Manual

This manual guides a reproduction of main experiment results. For data production, please refer to the Data_guide.pdf shipped in the OSOCR-data repo.

I. **Setting up environments.**

Step 1. Install a clean Manjaro Linux (Archlinux should do as well)

Step 2. Configure mirror, update the system, install a building requirements and reboot via

sudo pacman -Syyu pybind11 unzip vim; reboot

Step3A. Install PyTorch, Pycharm

sudo pacman -S pycharm-community-edition python-pytorch-cuda

Step3B. While waiting, grab the code, data, and the modified pylcs.

1) Grab the data from kaggle (https://www.kaggle.com/vsdf2898kaggle/osocrtraining):

```
CVPR2016.zip,NIPS2014.zip,ssddata_2.zip,ctwcheval.zip,ssddata_1.tar.gz,ssddata.tar.gz
```

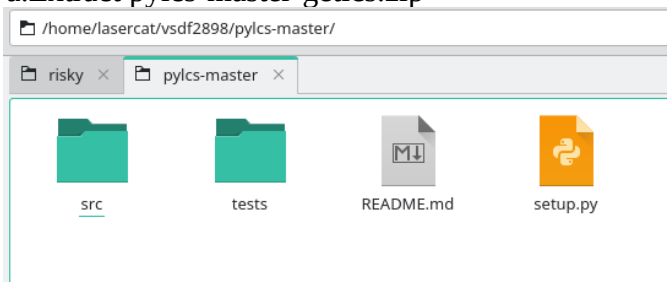
2) Unzip & remove the packages.

```
for i in $(ls | grep zip); do unzip $i; done
tar -xvf ssddata_1.tar.gz;
tar -xvf ssddata.tar.gz
mkdir ../packs; mv *.* ../packs;
```

3) While waiting, install the modded pylcs .

https://github.com/lancercat/VSDF/blob/master/pylcs-master-getlcs.zip

a.Extract pylcs-master-getlcs.zip



b. Run setup.py

python setup.py install --user

4) Collect models.

Step 3C. Stop and check if you have all the following folders

Data:

Models:

Step 4. Fix ffmpeg bug and install torchvision (to think it's still buggy… =_=)

```
wget https://codeload.github.com/pytorch/vision/tar.gz/refs/tags/v0.12.0
tar -xvf v0.12.0
vim +349 setup.py
```

```
if sys.platform != "linux" or (sys.version_info.major == 3 and sys.version_info.minor >= 9):
```

```
python setup.py install --user
```

Step 5. Reboot your PC and Install other dependencies:

a) Via pacman

sudo pacman -S python-lmdb scipy python-opencv python-regex python-matplotlib

sudo pacman -S python-editdistance

b) Via Pip

pip install torch-scatter

Note that you may have trouble building CUDA support of torch-scatter if you did not reboot

II. **Evaluate the Trained models.**

1. Zero-shot Chinese character recognition

CTW dataset (ZSL)

CTW			
# characters in training set			
500	1000	1500	2000
28.03	**49.00**	**58.37**	**64.03**

CTW dataset (OSTR)

	CTW			
#NIC	50	100	200	250
#NOC	450	400	300	250
A(NIC)	79.3	77.1	72.6	69.6
R(NOC)	73.3	54.7	37.7	31.5
P(NOC)	98.9	95.9	92.4	88.6
F(NOC)	84.2	69.7	53.5	46.5

basic_ctwch_CE_alter/testg2.py

```
test accuracy:
Accuracy: 0.280333, AR: 0.280333, CER: 0.719667, WER: 0.719667
97591
500 Done
```

```
Accuracy: 0.583753, AR: 0.583753, CER: 0.416247, WER: 0.416247
97591
1500 Done
```

```
Accuracy: 0.490035, AR: 0.490035, CER: 0.509965, WER: 0.509965
97591
1000 Done
```

```
Accuracy: 0.640387, AR: 0.640387, CER: 0.359613, WER: 0.359613
97591
2000 Done
```

basic_ctwch_CE_alter/testg2-rej.py

```
test rej accuracy:
KACR: 0.793193,URCL:0.733016, UPRE 0.989458, F 0.842147
97591
dictrej50.pt Done
```

```
test rej accuracy:
KACR: 0.771495,URCL:0.547913, UPRE 0.959210, F 0.697440
97591
dictrej100.pt Done
```

```
test rej accuracy:
KACR: 0.726157,URCL:0.377160, UPRE 0.924411, F 0.53573
97591
dictrej200.pt Done
```

```
test rej accuracy:
KACR: 0.696198,URCL:0.315216, UPRE 0.886503, F 0.465068
97591
dictrej250.pt Done
```

