# Code for the paper: "Oracle Teacher: Towards Better Knowledge Distillation" Scene Text Recognition Task

## 1. Get started

This work was tested with PyTorch 1.4.0, CUDA 10.1, torchvision 0.5.0, python 3.6, and Ubuntu 16.04. Other necessary packages listed in requirements.txt.

## 2. Download lmdb for traininig and evaluation

Download 'data_lmdb_release.zip' from
https://www.dropbox.com/sh/i39abvneflx2si/AAAbAYRvxzRp3cIE5HzqUw3ra?dl=0&preview=data_lmdb_release.zip

## 3. Training

### 1) Train the Oracle Teacher

```
CUDA_VISIBLE_DEVICES=0 python3 oracle_train.py \
--train_data data_lmdb_release/training \
--valid_data data_lmdb_release/validation \
--select_data MJ-ST --batch_ratio 0.5-0.5 \
--Transformation TPS --FeatureExtraction VGG \
--SequenceModeling BiLSTM --Prediction CTC \
--exp_name Oracle_Teacher
```

### 2) Train the student model with FitNets

```
CUDA_VISIBLE_DEVICES=0 python3 oracle_kd_train.py \
--train_data data_lmdb_release/training \
--valid_data data_lmdb_release/validation \
--select_data MJ-ST --batch_ratio 0.5-0.5 \
--Transformation TPS --FeatureExtraction VGG \
--SequenceModeling BiLSTM --Prediction CTC \
--teacher_model saved_models/Oracle_Teacher/
    iter_300000.pth \
--exp_name Student_FitNets
```

### 3) Train the student model with CTC training

```
CUDA_VISIBLE_DEVICES=0 python3 student_train.py \
--train_data data_lmdb_release/training \
--valid_data data_lmdb_release/validation \
--select_data MJ-ST --batch_ratio 0.5-0.5 \
--Transformation TPS --FeatureExtraction VGG \
--SequenceModeling BiLSTM --Prediction CTC \
--init_model saved_models/Student_FitNets/iter_300000
    .pth \
--exp_name Student_FitNets_CTC
```

### 4) Test the student model with the best accuracy

```
CUDA_VISIBLE_DEVICES=0 python3 test.py \
--eval_data data_lmdb_release/evaluation --
    benchmark_all_eval \
--Transformation TPS --FeatureExtraction VGG \
--SequenceModeling BiLSTM --Prediction CTC \
--saved_model saved_models/Student_FitNets_CTC/
    best_accuracy.pth
```