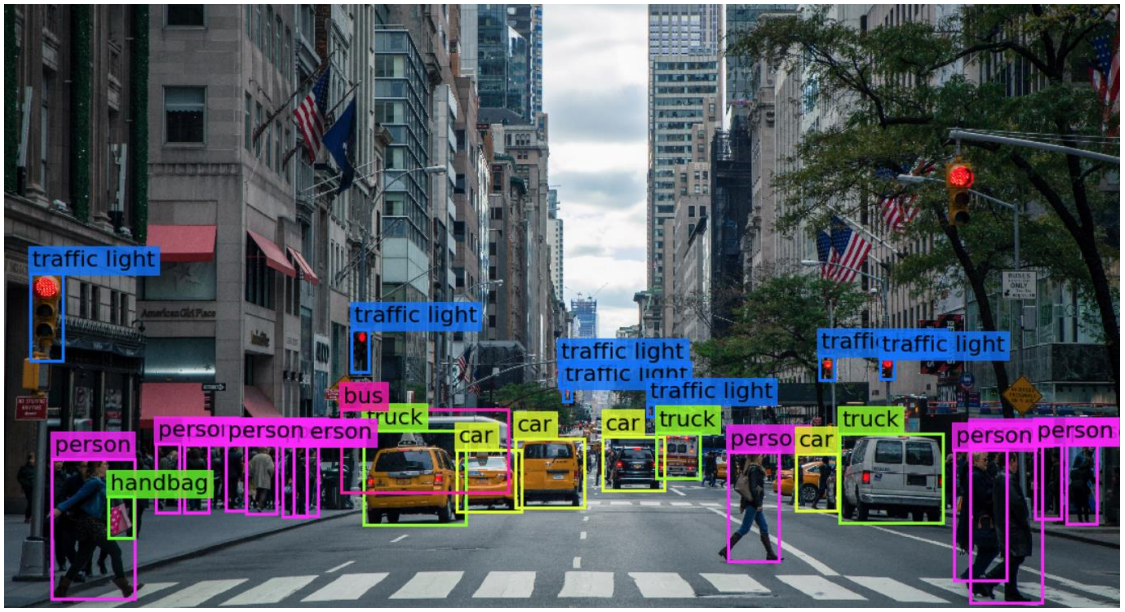

Computer vision in the new era of Artificial Intelligence and Deep Learning

Visión por computador en la nueva era de la Inteligencia Artificial y el Deep Learning

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https://github.com/albertofernandezvillan/computer-vision-and-deep-learning-course

Google Colab

Take both images and videos from webcam in Colab

- take_image_from_webcam_as_numpy_array.ipynb
- take_video_from_webcam_in_colab.ipynb

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Taking images/videos from webcam in Colab

- OpenCV provides cv2.VideoCapture() object to capture live stream with camera. See this script to see how to use cv2.VideoCapture().
- However, cv2.VideoCapture() does not work in Colab, because the previous method can only access hardware (e.g. webcam) connected locally.
- The solution is to code our own methods. For similar approaches you can check the following links:
  - "VideoCapture in Colab: How do i use cv2.VideoCapture(0) in google colab"
  - "Camera Capture": This function does not return the image. It takes the image from the webcam and saves the file on disk
  - "Direct access to your webcam inside Colab"

Taking images from webcam in Colab

See the accompanying notebook
"take_image_from_webcam_as_numpy_array.ipynb"
to see the implementation of the method take_photo(), which returns a numpy array.

```
img = take_photo(quality=0.8)

# Printing the shape of the image
# This returns, for example: (480, 640, 3)
print(img.shape)
```

```
from google.colab.patches
import cv2_imshow

cv2_imshow(img)
```

the returned image is in RGB format

```
img_bgr = img[:, :, ::-1]

cv2_imshow(img_bgr)
```

OpenCV works in BGR format

Taking video from webcam in Colab

This repository provides the required functionality to take video from webcam. To install it, we make use of download_and_execute_file() function (see accompanying notebook take_video_from_webcam_in_colab.ipynb). The file that is going to be executed is located here and contains the implementation.

```
fname = 'colab_utils.py'
url = 'https://raw.githubusercontent.com/albertofernandezvillan/computer-vision-and-deep-learning-course/main/assets/colab_utils/colab_utils.py'

download_and_execute_file(fname, url, params= "", execute=True, show_content=False)
```

Once installed, we can use our own videoGrabber, and use it as follows:

```
total_iter=20
vid = videoGrabber(showVideo=False)
try:
  n_iter = 0
  while n_iter <= total_iter:
    n_iter += 1
    image_np = np.array(vid(0))
    imshow(image_np)
finally:
  vid(stop=True)
```

Google Colab

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