模型训练结果

```
jonarch@ubuntu:~/Desktop/OpenE-OpenE-Pytorch$ cd opene
jonarch@ubuntu:~/Desktop/OpenE-OpenE-Pytorch$ bash make.sh
mkdir: cannot create directory 'release': file exists
jonarch@ubuntu:~/Desktop/OpenE-OpenE-Pytorch$ cd ../
jonarch@ubuntu:~/Desktop/OpenE-OpenE-Pytorch$ python train_transE_WN18RR.py
Input Files Path : ./benchmarks/WN18RR/
The toolkit is importing datasets.
The total of relations is 11.
The total of entities is 40943.
The total of train triples is 86835.
Input Files Path : ./benchmarks/WN18RR/
The total of test triples is 3134.
The total of valid triples is 3034.
Finish initializing...
Epoch 9 | Loss: 4.823599 | 100%
10/10 [05:03:00:00, 30.35s/it] | 3134/3134 [08:20:00:00, 6.26it/s]

no type constraint result:
metric: MR MR h1g19 h1g3 h1g1
f(raw): 0.11475 0765.925701 0.402042 0.233704 0.002553
f(raw): 0.154799 3252.361572 0.445437 0.244735 0.012125
averaged(raw): 0.143127 5009.143555 0.423740 0.229260 0.007339
f(filter): 0.186557 6743.398926 0.424378 0.345246 0.065424
f(filter): 0.203530 3247.116099 0.437502 0.373325 0.017549
averaged(filter): 0.192044 4995.257812 0.440970 0.359285 0.011407
0.440970
0.4409700030048889
```

图 2.TransE 模型训练结果

2. TransH 模型训练结果

```
jonarch@ubuntu:~/Desktop/OpenKE-PyTorch$ python train_transh_WN18RR.py
Input Files Path : ./benchmarks/WN18RR/
The toolkit is importing datasets.
The total of relations is 11.
The total of entities is 40943.
The total of train triples is 86835.
Input Files Path : ./benchmarks/WN18RR/
The total of test triples is 3134.
The total of valid triples is 3834.
Finish Initializing...
Epoch 9 | loss: 3.023254: 100%| 10/10 [08:56<00:00, 53.67s/it]
100%| 3134/3134 [11:18<00:00, 4.62it/s]
no type constraint results:
metric:      MR      PR      hit@10      hit@8      hit@1
l(raw):      0.129708  8352.776367  0.372848    0.281578    0.488957
r(raw):      0.137773  4051.067871  0.397575    0.223838    0.407977
averaged(raw): 0.129241  6201.921875  0.384812    0.212588    0.404467
l(filter):    0.170408  8329.912109  0.386888    0.334716    0.401914
r(filter):    0.185931  4045.822266  0.405871    0.350351    0.413461
averaged(filter): 0.178178  6187.867188  0.395980    0.342533    0.407658
0.395980
0.3959765812613972
```

图 4.TransH 模型训练结果