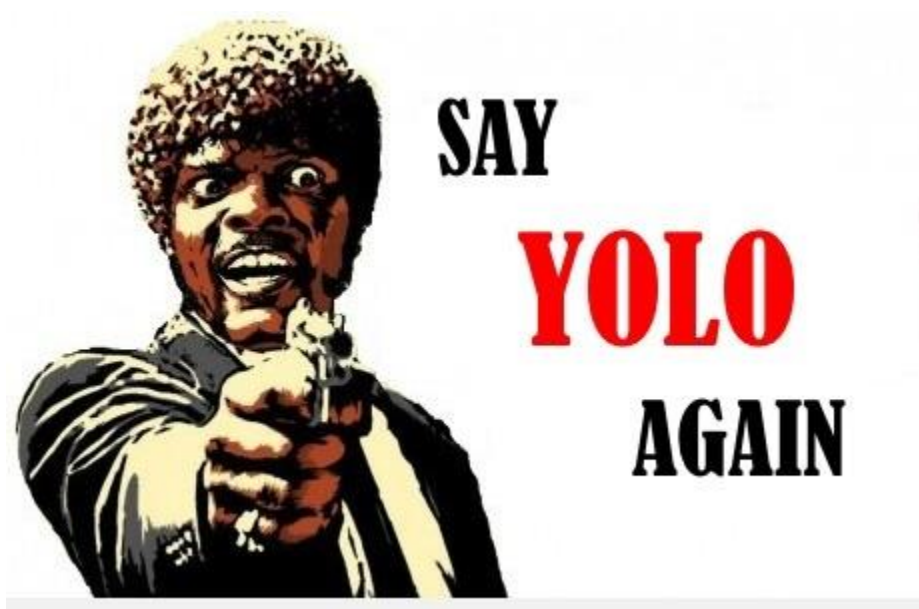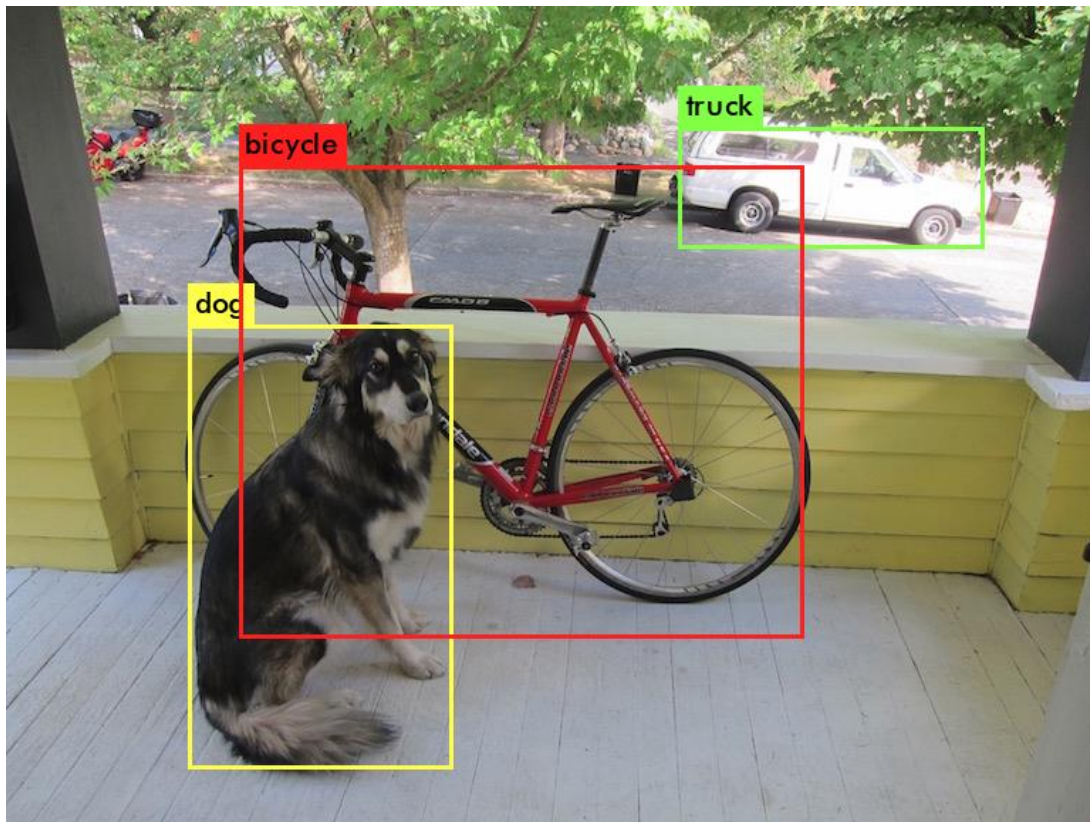# 3주차 코드 실습

