Code for the paper: "Oracle Teacher: Towards Better Knowledge Distillation" Machine Translation Task

1. Directory Structure

```
espnet_oracle
iwslt16_oracle
```

2. Get started

This work was tested with PyTorch 1.4.0, CUDA 10.1, torchvision 0.5.0, python 3.7, and Ubuntu 16.04.

The implementation is based on a form of ESPNet toolkit. Firstly, you need to install the ESPNet. Please check the installation instructions from https://espnet.github.io/espnet/installation.html.

```
mv <espnet-root>/espnet <espnet-root>/
    espnet_temp
mv espnet_oracle <espnet-root>/espnet
mv iwslt16_oracle <espnet-root>/egs/
    iwslt16_oracle
cd <espnet-root>/egs/iwslt16_oracle/mt1
chmod +x ../../../espnet/bin/
    mt_oracle_train.py
chmod +x ../../../espnet/bin/
    mt_oracle_infer.py
chmod +x ../../../espnet/bin/mt_trans.py
chmod +x ../../../espnet/bin/
    mt_student_kd_train.py
chmod +x ../../../espnet/bin/
    mt_student_train.py
chmod +x utils/run.pl
chmod +x ./local/compute_bleu.sh
```

3. Training the Oracle Teacher & Knowledge Extraction

```
bash run_oracle_teacher.sh
```

You can change the saving path in the following file:

```
<espnet-root>/espnet/mt/pytorch_backend/
    mt_oracle.py
```

4. Initializing the Student with KD

```
bash run_student_kd.sh
```

You can set the path of the Oracle Teacher's knowledge in the following file:

```
<espnet-root>/espnet/mt/pytorch_backend/
    mt_kd.py
```

5. Training the Student with CE loss

```
bash run_student_orig.sh --stage 4
```

5. Testing the Student

```
bash run_student_orig.sh --stage 5 --
    metric acc --n_average 3
```