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from skimage.io import imread, imsave
from skimage import img_as_float
from numpy import roll, dstack


def settings(img):
   global h, w, error
   img_f = img_as_float(img)
   h = int(img_f.shape[0]/3)
   w = img_f.shape[1]
   error = int(0.05*h)
   rgb(img_f)


def rgb(img):
   blue = img[error:h-error, error:w-error]
   green = img[h+error:2*h-error, error:w-error]
   red = img[2*h+error:3*h-error, error:w-error]
   overlap(blue, green, red)


def overlap(blue, green, red):
   cor = 0
   for i in range(-20, 20):
       blue_i = roll(blue, i, 0)
       for j in range(-30, 30):
           blue_j = roll(blue_i, j, 1)
           c_blue = (blue_j*green).sum()
           if (c_blue > cor):
               cor = c_blue
               by = j
               bx = i

   cor = 0
   for i in range(-20, 20):
       red_i = roll(red, i, 0)
       for j in range(-20, 20):
           red_j = roll(red_i, j, 1)
           c_red = (red_j * green).sum()
           if(c_red > cor):
               cor = c_red
               ay = j
               ax = i

   blue = roll(blue, bx, 0)
   blue = roll(blue, by, 1)

   red = roll(red, ax, 0)
   red = roll(red, ay, 1)

   result = dstack((red, green, blue))
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   imsave('img/' + str(val) +'_colored.jpg', result)


img_1 = imread("img/door.jpg")

img_2 = imread("img/family.jpg")

img_3 = imread("img/table.jpg")

h = 0
w = 0
error = 0
val = 1

imgs = [img_1, img_2, img_3]
for img in imgs:
   settings(img)
   val += 1
```


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