

repo

December 14, 2019

```
[39]: import numpy as np #
import cv2 # opencv
import matplotlib.pyplot as plt # matplotlib()
from google.colab import files
from google.colab.patches import cv2_imshow #cv2.imshow()
from google.colab import drive #google drive
drive.mount('/content/drive/')
%cd "/content/drive/My Drive/Colab Notebooks/"
```

Drive already mounted at /content/drive/; to attempt to forcibly remount, call drive.mount("/content/drive/", force_remount=True).
/content/drive/My Drive/Colab Notebooks

```
[40]: # from (https://www.pakutaso.com/20150920253post-6016.html)

img=cv2.imread('./human.jpg')#
height=img.shape[0]#
width=img.shape[1]
SCALE =0.4
imgq=cv2.resize(img,(int(width*SCALE),int(height*SCALE))) #1/10
cv2_imshow(imgq)
print(imgq.shape[0])
print(imgq.shape[1])

imghls=cv2.cvtColor(imgq, cv2.COLOR_BGR2HLS)#BGRHLS
hls = cv2.split(imghls)#HLS
```



426
640

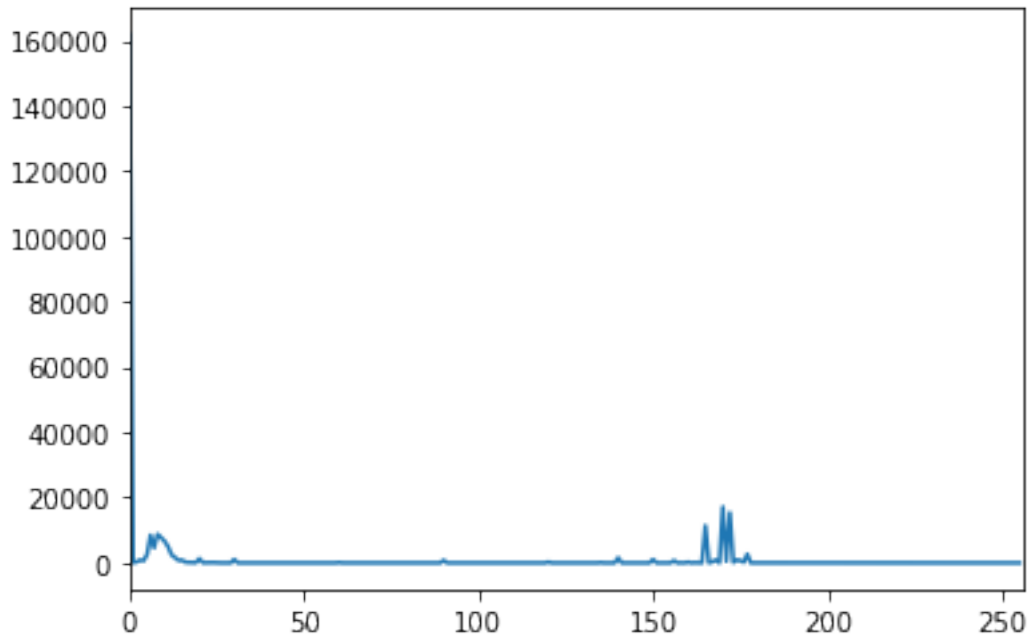
```
[41]: hue = hls[0] #  
      intensity = hls[1] #()  
      saturation = hls[2] #  
      cv2_imshow(hue)  
      cv2_imshow(intensity)  
      cv2_imshow(saturation)
```





```
[42]: hist = cv2.calcHist([hue],[0],None,[256],[0,256])#cv2.calcHist([image],[0],None,[256],[0,256])
      ↪channel, mask, # of bin, range)
      print("histgram of hue")
      plt.plot(hist) #
      plt.xlim([0,256])
      plt.show()
```

histgram of hue



```
[43]: MAX=180 #
      MIN=12 #
      MASK=200

      chroma_key_hue= np.zeros((imgq.shape[0],imgq.shape[1], 1), np.uint8)#
      for i in range (imgq.shape[0]):
          for j in range (imgq.shape[1]):
              if (hue[i][j]>MAX) or (hue[i][j]<MIN):#MAXMINOMASK2
                  chroma_key_hue[i][j]= MASK
              else:
                  chroma_key_hue[i][j]= 0

      cv2_imshow(chroma_key_hue)
```



```
[44]: MAX=160

chroma_key_intensity = np.zeros((imgq.shape[0],imgq.shape[1], 1), np.uint8)
for i in range (imgq.shape[0]):
    for j in range (imgq.shape[1]):
        if (intensity[i][j]>MAX) :
            chroma_key_intensity[i][j]= MASK
        else:
            chroma_key_intensity[i][j]= 0

cv2_imshow(chroma_key_intensity)
```



```
[45]: MAX=160

chroma_key_saturation = np.zeros((imgq.shape[0],imgq.shape[1], 1), np.uint8)
for i in range (imgq.shape[0]):
    for j in range (imgq.shape[1]):
        if (saturation[i][j]>MAX) :
            chroma_key_saturation[i][j]= MASK
        else:
            chroma_key_saturation[i][j]= 0

cv2_imshow(chroma_key_saturation)
```



```
[46]: chroma_key = np.zeros((imgq.shape[0],imgq.shape[1], 1), np.uint8)
for i in range (imgq.shape[0]):
    for j in range (imgq.shape[1]):
        chroma_key[i][j] = MASK if (chroma_key_hue[i][j] *
→chroma_key_intensity[i][j]) else 0

cv2_imshow(chroma_key)
```




