

Information About Final Project

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Evaluation


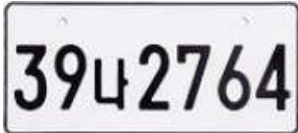




평가기준						
중간고사	기말고사(과제)	출석	과제	퀴즈	기타(출석 및 Annotation)	합계
20 %	20 %	5 %	40 %	10 %	5 %	100 %

Dataset

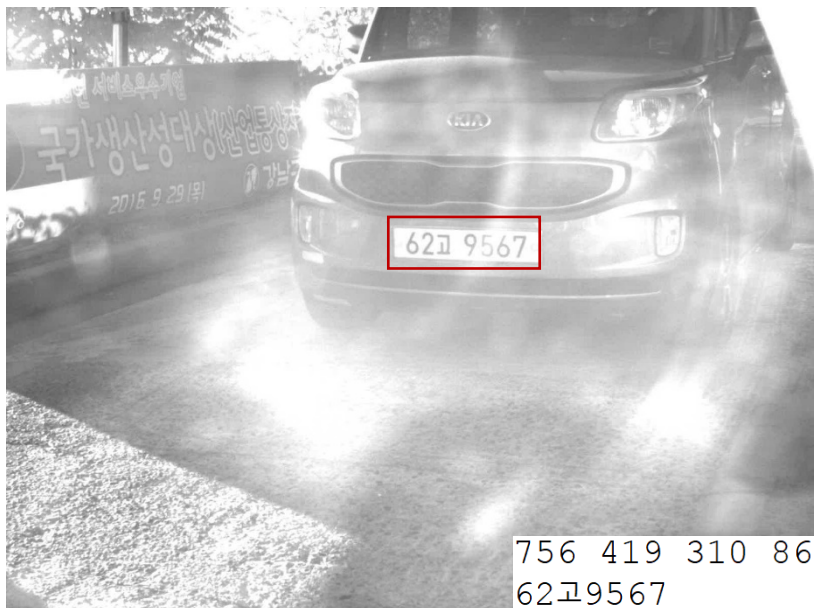
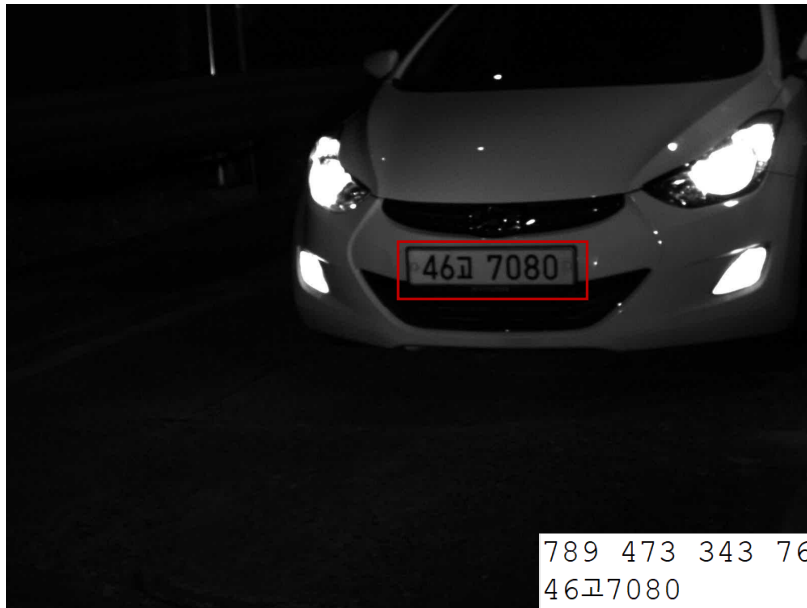
Parking data: <https://goo.gl/Eb57iY>

