import cv2

image=cv2.imread('c:\\users\\egek\\ders\\images\\rot.jpg')

cv2.imshow('Rot',image)

(b, g, r) = image[250, 250]

print("Pixel at (250, 250) - Red: {}, Green: {}, Blue: {}".format(r, g, b))

key=cv2.waitKey(0)

print (key)

cv2.destroyAllWindows()

print (image.size)

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Affine Transformations:

#Translation

import cv2

import numpy as np

image=cv2.imread('c:\\users\\egek\\ders\\images\\rot.jpg')

cv2.imshow('Orjinal',image)

M = np.float32([[1, 0, 25], [0, 1, 50]]) # 1 0 Tx Pozitif saga, Negatif sola / 0 1 Ty pozitif Aşağı, Negatif yukarı

shifted = cv2.warpAffine(image, M, (image.shape[1], image.shape [0]))

cv2.imshow("Shifted Down and Right", shifted)

M = np.float32([[1, 0, -50], [0, 1, -90]])

shifted = cv2.warpAffine(image, M, (image.shape[1], image.shape[0]))

cv2.imshow("Shifted Up and Left", shifted)

cv2.waitKey(0)

cv2.destroyAllWindows()

#Rotation

import cv2

import numpy as np

image=cv2.imread('c:\\users\\egek\\ders\\images\\rot.jpg')

cv2.imshow('Orjinal',image)

center = (image.shape[1] // 2, image.shape[0] // 2) #// int bölme

M = cv2.getRotationMatrix2D(center, 45, 0.5) #0.5 2.0 Olcek

rotated = cv2.warpAffine(image, M, (image.shape[1], image.shape[0]))

cv2.imshow("Rotated by 45 Degrees", rotated)

M = cv2.getRotationMatrix2D(center, -90, 2.0)

rotated = cv2.warpAffine(image, M, (image.shape[1], image.shape[0]))

cv2.imshow("Rotated by -90 Degrees", rotated)

cv2.waitKey(0)

cv2.destroyAllWindows()

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#Resized

import cv2

import numpy as np

image=cv2.imread('c:\\users\\egek\\ders\\images\\rot.jpg')

cv2.imshow("Original", image)

r = 150.0 / image.shape[1] #En boy oranı,150 pixel yeni genişlik

dim = (150, int(image.shape[0] \* r)) #r:ratio dim:dimension

resized = cv2.resize(image, dim, interpolation = cv2.INTER\_AREA)

#interpolation method; cv2.INTER\_LINEAR,

#cv2.INTER\_CUBIC, and cv2.INTER\_NEAREST.

cv2.imshow("Resized (Width)", resized)

r = 50.0 / image.shape[0]

dim = (int(image.shape[1] \* r), 50)

resized = cv2.resize(image, dim, interpolation = cv2.INTER\_AREA)

cv2.imshow("Resized (Height)", resized)

cv2.waitKey(0)

cv2.destroyAllWindows()

#Flipped

import cv2

import numpy as np

image=cv2.imread('c:\\users\\egek\\ders\\images\\rot.jpg')

cv2.imshow("Original", image)

flipped = cv2.flip(image, 1) # y-axis

cv2.imshow("Flipped Horizontally", flipped)

flipped = cv2.flip(image, 0) # x-axis

cv2.imshow("Flipped Vertically", flipped)

flipped = cv2.flip(image, -1) #both

cv2.imshow("Flipped Horizontally & Vertically", flipped)

cv2.waitKey(0)

cv2.destroyAllWindows()

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#Crop

import cv2

import numpy as np

image=cv2.imread('c:\\users\\egek\\ders\\images\\rot.jpg')

cv2.imshow("Original", image)

cropped = image[0:100 , 200:300] #[start y:End y , Start X End X]

cv2.imshow("Rot", cropped)

cv2.waitKey(0)

cv2.destroyAllWindows()