Information About Final Project

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Evaluation

평가기준						
중간고사	**기말고사(과제)**	출석	**과제**	퀴즈	**기타(출석 및 Annotation)**	합계
20 %	**20 %**	5 %	**40 %**	10 %	**5 %**	100 %

Dataset

Parking data: https://goo.gl/Eb57iY

CCTV data: https://goo.gl/189Czg

License Plate Type

Type	License Plate	Type
1		P1
2		P2
3		P3
4		P4
5		P5
6		P6

Parking Data (285 Test Samples)

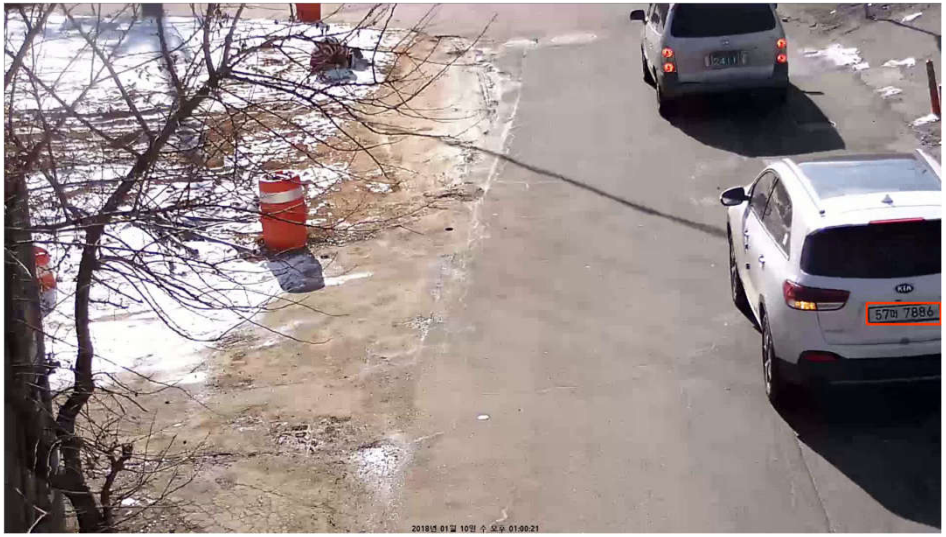
789 473 343 76
46고7080

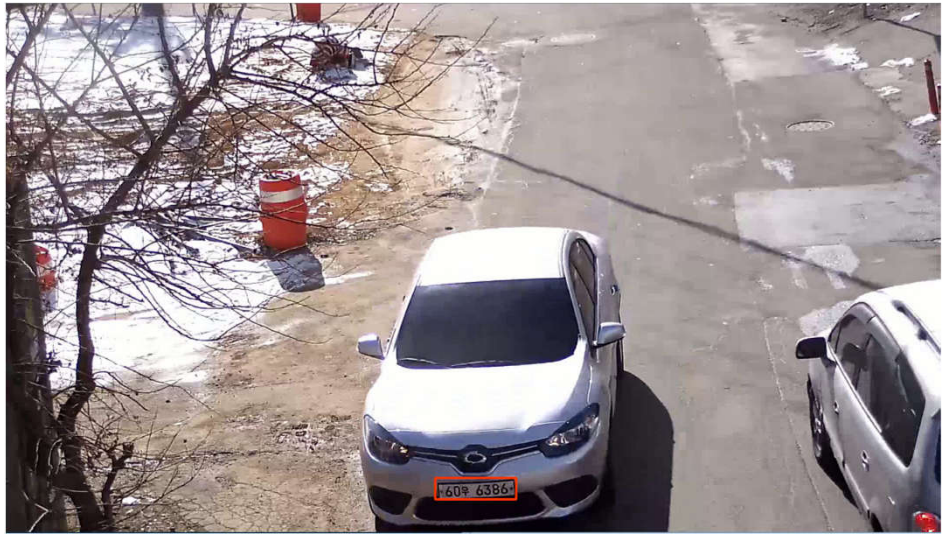
591 509 299 74
34구8107

756 419 310 86
62고9567

225 805 297 149
80조9523

CCTV Data (457 Test Samples)





Annotation Results

No	학번	늦음	제출 안함
1	12131640		
2	12131693		
3	12121601		
4	12121708	O	
5	12131654		
6	12131478	O	
7	12131691		
8	12121609		
9	12111667	O	
10	12141719		
11	12161622		O
12	12123954		
13	12141725	O	
14	12141755		
15	12131330		
16	12120203		
17	12131628		

Metrics for Final Project

Final Project

Subject:

- License Plate Recognition (LPR)

Deep Learning Platform:

TensorFlow PYTORCH K Keras

Definition of the Score

$$Score = Score_{park} + Score_{cctv} + 0.1 \times \left(100 - PT_{park}\right) + 0.1 \times \left(100 - PT_{cctv}\right)$$