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

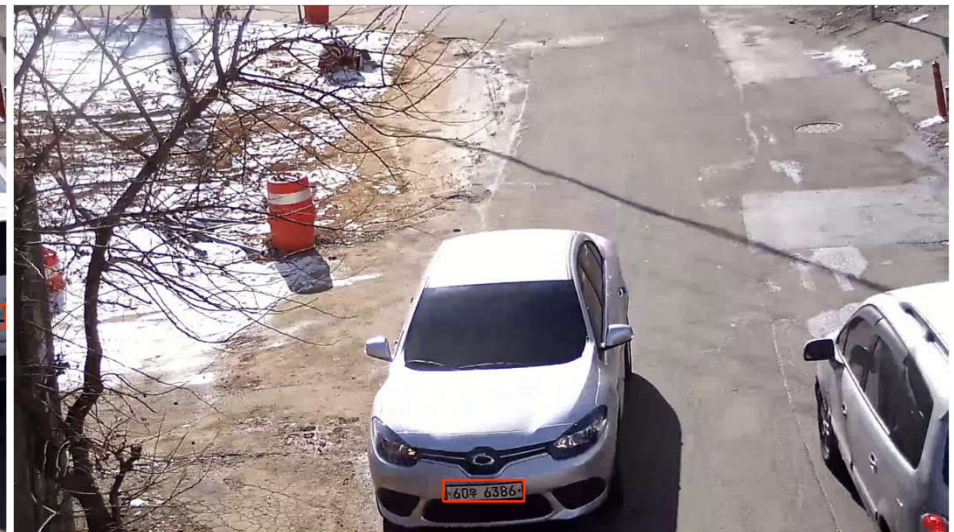
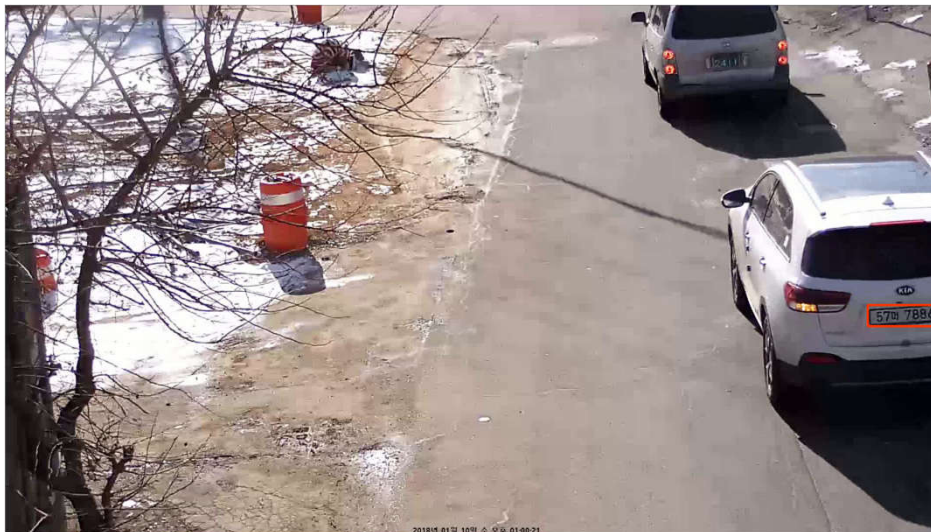
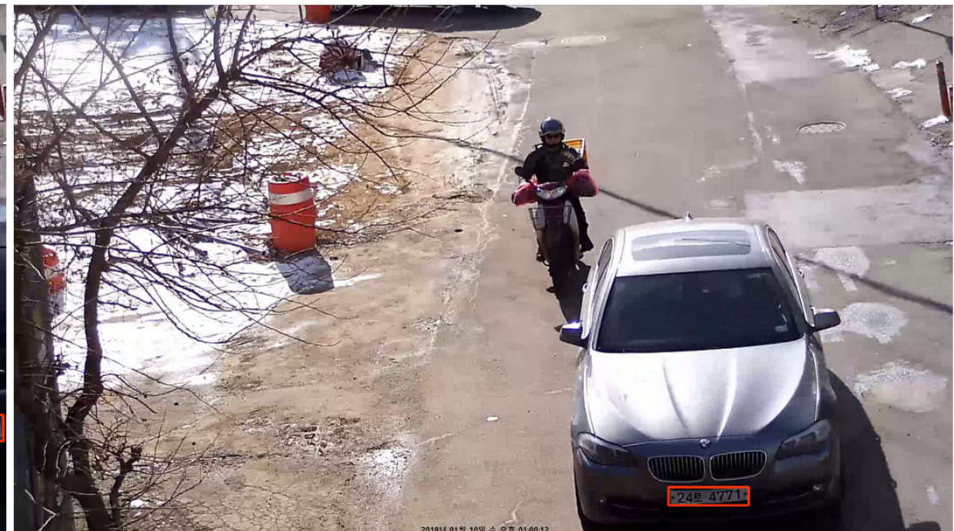
License Plate Type

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

Parking Data (285 Test Samples)



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

 Keras

Definition of the Score

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

$$PT = msec./image(average)$$

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

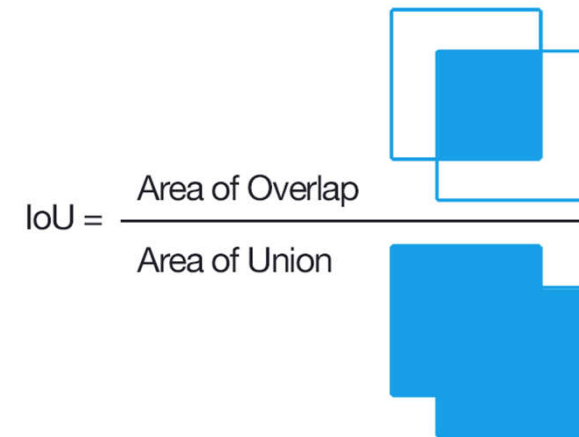
$$Accuracy_{det} = \frac{1}{n} \sum_{i=0}^{n-1} \frac{\#TP_{det} - \#FP_{det}}{\#GT} \times 100\%$$

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

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

- TP_{det} : $IoU \geq \theta$, $\theta=0.7$

- FP_{det} : $IoU < \theta$



Wrong!

GT: 3	7	구	5	1	8	5
↕	↕	↕	↕	↕	↕	↕
PR: 3	7	조	5	1	8	5

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	29리8820	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!