People Counter 4 – Background Susbtraction

This part of the tutorial is also very simple to do, thanks to OpenCV.

A background subtractor, as its name sugests, lets you identify the foreground and background of and image. A background is considered to be as anything constant in a series of images, anything that stays static. The foreground is everything that changes (moves).

Doing background substraction in OpenCV onlyt requires 2 lines:

```
import numpy as np
import cv2

cap = cv2.VideoCapture('peopleCounter.avi') #Open video file

fgbg = cv2.createBackgroundSubtractorMOG2(detectShadows = True) #Create the background substractor

while(cap.isOpened()):
    ret, frame = cap.read() #read a frame

    fgmask = fgbg.apply(frame) #Use the substractor

    try:
        cv2.imshow('Frame',frame)
        cv2.imshow('Background Substraction',fgmask)
    except:
        #if there are no more frames to show...
        print('EOF')
        break

    #Abort and exit with 'Q' or ESC
    k = cv2.waitKey(30) & 0xff
    if k == 27:
        break

cap.release() #release video file
cv2.destroyAllWindows() #close all openCV windows
```

Running this code:

In the new image black represents the background, white are objects in the foreground and gray are shadows cast by those objects.

The good thing about using the MOG2 substractor in OpenCV is that the background is constantly being calculated, meaning that subtle changes in lighting (such as those caused by the Sun) won´t affect your calculations over time.

This is really the first step in making a people counter. Hope you like it.

Next, we'll clean the image produced by the substractor to be able to use it in the actual counting.

Fede / June 19, 2016 / People counter

16 thoughts on "People Counter 4 – Background Susbtraction"

mlribes
July 1, 2016 at 7:45 pm

Very, very nice work! Wainting next parte.
Log in to Reply

Fede
September 6, 2016 at 6:07 pm

It´s up!
Log in to Reply

palmendras
July 19, 2016 at 3:00 pm

Hola! Excelente tutorial! Esperando las siguientes partes! Ojala no abandones el proyecto!

Saludos desde Chile
Log in to Reply

Fede
September 6, 2016 at 6:07 pm

Ya está el nuevo capítulo!
Log in to Reply

abhimanyu
July 28, 2016 at 10:01 am

Can you please send me the source code of whole people detection program on abhimanyu.mailme@gmail.com. I have very urgent requirement of it. I am working on it since 5-6 days.
I hope you will help me out. For any query email me .
Log in to Reply

wfcuevac
August 10, 2016 at 7:44 am

Hey men nice work
Excellent tutorial!
Please don't give up in your project
I hope you will help me.. wfcuevac@gmail.com
Log in to Reply

Fede
September 6, 2016 at 6:06 pm

New chapter is up!
Log in to Reply

luis.ibarra
August 29, 2016 at 2:06 pm

Hey bro, when are you continuing this chain of tutorials? im actually stuck in this one, i would like to see what's next!
Log in to Reply

Fede
September 6, 2016 at 6:06 pm

New chapter has been posted. I´ll try to keep them coming as often as I can.
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luis.ibarra
August 29, 2016 at 5:24 pm

Has anyone received the source code?
Log in to Reply

cmony
September 1, 2016 at 5:45 pm

Hi Excellent work! I am looking forward to next chapter of your work.
If it is possible would you help me with this project at yoosh22@nate.com many thsnks
Log in to Reply

Fede
September 6, 2016 at 6:06 pm

New chapter has been posted! Sorry for the delay.
Log in to Reply

cmony
September 8, 2016 at 12:17 am

to Re

ir post and I am very looking forward to it. Since waiting another post I just want to test my idea with your video file(People Counter 2- about board on bus). Would you kindly send me the video file to yoosh22@nate.com Many thanks.

libinpage

October 31, 2016 at 4:51 am

Hi! I have a problem with createBackgroundSubtractorMOG2 method. It shows me the black screen for threshold preview. No mask.

Did It work for you out of the box just like that?
Log in to Reply

busesqr

December 10, 2016 at 2:40 pm

When trying to run the example, I got this error message:

Traceback (most recent call last):
File “C:\python-2.7.12.amd64\mejia\backgroundSubstraction.py”, line 12, in
fgmask = fgbg.apply(frame) #Use the substractor
error: C:\builds\master_PackSlaveAddon-win64-vc12-static\opencv\modules\python\src2\cv2.cpp:163: error: (-215) The data should normally be NULL! in function NumpyAllocator::allocate

I found a way to solve (not the best one), inserting:

cv2.ocl.setUseOpenCL(False)

after “import cv2”, and it ran succesfully.

Cuando intenté ejecutar el ejemplo, recibí este mensaje de error:

Traceback (most recent call last):
File “C:\python-2.7.12.amd64\mejia\backgroundSubstraction.py”, line 12, in
fgmask = fgbg.apply(frame) #Use the substractor
error: C:\builds\master_PackSlaveAddon-win64-vc12-static\opencv\modules\python\src2\cv2.cpp:163: error: (-215) The data should normally be NULL! in function NumpyAllocator::allocate

Encontré una forma de resolver (no la mejor), insertando:

cv2.ocl.setUseOpenCL(False)

después de “import cv2” y se ejecutó con éxito.

Best regards / Saludos cordiales desde Chile
Log in to Reply

Fede ▪

December 27, 2016 at 9:03 pm

No idea. Are you sure you’re using the same openCV version as me?
Log in to Reply