6조 강재훈 김민선 송영훈

darknet을 다운받아 YOLO활용해보기

Yolo 다운받아서 이미지 적용해보기 -1

Yolo 다운받아서 이미지 적용해보기 -2

```
root@ktai19-Alienware-Aurora-R7:/workspace/AI_Case_study/week3/darknet# ./darknet detector test cfg/coco.data cfg/yolov3.cfg yolov3.weights /workspace/name.jpg
layer     filters    size              input                output
    0 conv     32  3 x 3 / 1   416 x 416 x   3   ->   416 x 416 x  32  0.299 BFLOPs
    1 conv     64  3 x 3 / 2   416 x 416 x  32   ->   208 x 208 x  64  1.595 BFLOPs
    2 conv     32  1 x 1 / 1   208 x 208 x  64   ->   208 x 208 x  32  0.177 BFLOPs
    3 conv     64  3 x 3 / 1   208 x 208 x  32   ->   208 x 208 x  64  1.595 BFLOPs
    4 res    1               208 x 208 x  64   ->   208 x 208 x  64
    5 conv    128  3 x 3 / 2   208 x 208 x  64   ->   104 x 104 x 128  1.595 BFLOPs
    6 conv     64  1 x 1 / 1   104 x 104 x 128   ->   104 x 104 x  64  0.177 BFLOPs
    7 conv    128  3 x 3 / 1   104 x 104 x  64   ->   104 x 104 x 128  1.595 BFLOPs
    8 res    5               104 x 104 x 128   ->   104 x 104 x 128
    9 conv     64  1 x 1 / 1   104 x 104 x 128   ->   104 x 104 x  64  0.177 BFLOPs
   10 conv    128  3 x 3 / 1   104 x 104 x  64   ->   104 x 104 x 128  1.595 BFLOPs
