read_images.py

```python
import cv2
import numpy as np # read images as numpy arrays


# read gray level images

# lenna.bmp is gray image
# fruits.jpg is color image
# without flag it is not clear, depends on the default
# with IMREAD_GRAYSCALE it is converted to gray scale (even if it is not)
gray_image1 = cv2.imread('lenna.bmp') # mistake?
gray_image2 = cv2.imread('lenna.bmp', cv2.IMREAD_GRAYSCALE)
gray_image3 = cv2.imread('lenna.bmp', cv2.IMREAD_UNCHANGED)
gray_image4 = cv2.imread('fruits.jpg', cv2.IMREAD_GRAYSCALE)

cv2.namedWindow('gray1', cv2.WINDOW_AUTOSIZE)
cv2.imshow('gray1', gray_image1)
print("gray_image1", gray_image1[0,0])

cv2.namedWindow('gray2', cv2.WINDOW_AUTOSIZE)
cv2.imshow('gray2', gray_image2)
print("gray_image2", gray_image2[0,0])

cv2.namedWindow('gray3', cv2.WINDOW_AUTOSIZE)
cv2.imshow('gray3', gray_image3)
print("gray_image3", gray_image3[0,0])

cv2.namedWindow('gray4', cv2.WINDOW_AUTOSIZE)
cv2.imshow('gray4', gray_image4)
print("gray_image4", gray_image4[0,0])

BGR_image1 = cv2.imread('fruits.jpg');
BGR_image2 = cv2.imread('fruits.jpg', cv2.IMREAD_UNCHANGED);
BGR_image3 = cv2.imread('fruits.jpg', cv2.IMREAD_COLOR);

cv2.namedWindow('color1', cv2.WINDOW_AUTOSIZE)
cv2.imshow('color1', BGR_image1)
print("color1", BGR_image1[0,0], "red=", BGR_image1[0,0,2])

cv2.namedWindow('color2', cv2.WINDOW_AUTOSIZE)
cv2.imshow('color2', BGR_image2)
print("color2", BGR_image2[0,0], "red=", BGR_image2[0,0,2])

cv2.namedWindow('color3', cv2.WINDOW_AUTOSIZE)
cv2.imshow('color3', BGR_image3)
print("color3", BGR_image3[0,0], "red=", BGR_image3[0,0,2])

# convert BGR to RGB

cv2.namedWindow('color4', cv2.WINDOW_AUTOSIZE)
RGB_image1 = cv2.cvtColor(BGR_image1, cv2.COLOR_BGR2RGB)
cv2.imshow('color4', RGB_image1) # mistake ?
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53 print("color4", RGB_image1[0,0], "blue=", RGB_image1[0,0,2])
54
55 # wait for key to exit
56
57 cv2.waitKey(0)
58 cv2.destroyAllWindows()
```