1

intensity

2

```
[47]: # from (https://www.pakutaso.com/20190821218post-22465.html)

img=cv2.imread('./human2.jpg')#
height=img.shape[0]#
width=img.shape[1]
SCALE =0.5
imgq=cv2.resize(img,(int(width*SCALE),int(height*SCALE))) #1/10
cv2_imshow(imgq)
print(imgq.shape[0])
print(imgq.shape[1])

imghls=cv2.cvtColor(imgq, cv2.COLOR_BGR2HLS)#BGRHLS
hls = cv2.split(imghls)#HLS
```



533
800

```
[48]: hue = hls[0] #  
      intensity = hls[1] #()  
      saturation = hls[2] #  
      cv2_imshow(hue)  
      cv2_imshow(intensity)  
      cv2_imshow(saturation)
```





```
[101]: MAX=180
MIN=12
MASK=200

chroma_key_hue= np.zeros((imgq.shape[0],imgq.shape[1], 1), np.uint8)
for i in range (imgq.shape[0]):
    for j in range (imgq.shape[1]):
        if (hue[i][j]>MAX) or (hue[i][j]<MIN):
            chroma_key_hue[i][j]= MASK
        else:
            chroma_key_hue[i][j]= 0

cv2_imshow(chroma_key_hue)
```



```
[102]: MAX=125

chroma_key_intensity = np.zeros((imgq.shape[0],imgq.shape[1], 1), np.uint8)
for i in range (imgq.shape[0]):
    for j in range (imgq.shape[1]):
        if (intensity[i][j]>MAX) :
            chroma_key_intensity[i][j]= MASK
        else:
            chroma_key_intensity[i][j]= 0

cv2_imshow(chroma_key_intensity)
```



```
[103]: MAX=60

chroma_key_saturation = np.zeros((imgq.shape[0],imgq.shape[1], 1), np.uint8)
for i in range (imgq.shape[0]):
    for j in range (imgq.shape[1]):
        if (saturation[i][j]>MAX) :
            chroma_key_saturation[i][j]= MASK
        else:
            chroma_key_saturation[i][j]= 0

cv2_imshow(chroma_key_saturation)
```



```
[104]: chroma_key = np.zeros((imgq.shape[0],imgq.shape[1], 1), np.uint8)
for i in range (imgq.shape[0]):
    for j in range (imgq.shape[1]):
        chroma_key[i][j] = MASK if (chroma_key_hue[i][j] *
→chroma_key_saturation[i][j]) else 0

cv2_imshow(chroma_key)
```



3

PDF

```
[107]: !apt-get install texlive texlive-xetex texlive-latex-extra pandoc
!pip install pypandoc
```

```
Reading package lists... Done
Building dependency tree
Reading state information... Done
pandoc is already the newest version (1.19.2.4~dfsg-1build4).
texlive is already the newest version (2017.20180305-1).
texlive-latex-extra is already the newest version (2017.20180305-2).
texlive-xetex is already the newest version (2017.20180305-1).
The following package was automatically installed and is no longer required:
  libnvidia-common-430
Use 'apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 7 not upgraded.
Requirement already satisfied: pypandoc in /usr/local/lib/python3.6/dist-
packages (1.4)
Requirement already satisfied: setuptools in /usr/local/lib/python3.6/dist-
```



```
packages (from py pandoc) (42.0.2)
Requirement already satisfied: wheel>=0.25.0 in /usr/local/lib/python3.6/dist-
packages (from py pandoc) (0.33.6)
Requirement already satisfied: pip>=8.1.0 in /usr/local/lib/python3.6/dist-
packages (from py pandoc) (19.3.1)
```

```
[117]: !jupyter nbconvert --to PDF "repo2"
```

```
[NbConvertApp] Converting notebook repo2 to PDF
[NbConvertApp] Support files will be in repo_files/
[NbConvertApp] Making directory ./repo_files
[NbConvertApp] Making directory ./repo_files
[NbConvertApp] Making directory ./repo_files
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[NbConvertApp] Making directory ./repo_files
[NbConvertApp] Making directory ./repo_files
[NbConvertApp] Writing 48934 bytes to ./notebook.tex
[NbConvertApp] Building PDF
[NbConvertApp] Running xelatex 3 times: [u'xelatex', u'./notebook.tex',
'-quiet']
[NbConvertApp] Running bibtex 1 time: [u'bibtex', u'./notebook']
[NbConvertApp] WARNING | bibtex had problems, most likely because there were no
citations
[NbConvertApp] PDF successfully created
[NbConvertApp] Writing 1310479 bytes to repo.pdf
```

```
[0]:
```