FLIP GAMBAR

import numpy as np

import imageio

import matplotlib.pyplot as plt

img = imageio.imread("larm-rmah-AEaTUnvneik-unsplash.jpg")

img\_height = img.shape[0]

img\_width = img.shape[1]

img\_channel = img.shape[2]

img\_type = img.dtype

img\_flip\_horizontal = np.zeros(img.shape, img\_type)

img\_flip\_vertical = np.zeros(img.shape, img\_type)

for y in range(0, img\_height):

    for x in range(0, img\_width):

        for c in range(0, img\_channel):

            img\_flip\_horizontal[y][x][c] = img[y][img\_width-1-x][c]

for y in range(0, img\_height):

    for x in range(0, img\_width):

        for c in range(0, img\_channel):

            img\_flip\_vertical[y][x][c] = img[img\_height-1-y][x][c]

plt.imshow(img\_flip\_horizontal)

plt.title("Flip Horizontal")

plt.show()

plt.imshow(img\_flip\_vertical)

plt.title("Flip Vertical")

plt.show()

GRAYSCALE

import numpy as np

import imageio

import matplotlib.pyplot as plt

img = imageio.imread("larm-rmah-AEaTUnvneik-unsplash.jpg")

img\_height = img.shape[0]

img\_width = img.shape[1]

img\_channel = img.shape[2]

img\_type = img.dtype

img\_flip\_horizontal = np.zeros(img.shape, img\_type)

img\_flip\_vertical = np.zeros(img.shape, img\_type)

img\_grayscale = np.zeros(img.shape, dtype=np.uint8)

**for** y **in** range(0, img\_height):

**for** x **in** range(0, img\_width):

red = img[y][x][0]

green = img[y][x][1]

blue = img[y][x][2]

gray = (int(red) + int(green) + int(blue)) / 3

img\_grayscale[y][x] = (gray, gray, gray)

plt.imshow(img\_grayscale)

plt.title("Grayscale")

plt.show()

hg = np.zeros((256))

**for** x **in** range(0, 256):

hg[x] = 0

**for** y **in** range(0, img\_height):

**for** x **in** range(0, img\_width):

gray = img\_grayscale[y][x][0]

hg[gray] += 1

*# plt.figure(figsize=(20, 6))*

*# plt.plot(hg, color="black", linewidth=2.0)*

*# plt.show()*

bins = np.linspace(0, 256, 100)

plt.hist(hg, bins, color="black", alpha=0.5)

plt.title("Histogram")

plt.show()

hgr = np.zeros((256))

hgg = np.zeros((256))

hgb = np.zeros((256))

hgrgb = np.zeros((768))

**or** x **in** range(0, 256):

hgr[x] = 0

hgg[x] = 0

hgb[x] = 0

**for** x **in** range(0, 768):

hgrgb[x] = 0

**or** x **in** range(0, 256):

hgr[x] = 0

hgg[x] = 0

hgb[x] = 0

**for** x **in** range(0, 768):

hgrgb[x] = 0

*# th = int(256/64)*

temp = [0]

**for** y **in** range(0, img.shape[0]):

**for** x **in** range(0, img.shape[1]):

red = int(img[y][x][0])

green = int(img[y][x][1])

blue = int(img[y][x][2])

green = green + 256

blue = blue + 512

*# temp.append(green)*

hgrgb[red] += 1

hgrgb[green] += 1

hgrgb[blue] += 1

binsrgb = np.linspace(0, 768, 100)

plt.hist(hgrgb, binsrgb, color="black", alpha=0.5)

*# plt.plot(hgrgb)*

plt.title("Histogram Red Green Blue")

plt.show()

**for** y **in** range(0, img\_height):

**for** x **in** range(0, img\_width):

red = img[y][x][0]

green = img[y][x][1]

blue = img[y][x][2]

hgr[red] += 1

hgg[green] += 1

hgb[blue] += 1

bins = np.linspace(0, 256, 100)

plt.hist(hgr, bins, color="red", alpha=0.5)

plt.title("Histogram Red")

plt.show()

plt.hist(hgg, bins, color="green", alpha=0.5)

plt.title("Histogram Green")

plt.show()

plt.hist(hgb, bins, color="blue", alpha=0.5)

plt.title("Histogram Blue")

plt.show()