Object Detection Hands-on with ChatGPT

- Object Detection
- Face Recognition
- Face Comparision

Hands-on Environment

Python virtual environment

- Anaconda / Miniconda / venv / VirtualEnv

IDE or Editor

- VS Code / PyCharm / Notepad++

Object detection library

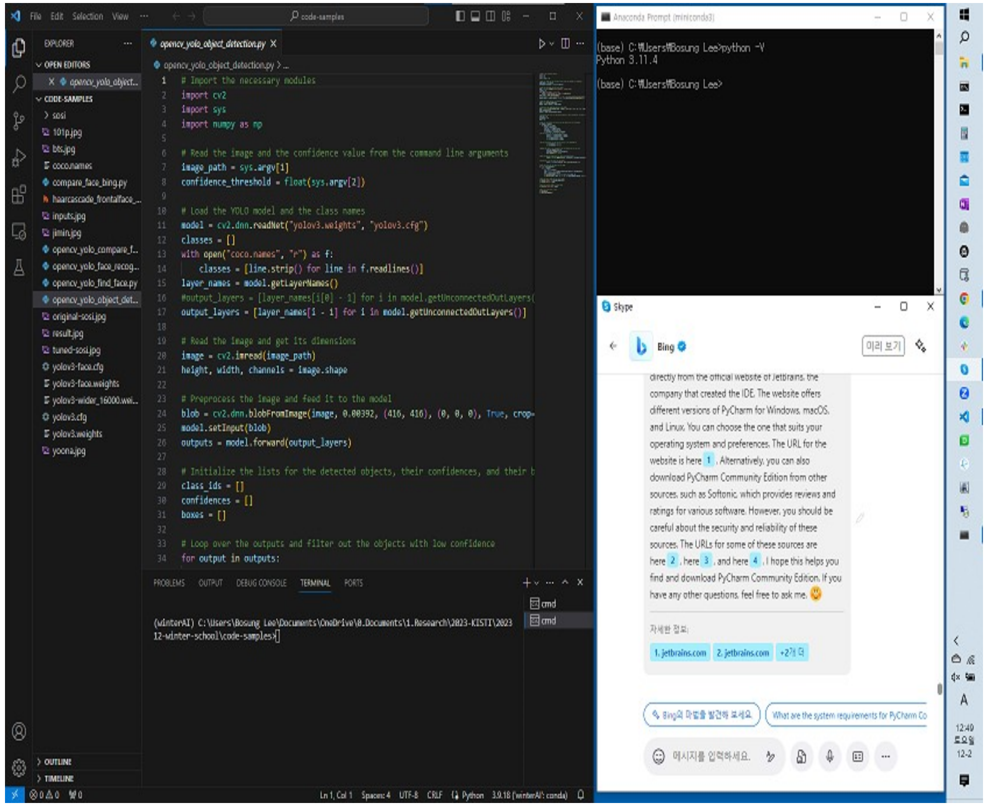
- OpenCV / ImageAI / AWS Rekognition / Azure AI Vision

ChatGPT

- OpenAI / Bing Chat / Skype

My Environment

- Windows 10 / Miniconda / Python 3.11.4 / VS code / Skype



File Edit Selection View
code-samples
opencv_yolo_object_detection.py
EXPLORER
OPEN EDITORS
CODE-SAMPLES
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
cmd
Anaconda Prompt (miniconda3)
Skype
Bing
미리 보기
자세한 정보:
1. jetbrains.com
2. jetbrains.com
+2개 더
Bing의 마법을 발견해 보세요.
What are the system requirements for PyCharm Co
메시지를 입력하세요.
12:49
토요일
12-2

```python
# Import the necessary modules
import cv2
import sys
import numpy as np

# Read the image and the confidence value from the command line arguments
image_path = sys.argv[1]
confidence_threshold = float(sys.argv[2])

# Load the YOLO model and the class names
model = cv2.dnn.readNet("yolov3.weights", "yolov3.cfg")
classes = []
with open("coco.names", "r") as f:
    classes = [line.strip() for line in f.readlines()]
layer_names = model.getLayerNames()
#output_layers = [layer_names[i[0] - 1] for i in model.getUnconnectedOutLayers(
output_layers = [layer_names[i - 1] for i in model.getUnconnectedOutLayers()]

# Read the image and get its dimensions
image = cv2.imread(image_path)
height, width, channels = image.shape

# Preprocess the image and feed it to the model
blob = cv2.dnn.blobFromImage(image, 0.00392, (416, 416), (0, 0, 0), True, crop=
model.setInput(blob)
outputs = model.forward(output_layers)

# Initialize the lists for the detected objects, their confidences, and their b
class_ids = []
confidences = []
boxes = []

# Loop over the outputs and filter out the objects with low confidence
for output in outputs:
```

```
(winterAI) C:\Users\Bosung Lee\Documents\OneDrive\0.Documents\1.Research\2023-KISTI\2023
12-winter-school\code-samples>
```

```
(base) C:₩Users₩Bosung Lee>python -V
Python 3.11.4

(base) C:₩Users₩Bosung Lee>
```