HWDB dataset (ZSL)
basic_hwdb_CE_alter/testg2.py

HWDB			
# characters in training set			
500	1000	1500	2000
47.92	**74.02**	**81.11**	85.72

```
Accuracy: 0.479248, AR: 0.479231, CER: 0.520769, WER: 0.520752
59777
500 Done
```

```
Accuracy: 0.740285, AR: 0.740285, CER: 0.259715, WER: 0.259715
59777
1000 Done
```

```
Accuracy: 0.811064, AR: 0.811064, CER: 0.188936, WER: 0.188936
59777
1500 Done
```

```
Accuracy: 0.857253, AR: 0.857253, CER: 0.142747, WER: 0.142747
59777
2000 Done
```

HWDB dataset(OSTR)
basic_hwdb_CE_alter/testg2-rej.py

	HWDB			
#NIC	100	200	400	500
#NOC	900	800	600	500
A(NIC)	93.5	93.9	91.0	90.0
R(NOC)	48.0	24.6	7.9	5.1
P(NOC)	99.7	99.5	97.9	96.7
F(NOC)	64.8	39.5	14.6	9.7

```
KACR: 0.935008,URCL:0.480737, UPRE 0.997340, F 0.64875
59777
dictrej100.pt Done
```

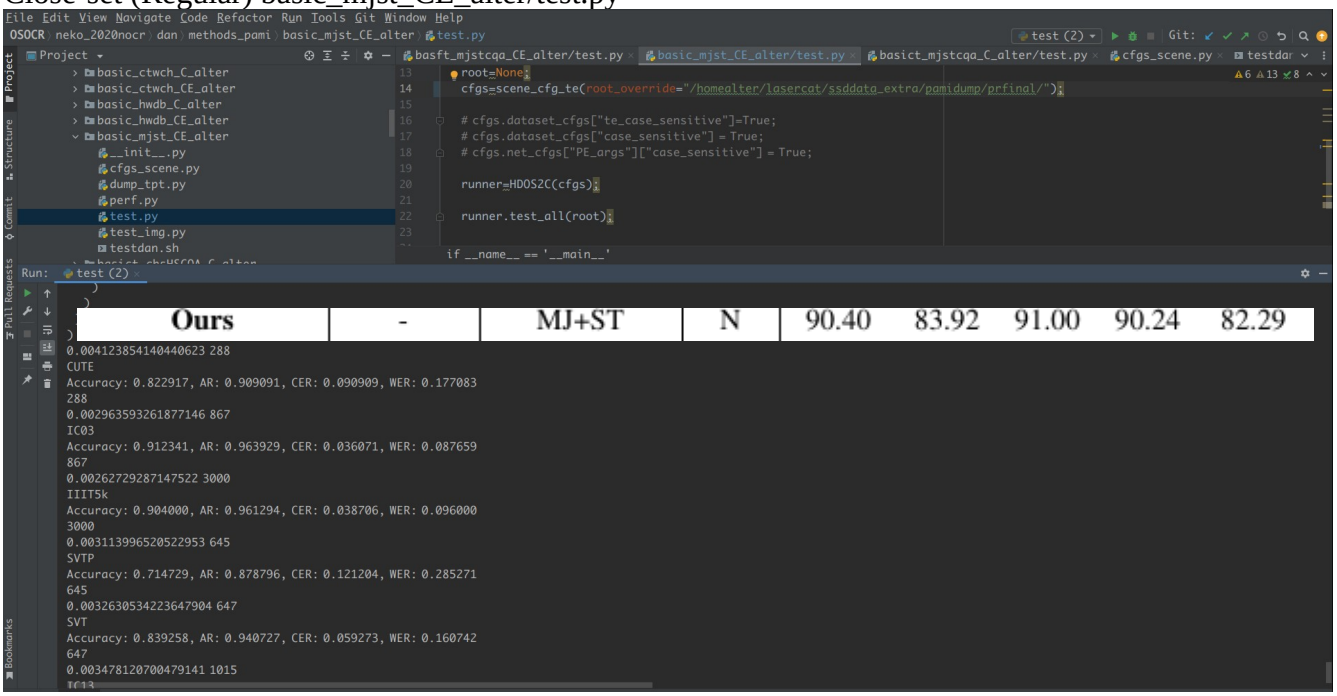
```
KACR: 0.939931,URCL:0.246738, UPRE 0.995697, F 0.395475
59777
dictrej200.pt Done
```

```
KACR: 0.910422,URCL:0.079130, UPRE 0.979634, F 0.146432
59777
dictrej400.pt Done
```

```
test rej accuracy:
KACR: 0.900278,URCL:0.051198, UPRE 0.967130, F 0.097248
59777
dictrej500.pt Done
```