   11 res    8               104 x 104 x 128   ->   104 x 104 x 128
   12 conv    256  3 x 3 / 2   104 x 104 x 128   ->    52 x  52 x 256  1.595 BFLOPs
   13 conv    128  1 x 1 / 1    52 x  52 x 256   ->    52 x  52 x 128  0.177 BFLOPs
   14 conv    256  3 x 3 / 1    52 x  52 x 128   ->    52 x  52 x 256  1.595 BFLOPs
   15 res   12                 52 x  52 x 256   ->    52 x  52 x 256
```

```
root@ktai19-Alienware-Aurora-R7:/workspace/AI_Case_study/week3/darknet#
root@ktai19-Alienware-Aurora-R7:/workspace/AI_Case_study/week3/darknet# ls
LICENSE          LICENSE.meta   README.md    examples        obj              scripts
LICENSE.fuck     LICENSE.mit    cfg          include         predictions.png  src
LICENSE.gen      LICENSE.v1     darknet      libdarknet.a    python           train_car.log
LICENSE.gpl      Makefile       data         libdarknet.so   results          yolov3.weights
```

```
from yolov3.weights...Done!
jpg: Predicted in 16.674923 seconds.
person: 87%
person: 86%
person: 86%
person: 83%
person: 78%
person: 78%
person: 72%
person: 69%
person: 64%
person: 53%
```
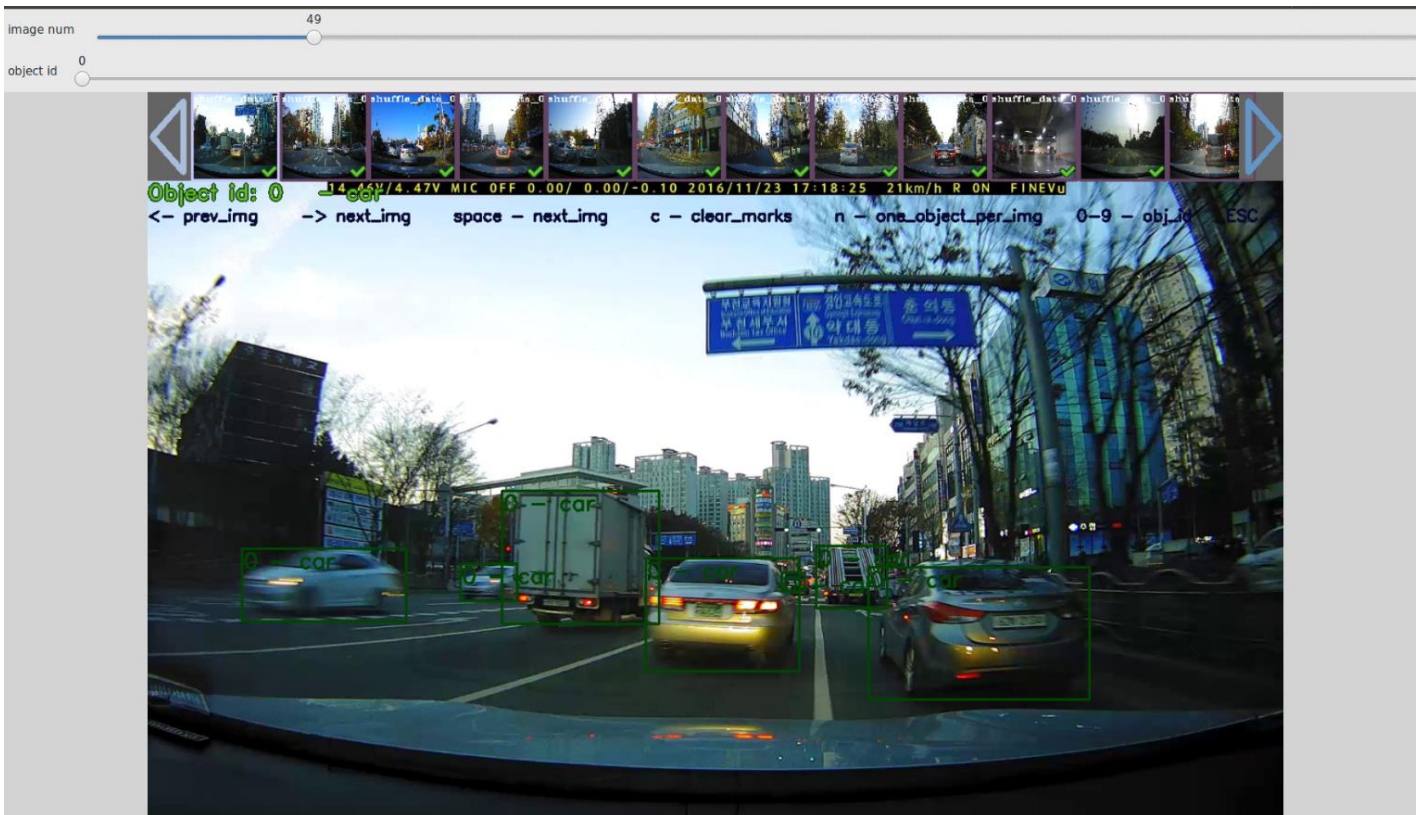
실습 결과 1 - labeling