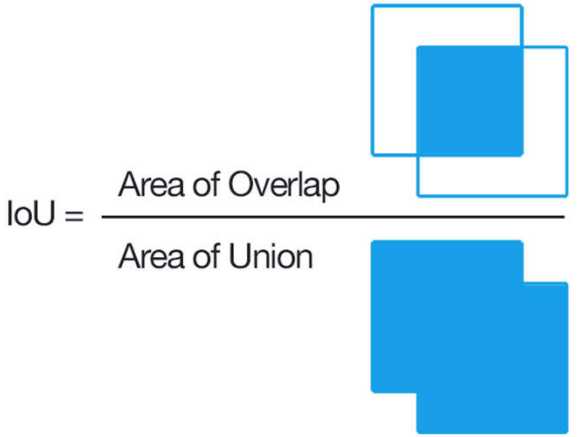
$$PT = m\,\mathrm{sec}./image\,(average)$$

$$Score_i = Accuracy_{det} + Accuracy_{rec} \quad (i = park\ or\ cctv)$$

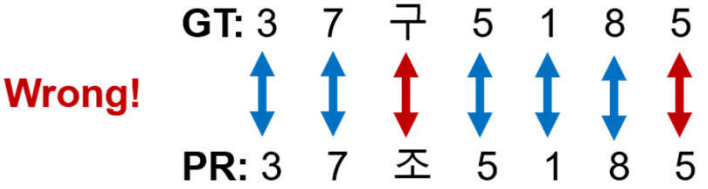
$$Accuracy_{det} = \frac{1}{n}\sum_{i=0}^{n-1} \frac{\#TP_{det} - \#FP_{det}}{\#GT} \times 100\%$$

$$Accuracy_{rec} = \frac{1}{n}\sum_{i=0}^{n-1} \frac{\#TP_{rec}}{\#GT} \times 100\%$$

- PT: average processing time of the model (unit: msec.)
- #TP_{det}: number of true positive for detection
- #FP_{det}: number o false positive for detection
- #TP_{rec}: number of true positive for recognition
- #GT: number of ground-truth



- TP_{det}: IoU >= θ, θ=0.7
- FP_{det}: IoU < θ



Rules

Processing Time

- Insert time check function in the for loop
- Start tic after read frame
- End toc after model forward
- But, if you have preprocess stage, preprocessing time is also included in time tic toc

Tensorflow example: python code

```
425         sumPTime = 0.0
426         for i, sample_image in enumerate(sample_images):
427             idx = i+1
428             print("sampling image ", idx)
429             start = time.time()
430             samples_A, samples_B = self.sess.run(
431                 [self.real_A, self.fake_B_sample],
432                 feed_dict={self.real_data: sample_image}
433             )
434             end = time.time() - start
435             sumPTime += end
436             save_images(samples_A, samples_B, [self.batch_size, 1],
437                         './{}/test_{:04d}.png'.format(args.test_dir, idx))
```

Batch_Size in Test Mode

- Batch_size in training mode can be bigger than 1
- **But in test mode batch_size have to 1!**

TensorFlow Example

```
def __init__(self, sess, image_size=256,
             batch_size=1, sample_size=1, output_size=256,
             gf_dim=64, df_dim=64, L1_lambda=100,
             input_c_dim=3, output_c_dim=1, dataset_name='facades',
             checkpoint_dir=None, sample_dir=None):

                                        ...
                                        ...

self.real_data = tf.placeholder(tf.float32,
                                 [self.batch_size, self.image_size, self.image_size,
                                  self.input_c_dim + self.output_c_dim],
                                 name='real_A_and_B_images')
```

Write Prediction Results in Log File

- **Prediction results should be written in “dataset_name.csv” file**
- Please refer to the write_csv.py function
  - https://github.com/ChengBinJin/License_plate_recognition
  - There are read_xml.py, write_csv.py, and eval.py function to help you

1	parking₩img_gt_1₩000000.jpg	46고7080	789	473	1132	549
2	parking₩img_gt_1₩000001.jpg	21도3971	929	505	1286	579
3	parking₩img_gt_1₩000002.jpg	16서1179	761	475	1087	558
4	parking₩img_gt_1₩000003.jpg	07부0441	747	474	1073	561
5	parking₩img_gt_1₩000004.jpg	36누4289	722	449	1065	542
6	parking₩img_gt_1₩000005.jpg	35소3169	590	446	924	532
7	parking₩img_gt_1₩000006.jpg	50마3480	607	479	925	552
8	parking₩img_gt_1₩000007.jpg	48보7976	586	516	890	594
9	parking₩img_gt_1₩000008.jpg	29러8820	810	488	1131	557
10	parking₩img_gt_1₩000009.jpg	57버2830	727	500	1061	578

img_file **recognition** **Bounding box** (x1, y1, x2, y2)

Competition

- **Equipment:** Use same server in the CVLab. (Room 525, Hi-Tech Building)

(Use same server to check **processing time** and **run evaluation function** to get accuracy on a test set)

- **Time: June 11-13 (Mon. to Tue.)**
- 09:30-11:30, 14:00-17:00, and 20:00-24:00

- Each team has the limited **2 hours (very strict)** to finish all of the process including install necessary libraries and test.
- Each team can try two models and select the most good one to record the score.

Thank you for your attention!