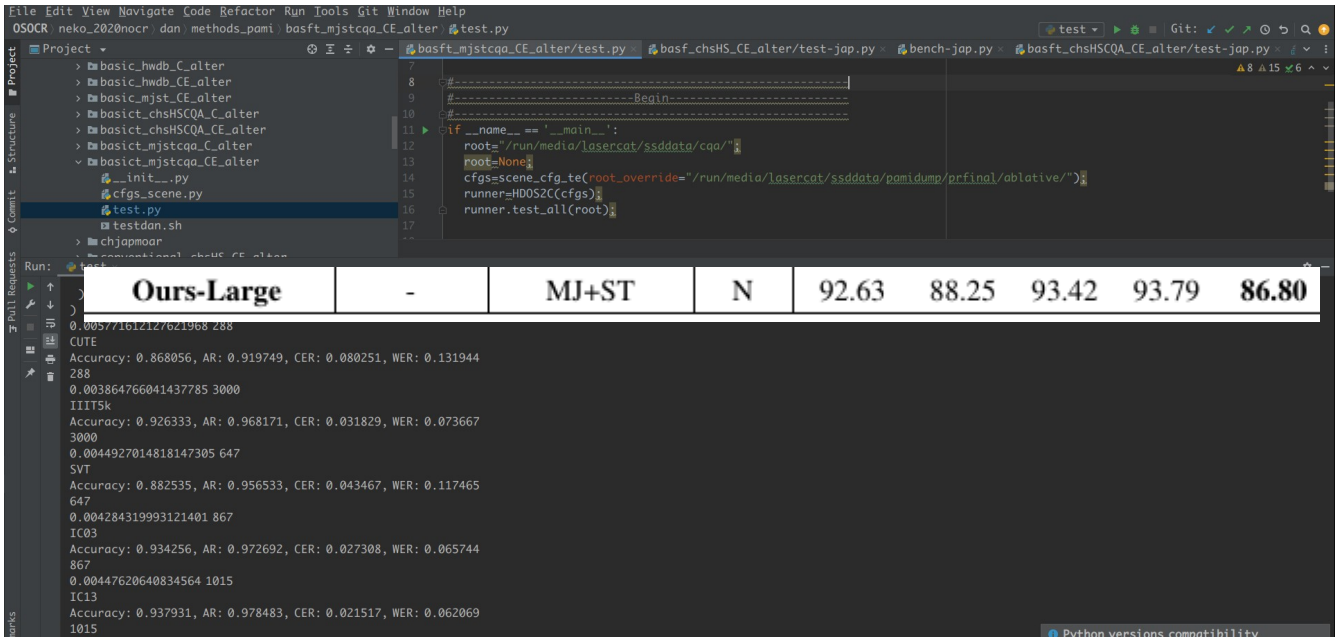
2. Close-set text recognition

Close-set (Regular) basic_mjst_CE_alter/test.py



Ours	-	MJ+ST	N	90.40	83.92	91.00	90.24	82.29

Close-set (Ours-large) basict_mjstcqa_CE_alter/test.py

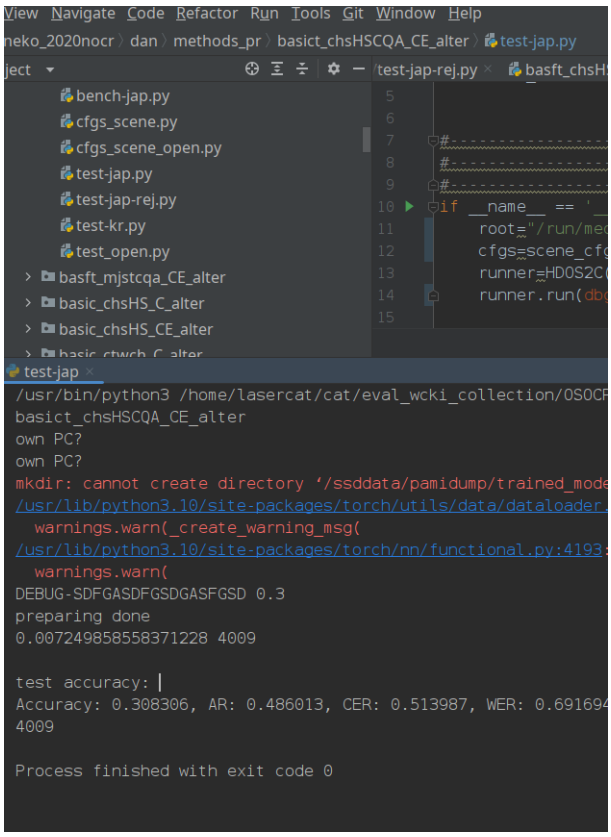


Ours-Large	-	MJ+ST	N	92.63	88.25	93.42	93.79	**86.80**

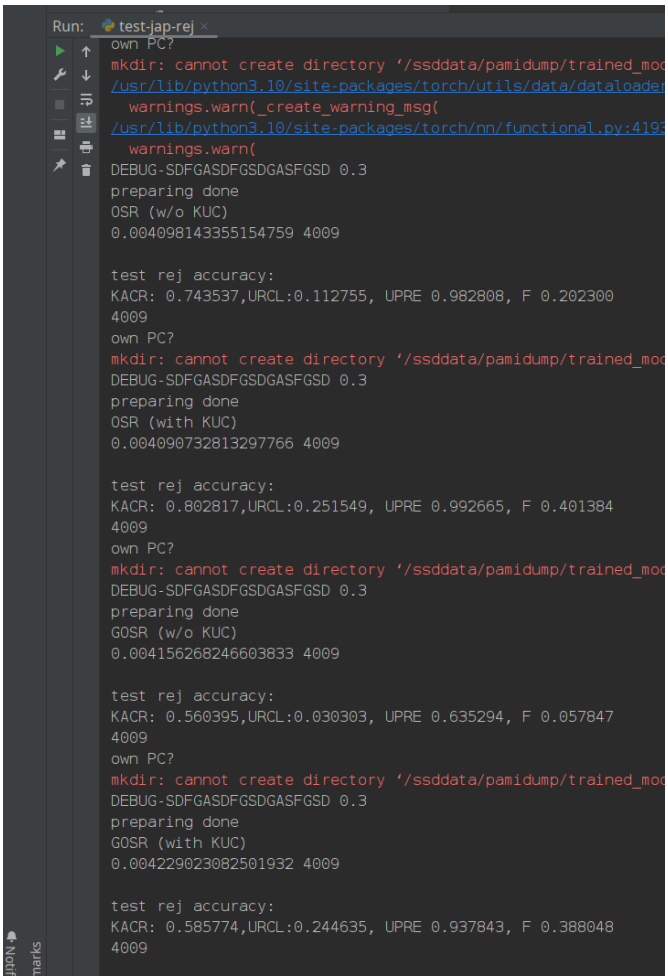
3. Open-set Text Recognition

Name	C^i_{test}	C^o_{test}	$\lvert C^i_{test} \rvert$	LA	R	P	F
GZSL	Unique Kanji, Shared Kanji, Kana, Latin	$\emptyset$	1460	30.83	-	-	-
OSR w/o SOC	Shared Kanji, Latin	Unique Kanji, Kana	849	74.35	11.27	98.28	20.23
OSR with SOC	Shared Kanji	Unique Kanji, Kana, Latin	787	80.28	25.15	99.26	40.13
GOSR	Shared Kanji, Unique Kanji, Latin	Kana	1301	56.03	3.03	63.52	5.78
OSTR	Shared Kanji, Unique Kanji	Kana, Latin	1239	58.57	24.46	93.78	38.80

GZSL
basict_chsHSCQA_CE_alter/test-jap.py



Others:
basict_chsHSCQA_CE_alter/test-jap-rej.py



Details:
chjapmoar/accr_folder.py (make sure you have results from basict_chsHSCQA_CE_alter/test-jap.py)

Name	Sample Requires	Sample Excludes	CA(%)	**LA(%)**
Shared Kanji	Shared Kanji	Unique Kanji, Kana	85.69	73.21
Unique Kanji	Unique Kanji	Kana	76.50	40.87
All Kanji	Unique Kanji or Shared Kanji	Kana	79.94	54.91
Kana	Hiragana or Katakana		25.10	0.72
All			54.03	30.83

```
Connected to pydev debugger (build 221.5591.52)
/run/media/lasercat/20615BC32265B955/prfinal/chs-japxl/
Accuracy: 0.308306, AR: 0.486013, CER: 0.513987, WER: 0.691694
Overall 0.5403113212380896 0.3083063108006984
/run/media/lasercat/20615BC32265B955/prfinal/chs-japxl/
Accuracy: 0.732161, AR: 0.856908, CER: 0.143092, WER: 0.267839
Seen 0.8112844997463888 0.7321613236814891
/run/media/lasercat/20615BC32265B955/prfinal/chs-japxl/
Accuracy: 0.408730, AR: 0.765065, CER: 0.234935, WER: 0.591270
Unique Kanji 0.7549325410039688 0.4087301587301587
/run/media/lasercat/20615BC32265B955/prfinal/chs-japxl/
Accuracy: 0.549169, AR: 0.799458, CER: 0.200542, WER: 0.450831
All Kanji 0.7794014876155192 0.5491692860350247
/run/media/lasercat/20615BC32265B955/prfinal/chs-japxl/
Accuracy: 0.007295, AR: 0.251016, CER: 0.748984, WER: 0.992705
Kana 0.24151569804923498 0.007295173961840628
Ours&54.03/30.83&&81.13/73.22&75.49/40.87&77.94/54.92&24.15/0.73\\

Process finished with exit code 0
```