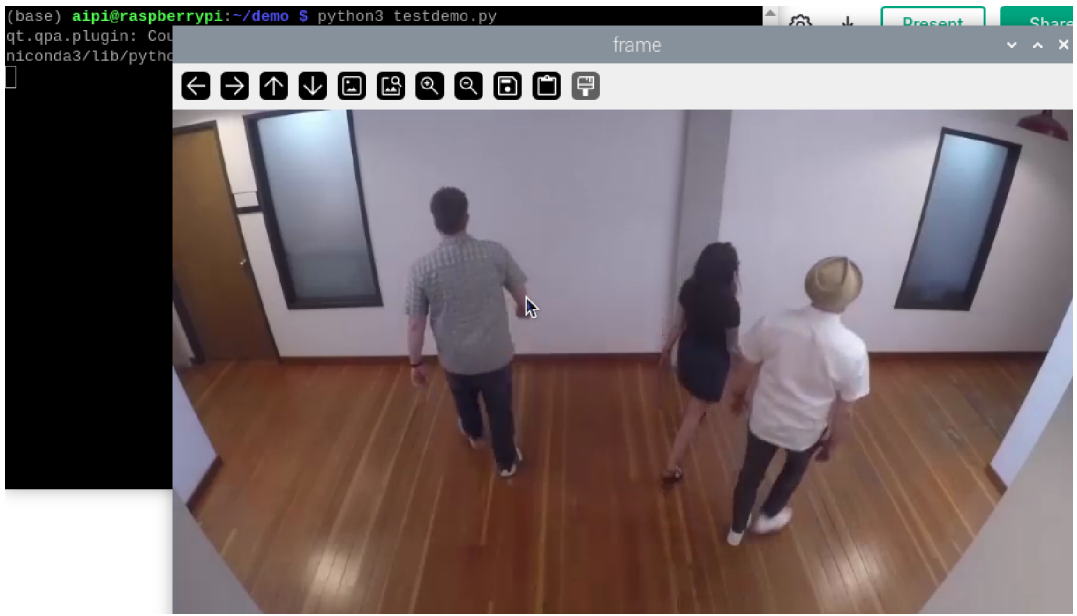
GNU Linux

Computer Vision Basics

GNU Essentials

ython3 testdemo.py



dd bounding box

```
ort cv2
ort numpy as np

ge = cv2.imread("shapes.png")
inal = image.copy()

y = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
sh = cv2.threshold(gray, 0, 255, cv2.THRESH_BINARY_INV + cv2.THRESH_OTSU)[1]

_number = 0
s = cv2.findContours(thresh, cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_SIMPLE)
s = cnts[0] if len(cnts) == 2 else cnts[1]
c in cnts:
, y, w, h = cv2.boundingRect(c)
v2.rectangle(image, (x, y), (x + w, y + h), (0, 0, 255), 2)

.imshow("image", image)
.imshow("Thresh", thresh)
.waitKey()
```

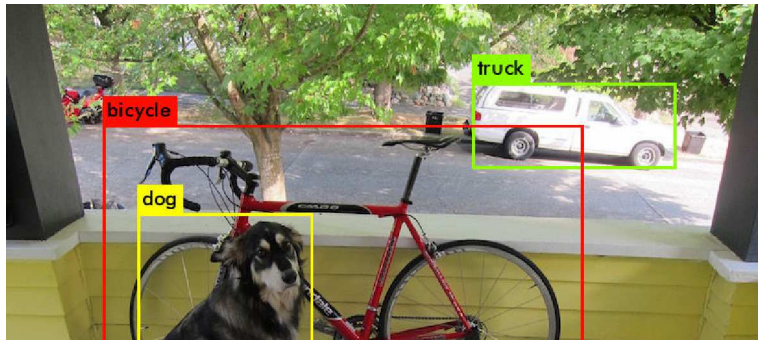
ps://www.delftstack.com/howto/python/opencv-bounding-box/