- labeling 결과

실습 결과 2 - training
data로 train해보기 .....(결과를 보진 못함)

```
root@ktai19-Alienware-Aurora-R7:/workspace/AI_Case_study/week3/darknet# !767
./darknet detector train /workspace/AI_Case_study/week3/prob1/obj.data cfg/yolov2.cfg /workspace/AI_C
ase_study/week3/prob1/darknet19_448.conv.23 -gpu=0,1 > train_car.log
layer     filters    size              input                output
    0 conv     32  3 x 3 / 1   416 x 416 x   3   ->   416 x 416 x  32  0.299 BFLOPs
    1 max          2 x 2 / 2   416 x 416 x  32   ->   208 x 208 x  32
    2 conv     64  3 x 3 / 1   208 x 208 x  32   ->   208 x 208 x  64  1.595 BFLOPs
    3 max          2 x 2 / 2   208 x 208 x  64   ->   104 x 104 x  64
    4 conv    128  3 x 3 / 1   104 x 104 x  64   ->   104 x 104 x 128  1.595 BFLOPs
    5 conv     64  1 x 1 / 1   104 x 104 x 128   ->   104 x 104 x  64  0.177 BFLOPs
    6 conv    128  3 x 3 / 1   104 x 104 x  64   ->   104 x 104 x 128  1.595 BFLOPs
    7 max          2 x 2 / 2   104 x 104 x 128   ->    52 x  52 x 128
    8 conv    256  3 x 3 / 1    52 x  52 x 128   ->    52 x  52 x 256  1.595 BFLOPs
    9 conv    128  1 x 1 / 1    52 x  52 x 256   ->    52 x  52 x 128  0.177 BFLOPs
   10 conv    256  3 x 3 / 1    52 x  52 x 128   ->    52 x  52 x 256  1.595 BFLOPs
   11 max          2 x 2 / 2    52 x  52 x 256   ->    26 x  26 x 256
   12 conv    512  3 x 3 / 1    26 x  26 x 256   ->    26 x  26 x 512  1.595 BFLOPs
   13 conv    256  1 x 1 / 1    26 x  26 x 512   ->    26 x  26 x 256  0.177 BFLOPs
   14 conv    512  3 x 3 / 1    26 x  26 x 256   ->    26 x  26 x 512  1.595 BFLOPs
   15 conv    256  1 x 1 / 1    26 x  26 x 512   ->    26 x  26 x 256  0.177 BFLOPs
   16 conv    512  3 x 3 / 1    26 x  26 x 256   ->    26 x  26 x 512  1.595 BFLOPs
   17 max          2 x 2 / 2    26 x  26 x 512   ->    13 x  13 x 512
   18 conv   1024  3 x 3 / 1    13 x  13 x 512   ->    13 x  13 x1024  1.595 BFLOPs
   19 conv    512  1 x 1 / 1    13 x  13 x1024   ->    13 x  13 x 512  0.177 BFLOPs
   20 conv   1024  3 x 3 / 1    13 x  13 x 512   ->    13 x  13 x1024  1.595 BFLOPs
   21 conv    512  1 x 1 / 1    13 x  13 x1024   ->    13 x  13 x 512  0.177 BFLOPs
   22 conv   1024  3 x 3 / 1    13 x  13 x 512   ->    13 x  13 x1024  1.595 BFLOPs
   23 conv   1024  3 x 3 / 1    13 x  13 x1024   ->    13 x  13 x1024  3.190 BFLOPs
   24 conv   1024  3 x 3 / 1    13 x  13 x1024   ->    13 x  13 x1024  3.190 BFLOPs
   25 route  16
   26 conv     64  1 x 1 / 1    26 x  26 x 512   ->    26 x  26 x  64  0.044 BFLOPs
   27 reorg          / 2        26 x  26 x  64   ->    13 x  13 x 256
   28 route  27 24
   29 conv   1024  3 x 3 / 1    13 x  13 x1280   ->    13 x  13 x1024  3.987 BFLOPs
   30 conv    425  1 x 1 / 1    13 x  13 x1024   ->    13 x  13 x 425  0.147 BFLOPs
   31 detection
mask_scale: Using default '1.000000'
Loading weights from /workspace/AI_Case_study/week3/prob1/darknet19_448.conv.23...Done!
```

process.py

- train data와 test data를
  나눠주는 py파일
  디렉토리를 수정하였습니다.

```python
import glob, os

# Current directory
# current_dir = os.path.dirname(os.path.abspath(__file__))
current_dir = "/workspace/AI_Case_study/week3/prob1/data/car/"

# Directory where the data will reside, relative to 'darknet.exe'
path_data = '/workspace/AI_Case_study/week3/prob1/data/car/'

# Percentage of images to be used for the test set
percentage_test = 10;

# Create and/or truncate train.txt and test.txt
file_train = open('train.txt', 'w')
file_test = open('test.txt', 'w')

# Populate train.txt and test.txt
counter = 1
index_test = round(100 / percentage_test)
for pathAndFilename in glob.iglob(os.path.join(current_dir, "*.jpg")):
    title, ext = os.path.splitext(os.path.basename(pathAndFilename))
    #file = open(title + '.txt', 'w')
    #file.write('0 0.5 0.5 1 1')
    #file.close()

    if counter == index_test:
        counter = 1
        file_test.write(path_data + title + '.jpg' + "\n")
    else:
        file_train.write(path_data + title + '.jpg' + "\n")
        counter = counter + 1
~
~
```

text.txt파일 (총 300개 중 30개의 이미지가 있다)

train.txt (총 300개중 270파일)

```
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000161.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000173.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000200.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000065.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000109.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000012.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000008.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000078.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000265.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000295.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000029.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000144.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000068.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000222.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000133.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000242.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000166.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000005.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000217.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000123.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000150.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000048.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000034.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000261.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000143.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000127.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000019.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000031.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000280.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000179.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000082.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000172.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000076.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000233.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000168.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000027.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000257.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000277.jpg
/workspace/AI_Case_study/week3/prob1/data/car/shuffle_data_000149.jpg
```

obj.data파일

```
classes= 1
train  = /workspace/AI_Case_study/week3/prob1/train.txt
valid  = /workspace/AI_Case_study/week3/prob1/test.txt
names = obj.names
backup = backup/
```

공유하고 싶은 이슈 및 해결법 -1

Xhost 설치 시 에러 발생

Xauth list

Xauth list

-> ktai17/unix:0 MIT-MAGIC-COOKIE-1 a402a9db21f55cfcd655ff2fb9166e2d

Install xauth

xauth add ktai17/unix:0 MIT-MAGIC-COOKIE-1 a402a9db21f55cfcd655ff2fb9166e2d

sudo nvidia-docker run -it --name taecho2 --net=host -e DISPLAY -v /tmp/.X11-unix -v /workspace:/workspace -p 8888:8888 taecho /bin/bash

공유하고 싶은 이슈 및 해결법 -2

step 4: Setup your environment

virtual environment를 만들 때

에러 발생

$ conda install virtualenv
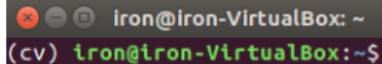
로 수정 후 진행

This line is to activate/apply what we have done to the `.bashrc` file, which finalizes the **install**ation of virtualenv and virtualenvwrapper.

- Next, let's create a virtual environment for OpenCV, called `cv` :

```
$ mkvirtualenv cv -p python3
```

So, you have create a virtual environment with the name `cv` . You probably end up in the virtual environment that you have just created, which looks similar to this:

Look at the beginning of the line, it said (cv), which is what/where we want to be in

공유하고 싶은 이슈 및 해결법 -3

python에 cv 파일이 설치되지 않는 오류

https://www.learnopencv.com/

install-opencv3-on-ubuntu/

Secure | https://www.learnopencv.com/install-opencv3-on-ubuntu/

Install OpenCV3 on Ubuntu

JUNE 6, 2017 BY VAIBHAW SINGH CHANDEL — 107 COMMENTS

공유하고 싶은 이슈 및 해결법 -3

OpenCV 3 (C++ and Python) on Ubuntu.

Step 1: Update packages

```
1 | sudo apt-get update
2 | sudo apt-get upgrade
```

Step 2: Install OS libraries

```
1  | Remove any previous installations of x264</h3>
2  | sudo apt-get remove x264 libx264-dev
3  |
4  | We will Install dependencies now
5  |
6  | sudo apt-get install build-essential checkinstall cmake pkg-confi
7  | sudo apt-get install git gfortran
8  | sudo apt-get install libjpeg8-dev libjasper-dev libpng12-dev
9  |
10 | # If you are using Ubuntu 14.04
11 | sudo apt-get install libtiff4-dev
12 | # If you are using Ubuntu 16.04
13 | sudo apt-get install libtiff5-dev
14
```

```
14
15 | sudo apt-get install libavcodec-dev libavformat-dev libswscale-dev 
16 | sudo apt-get install libxine2-dev libv4l-dev
17 | sudo apt-get install libgstreamer0.10-dev libgstreamer-plugins-base
18 | sudo apt-get install qt5-default libgtk2.0-dev libtbb-dev
19 | sudo apt-get install libatlas-base-dev
20 | sudo apt-get install libfaac-dev libmp3lame-dev libtheora-dev
21 | sudo apt-get install libvorbis-dev libxvidcore-dev
22 | sudo apt-get install libopencore-amrnb-dev libopencore-amrwb-dev
23 | sudo apt-get install x264 v4l-utils
24 |
25 | # Optional dependencies
26 | sudo apt-get install libprotobuf-dev protobuf-compiler
27 | sudo apt-get install libgoogle-glog-dev libgflags-dev
28 | sudo apt-get install libgphoto2-dev libeigen3-dev libhdf5-dev doxyg
```

