cs4funsd 2025-09-19

Image Processing

1. Image processing basics

- Made of pixels in a grid (width by height)
- Each pixel has three color channels (RGB)
- We manipulate pictures by manipulating pixels one by one

```
from PIL import Image
import random

pic = Image.open('butterfly.jpg')

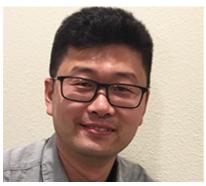
#get the size of the picture
[width, height] = pic.size
pixels = pic.load()

for x in range(width):
    for y in range(height):
        (r, g, b) = pixels[x, y]
        # Do sth here

pic.save('newPic.jpg')
```

2. Negative Effect

Create a negative effect on the given picture





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3. Symmetry in image processing

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