Darknet

Install Darknet
https://pjreddie.com/darknet/

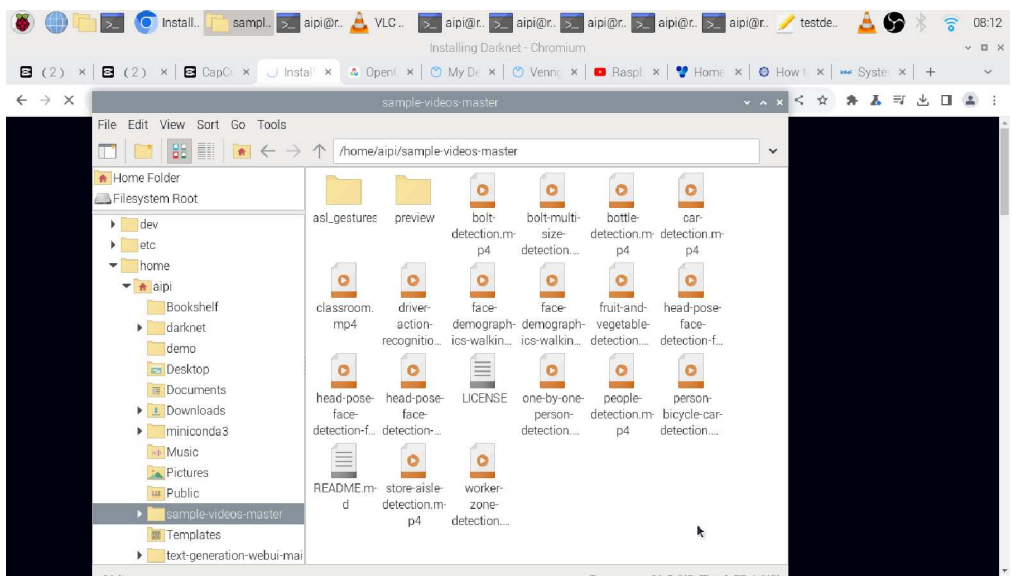
-

git clone https://github.com/pjreddie/darknet.git
cd darknet
make



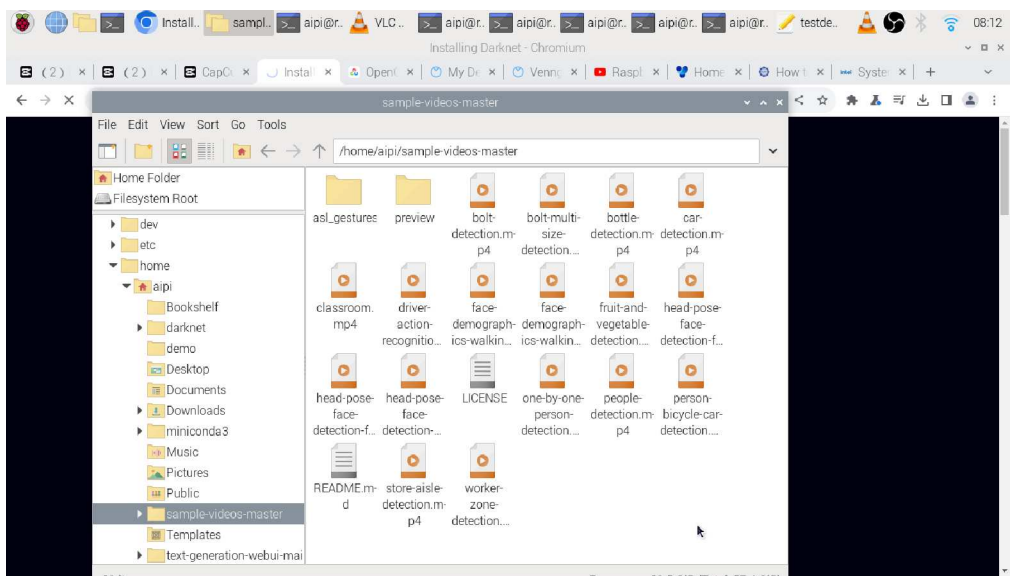
Free culture videos

use free culture videos with opencv

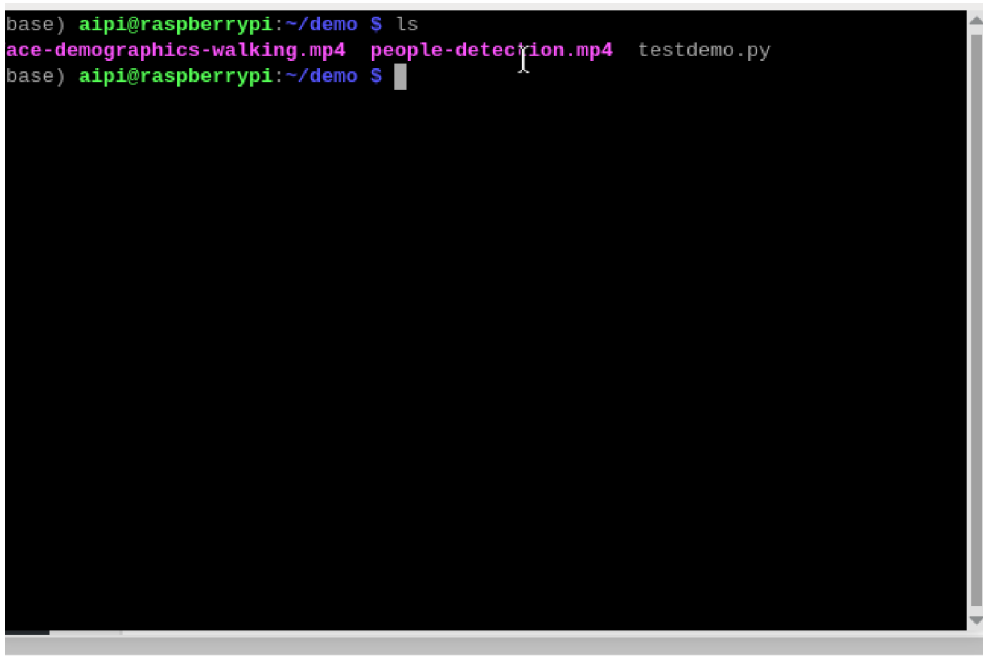


Free culture videos

use free culture videos with opencv



conda opencv pi



Images

Read

Display

Write

READ

a. Feed from camera
b. Video file

VIDEO

1. Create object - VideoCapture
2. set to device or name of video
   - Camera - 0 for camera attached to device
   - Camera - 1 another camera
   - Camera - 2 yet another camera

EXAMPLE PYTHON

Example camera attached:

- cap = cv2.VideoCapture(0)
-
- Example vid file:
- cap = cv2.VideoCapture('avid.mp4')

EXAMPLE C++

```
VideoCapture cap("avid.mp4");
```

DISPLAY

1. Video files are frames. Each frame is an image. See extract images from video article.

2. https://www.intel.com/content/www/us/en/developer/articles/technical/extract-images-from-intel-free-culture-videos-for-inference-with-ffmpeg.html

3. Display frames using the function:

   imshow()

se the waitKey() after imshow()
unction to pause each frame in the
deo

0 for images
greater than zero for videos - zero would pause the video

```
rt numpy as np
rt cv2

 cv2.VideoCapture('people-detection.mp4')

(cap.isOpened()):
, frame = cap.read()
2.imshow('frame',frame)
```

```
port numpy as np
port cv2

p = cv2.VideoCapture('people-detection.mp4')

ile(cap.isOpened()):
et, frame = cap.read()
cv2.imshow('frame',frame)
f cv2.waitKey(1) & 0xFF == ord('q'):
   break

p.release()
2.destroyAllWindows()
```