Step 3: Install Python libraries

```
1 | sudo apt-get install python-dev python-pip python3-dev python3-pip
2 | sudo -H pip2 install -U pip numpy
3 | sudo -H pip3 install -U pip numpy
```

공유하고 싶은 이슈 및 해결법 -4

- dropbox에 yolov2.cfg로 실행하는 경우 Assertion error가 발생해서 기존에 darknet에 있는 yolov2.cfg파일을 사용해서 트레인을 했었습니다.

```
root@ktai19-Alienware-Aurora-R7:/workspace/AI_Case_study/week3/darknet# ./darknet detector train /wor
kspace/AI_Case_study/week3/prob1/obj.data /workspace/AI_Case_study/week3/prob1/yolov2.cfg /workspace/
AI_Case_study/week3/prob1/darknet19_448.conv.23 -gpu=0,1 > train_car.log
First section must be [net] or [network]: Success
darknet: ./src/utils.c:256: error: Assertion `0' failed.
Aborted (core dumped)
```

공유하고 싶은 이슈 및 해결법 -5

pip install을 사용해도 labeling 및 training에 문제가 없다.

Medium

Linh Nguyen Follow
a banker trying to handle tech
Aug 29, 2017 · 6 min read

Installing OpenCV 3.3.0 on Ubuntu 16.04 LTS

UPDATE 2017–10–26:

There is an easy, quick, painless way to do it:

- Make sure that you install python, virtualenv … OR, just make sure python is working.

- Run this: `pip install opencv-contrib-python`

That's it… I don't know why I go all the way to hell (as you see below to do it). So, the whole content below is just for research purpose only.

Thank you for reading

```
ktai17@ktai17:~$ docker attach unruffled_haibt
root@09f7db0e03f3:/#
root@09f7db0e03f3:/# python
Python 3.6.3 |Anaconda custom (64-bit)| (default, Oct 13 2017, 12:02:49)
[GCC 7.2.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import cv2
>>>
```

공유하고 싶은 이슈 및 해결법 -6

송영훈 교육생의 docker image를 pull한다.

docker pull kjhov195/yolo1

```
ktai17@ktai17:~$ docker images
REPOSITORY              TAG                           IMAGE ID        CREATED            SIZE
kjhov195/yolo1          latest                        e091ee9c2f33    About an hour ago  10.4GB
taecho                  latest                        8001d8a7fd9e    2 hours ago        22.3GB
ktai-opencv             latest                        db2cd8e53b54    3 hours ago        6.64GB
janghb0903/yolo11       latest                        cf6063689b1f    25 hours ago       22.3GB
ktai                    nvidia                        663c4e093db1    13 days ago        6.55GB
nginx                   latest                        c5c4e8fa2cf7    2 weeks ago        109MB
tensorflow/tensorflow   latest                        b52a7196d31e    2 weeks ago        1.32GB
nvidia/cuda             8.0-cudnn6-devel-ubuntu16.04  f100da99e951    3 weeks ago        1.97GB
nvidia/cuda             latest                        3fd923127acb    5 weeks ago        2.23GB
ubuntu                  latest                        f975c5035748    6 weeks ago        112MB
ubuntu                  14.04                         a35e70164dfb    6 weeks ago        222MB
tensorflow/tensorflow   latest-gpu                    aebd66be3e22    6 weeks ago        2.96GB
hello-world             latest                        f2a91732366c    4 months ago       1.85kB
```