Multimedia Image Processing

Assignment 2

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Source Code :

#Equalization.py

import cv2

import numpy as np

NUM\_INTENSITY = 256

def HistogramEqualize(img):

height, width = img.shape

num\_pixels = height\*width

# making histogram

histogram = np.zeros((NUM\_INTENSITY,))

for y in range(height):

for x in range(width):

histogram[img[y, x]] = histogram[img[y, x]] + 1

# normalizing histogram

normalized\_histogram = np.divide(histogram, num\_pixels)

# making cdf

cdf = np.zeros((NUM\_INTENSITY,))

cdf[0] = normalized\_histogram[0]

for k in range(1, NUM\_INTENSITY, 1):

cdf[k] = cdf[k-1] + normalized\_histogram[k]

# finding output gray level

output\_gray\_level = np.multiply(NUM\_INTENSITY-1, cdf)

output\_gray\_level = np.round(output\_gray\_level)

# convert image to equalized image

result = np.zeros((height, width), np.uint8) # result image

for y in range(height):

for x in range(width):

result[y, x] = output\_gray\_level[img[y, x]]

return result

in\_image = cv2.imread('dgu\_night.png', 0) # img2numpy

out\_image = HistogramEqualize(in\_image)

cv2.imshow('Input Image', in\_image)

cv2.imshow('Result Image', out\_image)

cv2.imwrite('dgu\_night\_histogram\_equalized.png', out\_image) # save result img

cv2.waitKey()

Result Image: dgu\_night\_histogram\_equalized.png



Source Image: dgu\_night.png