directly from the official website of JetBrains, the company that created the IDE. The website offers different versions of PyCharm for Windows, macOS, and Linux. You can choose the one that suits your operating system and preferences. The URL for the website is here 1 . Alternatively, you can also download PyCharm Community Edition from other sources, such as Softonic, which provides reviews and ratings for various software. However, you should be careful about the security and reliability of these sources. The URLs for some of these sources are here 2 , here 3 , and here 4 . I hope this helps you find and download PyCharm Community Edition. If you have any other questions, feel free to ask me. 🙂

OpenCV Object detection in image

Question to ChatGPT

```
python code for object detection using OpenCV and Yolo

1. read input file name and result file name with
confidence as parameter like "detect_object.py
input.jpg output.jpg 0.5"
2. read input file and detect objects in the input file,
and draw box and confidence value around detect objects
3. write result file and show input and resuult both
```

Modify answer code if needed

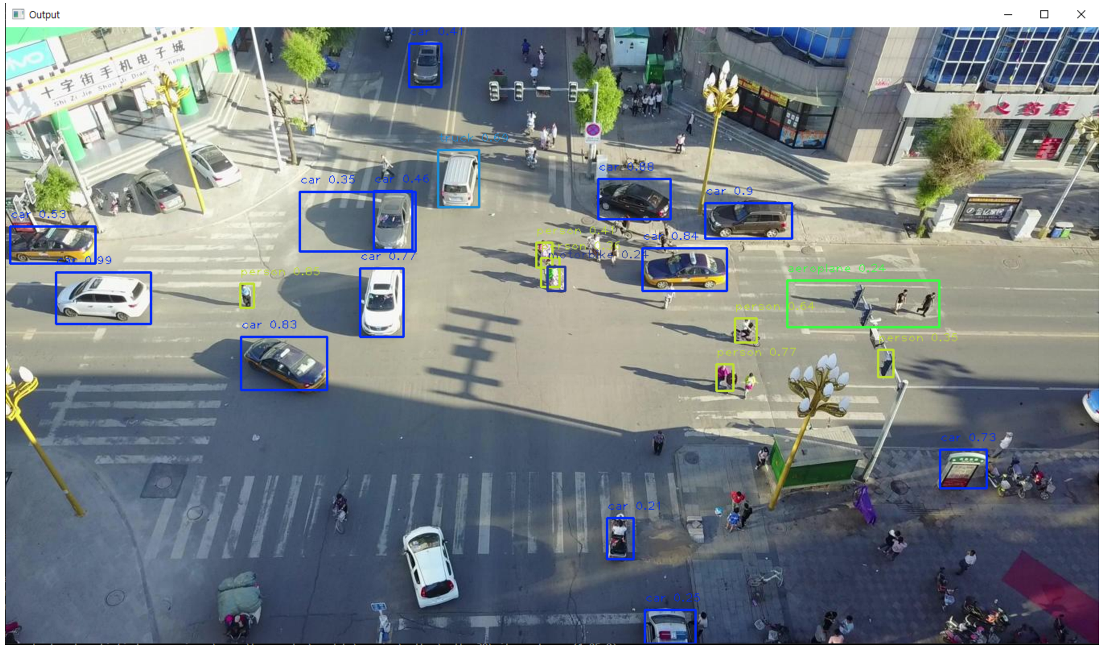
Download YOLO model, coco.names

Install cv2 and numpy packages and

```
pip install opencv-contrib-python numpy
```

