

## A. Data Preparation

You can choose any one of the following datasets to verify the effectiveness of CorrNet.

### 1. PHOENIX2014 dataset

Download the RWTH-PHOENIX-Weather 2014 Dataset<sup>1</sup>. Our experiments are based on `phoenix-2014.v3.tar.gz`. After finishing dataset download, extract it. It is suggested to make a soft link toward downloaded dataset.

```
ln -s PATH_TO_DATASET/phoenix2014-release ./dataset/phoenix2014
```

The original image sequence is  $210 \times 260$ ; we resize it to  $256 \times 256$  for augmentation. Run the following command to generate gloss dict and resize image sequence.

```
cd ./preprocess
python dataset_preprocess.py --process-image --multiprocessing
```

### 2. PHOENIX2014-T dataset

Download the RWTH-PHOENIX-Weather 2014 Dataset<sup>2</sup>. After finishing dataset download, extract it. It is suggested to make a soft link toward downloaded dataset.

```
ln -s PATH_TO_DATASET/PHOENIX-2014-T-release-v3/PHOENIX-2014-T \
./dataset/phoenix2014-T
```

The original image sequence is  $210 \times 260$ ; we resize it to  $256 \times 256$  for augmentation. Run the following command to generate gloss dict and resize image sequence.

```
cd ./preprocess
python dataset_preprocess-T.py --process-image --multiprocessing
```

### 3. CSL-Daily dataset

Request the CSL-Daily Dataset from this website<sup>3</sup>. After finishing dataset download, extract it. It is suggested to make a soft link toward downloaded dataset.

```
ln -s PATH_TO_DATASET ./dataset/CSL-Daily
```

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<sup>1</sup><https://www-i6.informatik.rwth-aachen.de/~koller/RWTH-PHOENIX-2014-T/>

<sup>2</sup><https://www-i6.informatik.rwth-aachen.de/~koller/RWTH-PHOENIX-2014-T/>

<sup>3</sup><http://home.ustc.edu.cn/~zhouh156/dataset/csl-daily/>

The original image sequence is  $1280 \times 720$ ; we resize it to  $256 \times 256$  for augmentation. Run the following command to generate gloss dict and resize image sequence.

```
cd ./preprocess
python dataset_preprocess-CSL-Daily.py --process-image --multiprocessing
```

## B. Training

The priorities of configuration files are: command line > config file > default values of argparse. To train the SLR model, run the command below:

```
python main.py --config ./config/baseline.yaml --device your_device
```

Note that you can choose the target dataset from phoenix2014/phoenix2014-T/CSL/CSL-Daily in line 3 of ./config/baseline.yaml.

**For CSL-Daily dataset**, you may choose to reduce the learning rate by half from 0.0001 to 0.00005, change the learning-rate decay rate (`gamma` in `optimizer.py`) from 0.2 to 0.5, and disable the temporal resampling strategy (comment line 121 in `dataloader_video.py`).

## C. Visualizations

For Grad-CAM visualization, replace `resnet.py` under `./modules` with `resnet.py` under `./weight_map_generation`, and then run

```
python generate_cam.py
```

with your own hyperparameters.

## D. Test with One Video Input

Except performing inference on datasets, we provide `test_one_video.py` to perform inference with only one video input. An example command is

```
python test_one_video.py --model_path /path_to_pretrained_weights \
--video_path /path_to_your_video \
--device your_device
```

The `video_path` can be the path to a video file or a directory containing extracted images from a video.

**Acceptable parameters:**

- **model\_path**: the path to pretrained weights.
- **video\_path**: the path to a video file or a directory containing extracted images from a video.
- **device**: which device to run inference on, default=0.
- **language**: the target sign language, default='phoenix', choices=['phoenix', 'csl'].
- **max\_frames\_num**: the max input frames sampled from an input video, default=360.

Code Availability Statement: To comply with the double-blind review policy, the complete source code and training scripts will be released on GitHub upon acceptance of the paper. The repository link will be announced via the corresponding author's homepage and the project webpage.