hsv

September 11, 2019

[117]:
```
import cv2
import numpy as np
from matplotlib import pyplot as plt
# Load the image
img = cv2.imread("1.jpg")
print(img.shape)
plt.title('Original BGR image')
plt.imshow(img)
plt.xticks([]), plt.yticks([])
plt.show()
```

```
(1920, 1080, 3)
```

[118]:
```
background= cv2.imread("back.jpg")
print(background.shape)
```

```
plt.title('Background image')
plt.imshow(background)
plt.xticks([]), plt.yticks([])
plt.show()
```

```
(1920, 1080, 3)
```

[119]:
```
#cv2.imshow('original_img',img)
per=50
width= int( (img.shape[1]*per) / 100)
height= int ((img.shape[0]*per) /100 )
dim=(width, height)
img = cv2.resize(img,dim, interpolation = cv2.INTER_AREA)
print(img.shape)
image=img
#cv2.imshow('Resized_img',img)
# Apply log transform
#c= 255/ (np.log(1+np.max(img)))
```

```
(960, 540, 3)
```

[120]:
```
#cv2.imshow('original_img',img)
per1=50
width1= int( (background.shape[1]*per) / 100)
height1= int ((background.shape[0]*per) /100 )
```

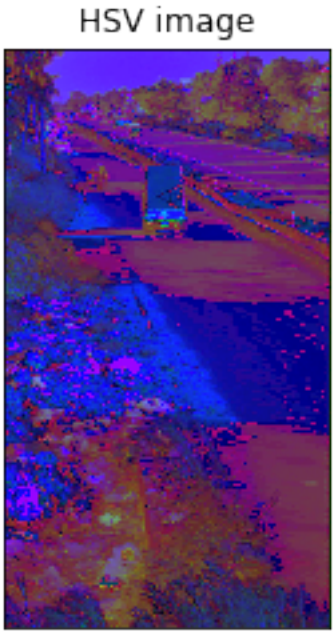
```
dim1=(width1, height1)
background = cv2.resize(background,dim1, interpolation = cv2.INTER_AREA)
print(background.shape)

#cv2.imshow('Resized_img',img)
# Apply log transform
#c= 255/ (np.log(1+np.max(img)))
```

```
(960, 540, 3)
```

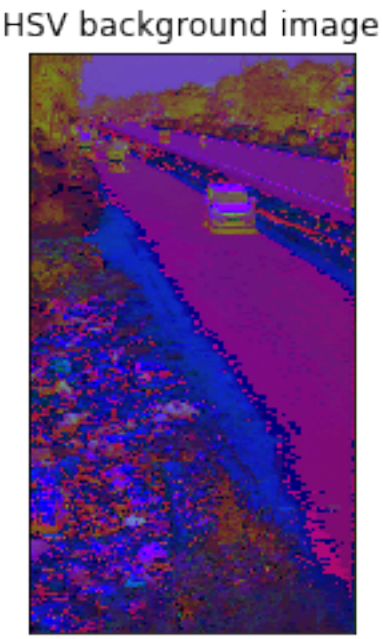
[121]:
```
img = cv2.cvtColor(img, cv2.COLOR_BGR2RGB)
plt.title('RGB image')
plt.imshow(img, cmap='gray')
plt.xticks([]), plt.yticks([])
plt.show()
```

[122]:
```
background = cv2.cvtColor(background, cv2.COLOR_BGR2RGB)
plt.title('RGB background image')
plt.imshow(background, cmap='gray')
plt.xticks([]), plt.yticks([])
plt.show()
```

[123]:
```
img = cv2.cvtColor(img, cv2.COLOR_RGB2HSV)
plt.title('HSV image')
plt.imshow(img, cmap='gray')
plt.xticks([]), plt.yticks([])
plt.show()
```

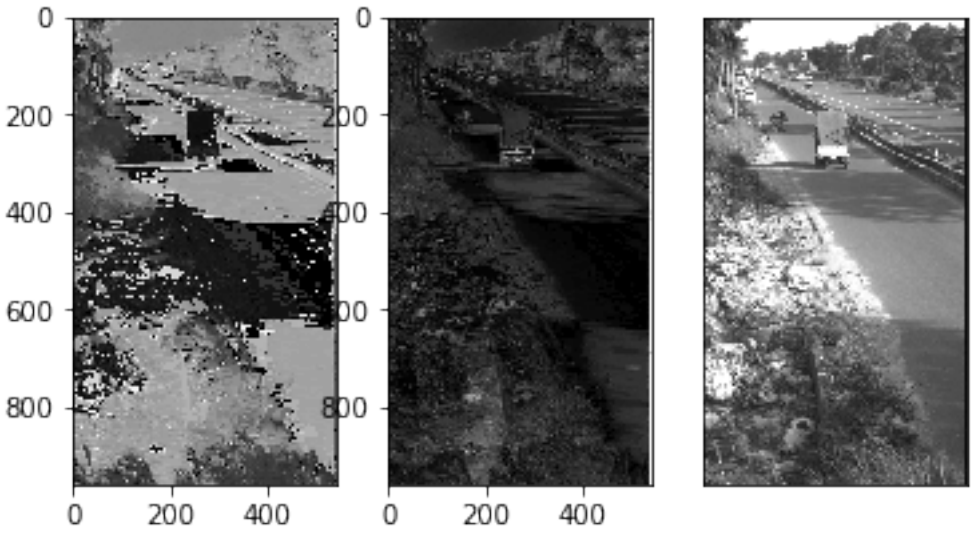


[124]:
```
background= cv2.cvtColor(background, cv2.COLOR_RGB2HSV)
plt.title('HSV background image')
plt.imshow(background, cmap='gray')
plt.xticks([]), plt.yticks([])
plt.show()
```