Run python the result code

```
detect_object.py input.jpg result.jpg 0.5
```



OpenCV Face Recognition in image

Question to ChatGPT

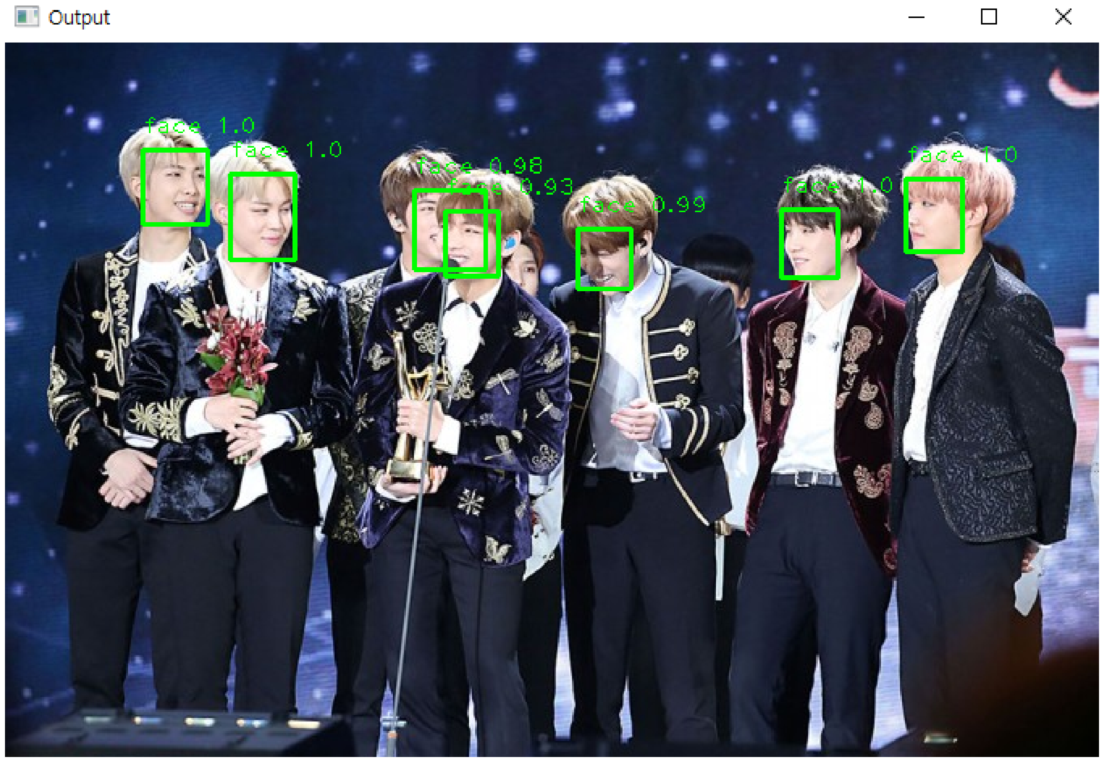
```
python code for face recognition using OpenCV and Yolo

1. read input file name and result file name with
confidence as parameter like "detect_face.py
input.jpg output.jpg 0.5"
2. read input file and detect faces in the input file,
and draw box and confidence value around detected faces
3. write result file and show input and resuult both
```

Modify answer code if needed

Download yolov3-face.weights, yolov3-face.cfg

Run python the result code

```
detect_face.py input.jpg result.jpg 0.5
```



OpenCV Compare Faces in images

Question to ChatGPT

```
python code for face comparison using OpenCV and Yolo
1. read face files names as parameter like
"compare_faces.py face1.jpg face2.jpg"
2. read face files have one face in each file and
detect face and compare faces.
3. draw box around faces and write similarity.
4. show each file with box and similarity
```

Modify answer code if needed

Create a Python 3.8 environment

face_recognition needs Dlib which works on python 3.7, 3.8, 3.9

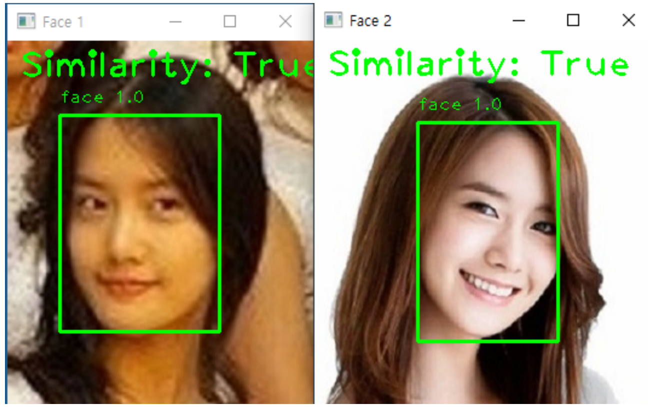
```
conda create -n face_recognition python=3.8
```

Install Dlib and face_recognition

```
pip install dlib-19.22.99-cp38-cp38m-win_amd64.whl
pip install face_recognition
```

Run python the result code

```
compare_face.py face1.jpg face2.jpg
```


Face 1
Similarity: True
face 1.0
Face 2
Similarity: True
face 1.0