

# Object Detection / Optical Character Recognition (OCR) Project

In [12]:

```
#Install Pytorch
!pip3 install torch torchvision torchaudio
#Install EasyOCR
!pip install easyocr
```

```
Requirement already satisfied: torch in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (1.9.0)
Requirement already satisfied: torchvision in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (0.10.0)
Requirement already satisfied: torchaudio in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (0.9.0)
Requirement already satisfied: typing-extensions in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from torch) (3.10.0.0)
Requirement already satisfied: numpy in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from torchvision) (1.21.0)
Requirement already satisfied: pillow>=5.3.0 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from torchvision) (8.3.1)
Requirement already satisfied: easyocr in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (1.3.2)
Requirement already satisfied: numpy in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from easyocr) (1.21.0)
Requirement already satisfied: Pillow in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from easyocr) (8.3.1)
Requirement already satisfied: scipy in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from easyocr) (1.7.0)
Requirement already satisfied: python-bidi in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from easyocr) (0.4.2)
Requirement already satisfied: PyYAML in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from easyocr) (5.4.1)
Requirement already satisfied: opencv-python in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from easyocr) (4.5.2.54)
Requirement already satisfied: scikit-image in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from easyocr) (0.18.2)
Requirement already satisfied: torch in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from easyocr) (1.9.0)
Requirement already satisfied: torchvision>=0.5 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from easyocr) (0.10.0)
Requirement already satisfied: typing-extensions in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from torch->easyocr) (3.10.0.0)
Requirement already satisfied: six in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from python-bidi->easyocr) (1.16.0)
Requirement already satisfied: networkx>=2.0 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from scikit-image->easyocr) (2.5.1)
Requirement already satisfied: tifffile>=2019.7.26 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from scikit-image->easyocr) (2021.7.2)
Requirement already satisfied: matplotlib!=3.0.0,>=2.0.0 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from scikit-image->easyocr) (3.4.2)
Requirement already satisfied: PyWavelets>=1.1.1 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from scikit-image->easyocr) (1.1.1)
Requirement already satisfied: imageio>=2.3.0 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from scikit-image->easyocr) (2.9.0)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from matplotlib!=3.0.0,>=2.0.0->scikit-image->easyocr) (2.8.1)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from matplotlib!=3.0.0,>=2.0.0->scikit-image->easyocr) (1.3.1)
```

Requirement already satisfied: pyparsing>=2.2.1 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from matplotlib!=3.0.0,>=2.0.0->scikit-image->easyocr) (2.4.7)

Requirement already satisfied: cycler>=0.10 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from matplotlib!=3.0.0,>=2.0.0->scikit-image->easyocr) (0.10.0)

Requirement already satisfied: decorator<5,>=4.3 in c:\users\shray\appdata\local\programs\python\python39\lib\site-packages (from networkx>=2.0->scikit-image->easyocr) (4.4.2)

```
In [13]: import easyocr
import cv2
from matplotlib import pyplot as plt
import numpy as np
```

## Example 1

```
In [14]: # 1 Now Reading the Images
IMAGE_PATH = 'typed.jpg'
```

```
In [15]: reader = easyocr.Reader(['en'], gpu=False)
result = reader.readtext(IMAGE_PATH)
result
```

Using CPU. Note: This module is much faster with a GPU.

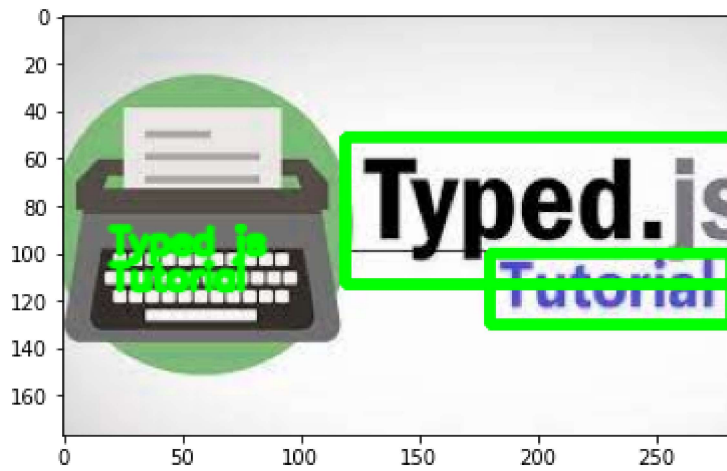
```
Out[15]: ([[119, 51], [284, 51], [284, 113], [119, 113]],
'Typed js',
0.732490467482103),
([[180, 100], [282, 100], [282, 130], [180, 130]],
'Tutorial',
0.9997870647304151)]
```

## 2 Drawing Results

```
In [16]: top_left = tuple(result[0][0][0])
bottom_right = tuple(result[0][0][2])
text = result[0][1]
font = cv2.FONT_HERSHEY_SIMPLEX
```

```
In [17]: img = cv2.imread(IMAGE_PATH)
spacer = 100
for detection in result:
    top_left = tuple(detection[0][0])
    bottom_right = tuple(detection[0][2])
    text = detection[1]
    img = cv2.rectangle(img, top_left, bottom_right, (0, 255, 0), 3)
    img = cv2.putText(img, text, (20, spacer), font, 0.5, (0, 255, 0), 2, cv2.LINE_AA)
    spacer+=15

plt.imshow(img)
plt.show()
```



## Example 2

```
In [18]: # 1 Now Reading the Images
IMAGE_PATH = 'sign.png'
```

```
In [19]: reader = easyocr.Reader(['en'], gpu=False)
result = reader.readtext(IMAGE_PATH)
result
```

Using CPU. Note: This module is much faster with a GPU.

```
Out[19]: ([[19, 181], [165, 181], [165, 201], [19, 201]],
          'HEAD PROTECTION',
          0.9778256296390029),
          ([[31, 201], [153, 201], [153, 219], [31, 219]],
          'MUST BE WORN',
          0.9719649866726915),
          ([[39, 219], [145, 219], [145, 237], [39, 237]],
          'ON THIS SITE',
          0.9683973478739152)]
```

```
In [20]: # Drawing Results
top_left = tuple(result[0][0][0])
bottom_right = tuple(result[0][0][2])
text = result[0][1]
font = cv2.FONT_HERSHEY_SIMPLEX
```

```
In [21]: img = cv2.imread(IMAGE_PATH)
spacer = 100
for detection in result:
    top_left = tuple(detection[0][0])
    bottom_right = tuple(detection[0][2])
    text = detection[1]
    img = cv2.rectangle(img, top_left, bottom_right, (0, 255, 0), 3)
    img = cv2.putText(img, text, (20, spacer), font, 0.5, (0, 255, 0), 2, cv2.LINE_AA)
    spacer += 15

plt.imshow(img)
plt.show()
```



Thank You so much