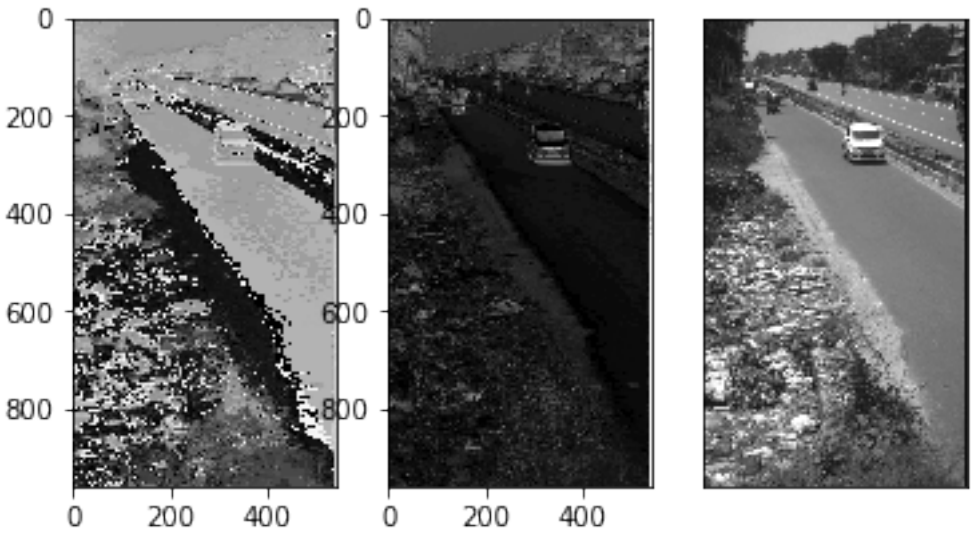


[125]:
```
H, S, V = cv2.split(img)

BH,BS,BV= cv2.split(background)
```

[147]:
```
plt.title('HSV components image')
plt.subplot(131)
plt.imshow(H, cmap='gray')
plt.subplot(132)
plt.imshow(S, cmap='gray')
plt.subplot(133)
plt.imshow(V, cmap='gray')
plt.xticks([]), plt.yticks([])
plt.show()
```



[148]:
```
plt.title('HSV components background image')
plt.subplot(131)
plt.imshow(BH, cmap='gray')
plt.subplot(132)
plt.imshow(BS, cmap='gray')
plt.subplot(133)
plt.imshow(BV, cmap='gray')
plt.xticks([]), plt.yticks([])
plt.show()
```



[149]:
```
print(H.shape)
```

```
(960, 540)
```

[150]:
```
alpha1 = 0 ; beta1 = 1 ; thetas= 1 ; thetah= 1
s=V
print(s.shape)
```

```
(960, 540)
```

[151]:
```
print(H.min())
V[12,1]/BV[12,1]
```

```
0
```

[151]:
```
1.1578947368421053
```

[152]:
```
import sys
V = np.array(V,dtype=np.uint64)
BV = np.array(BV,dtype=np.uint64)
```

[156]:
```
for i in range(H.shape[0]-1):
    for j in range(H.shape[1]-1):
        try:
            x= V[i,j]/ BV[i,j]
        except ZeroDivisionError:
            x = 0

        if ( (alpha1 <= x <= beta1) and (abs(S[i,j]-BS[i,j])<= thetas) and␣
 ↪(abs(H[i,j]-BH[i,j])<=thetah)) :
            s[i,j]=255
        else:
            s[i,j]=0
```

```
/home/user/anaconda3/lib/python3.7/site-packages/ipykernel_launcher.py:8:
RuntimeWarning: overflow encountered in ubyte_scalars
```

[157]:
```
print(s.shape)
s = np.array(s,dtype=np.uint8)
plt.title('HSV background image')
plt.imshow(s, cmap='gray')
plt.xticks([]), plt.yticks([])
plt.show()
```

```
(960, 540)
```

[158]:
```
print(s)
```

```
[[  0   0   0 ...   0 255  68]
 [  0   0   0 ...   0   0   0]
 [  0   0   0 ...   0   0   0]
 ...
 [  0   0   0 ...   0   0   0]
 [  0   0   0 ...   0   0   0]
 [ 81   0   0 ...   0   0   0]]
```

[146]:
```
print(s==1)
```

```
[[False False False ... False False False]
 [False False False ... False False False]
 [False False False ... False False False]
 ...
 [False False False ... False False False]
 [False False False ... False False False]
 [False False False ... False False False]]
```

[ ]:

[ ]: