**import** cv2 **as** cv  
**import** numpy **as** np  
**import** matplotlib.pyplot **as** plt  
src=cv.imread(**"D:/picture2/00.png"**,cv.IMREAD\_GRAYSCALE)  
src = np.float32(src)  
h,w=src.shape[:2]  
img1 = src[:src.shape[0]//3,:]  
img2 = src[src.shape[0]//3:src.shape[0]//3\*2,:]  
img3 = src[src.shape[0]//3\*2:,:]  
h1,w1=5\*img1.shape[0]//100, 5\*img1.shape[1]//100  
h2,w2=5\*img2.shape[0]//100,5\*img2.shape[1]//100  
h3,w3=5\*img3.shape[0]//100,5\*img3.shape[1]//100  
r=img1[h1:img1.shape[0]-h1,w1:img1.shape[1]-w1]  
g=img2[h2:img2.shape[0]-h2,w2:img2.shape[1]-w2]  
b=img3[h3:img3.shape[0]-h3-1,w3:img3.shape[1]-w3]  
  
summ1=[]  
shifts1=[]  
**for** j **in** range(-15,16):  
 **for** i **in** range(-15,16):  
 r1 = np.roll(r,j,axis=0)  
 r1 = np.roll(r1, i, axis=1)  
 summ1.append((r1\*g).sum())  
 shifts1.append([j,i])  
ind=np.argmax(summ1)  
print(ind)  
  
summ2=[]  
shifts2=[]  
**for** jj **in** range(-15,16):  
 **for** ii **in** range(-15,16):  
 b1=np.roll(b,jj,axis=0)  
 b1 = np.roll(b1, ii, axis=1)  
 summ2.append((b1\*g).sum())  
 shifts2.append([jj,ii])  
ind1=np.argmax(summ2)  
print(ind1)  
  
  
rr=np.roll(np.roll(r,shifts1[ind][0],axis=0), shifts1[ind][1], axis=1)  
bb=np.roll(np.roll(b,shifts2[ind1][0],axis=0), shifts2[ind1][1], axis=1)  
conbine1=np.dstack((rr,g,bb))  
  
plt.figure(num=**"summ"**,figsize=(10,4))  
plt.subplot(1,2,1)  
plt.plot(summ1)  
plt.subplot(1,2,2)  
plt.plot(summ2)  
plt.show()  
  
cv.imshow(**"img1"**,r.astype(np.uint8))  
cv.imshow(**"img2"**,g.astype(np.uint8))  
cv.imshow(**"img3"**,b.astype(np.uint8))  
cv.imshow(**"output"**,conbine1.astype(np.uint8))  
  
cv.waitKey(0)  
cv.destroyAllWindows()

result:

388

758

























































