Laboratory work No. 4

Image processing using Python Imaging Library

Goal: get knowledge and skills in digital image processing using the PIL library

Task 1: Convert colored picture for " coloring "

A possible algorithm:

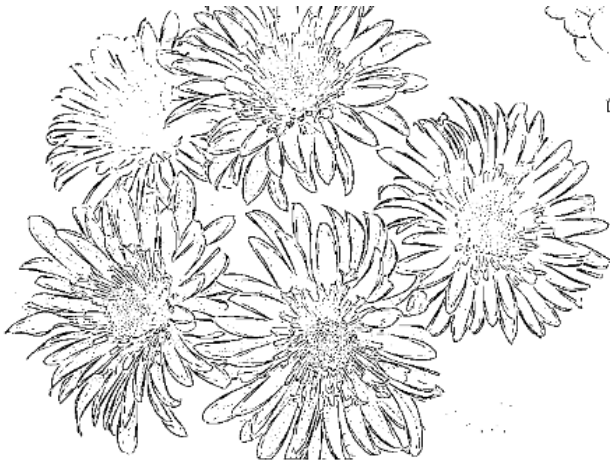
1) Upload the image
2) Convert the image to shades of gray
3) Apply the edge detection filter
4) Invert colors using `.point()` and the lambda function

Note: *you can use any other approach*

Example:

Input image

Output image



Task 2

Create a poster in the style of Andy Warhol's " Shot Marilyns "

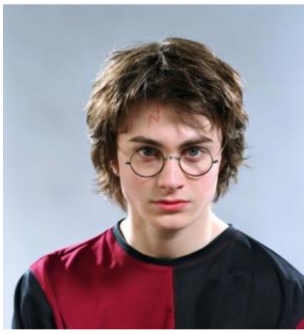
Requirements:

- convert the input image to an image with dimensions 500 ×500;
- split and "shuffle" channels by adding an "empty" channel;
- channels may repeat;
- the order of the channels is generated randomly (for example, using `random.sample()`);
- there should be 9 images on the original poster;

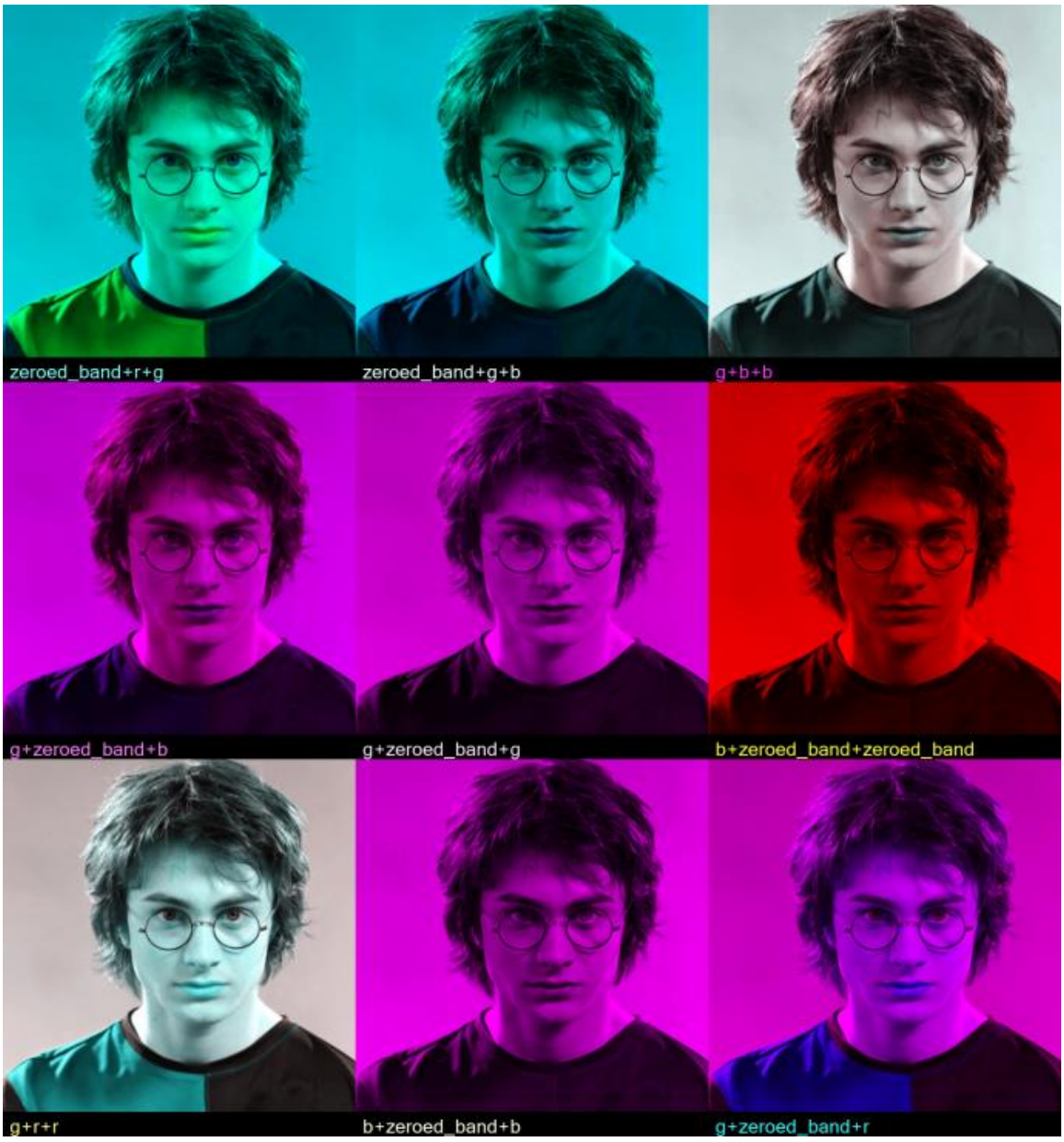
- each image must have captions indicating the channels (use `ImageDraw.Draw.rectangle()` and `ImageDraw.Draw.text()`);
- create 3-4 different posters.

Example

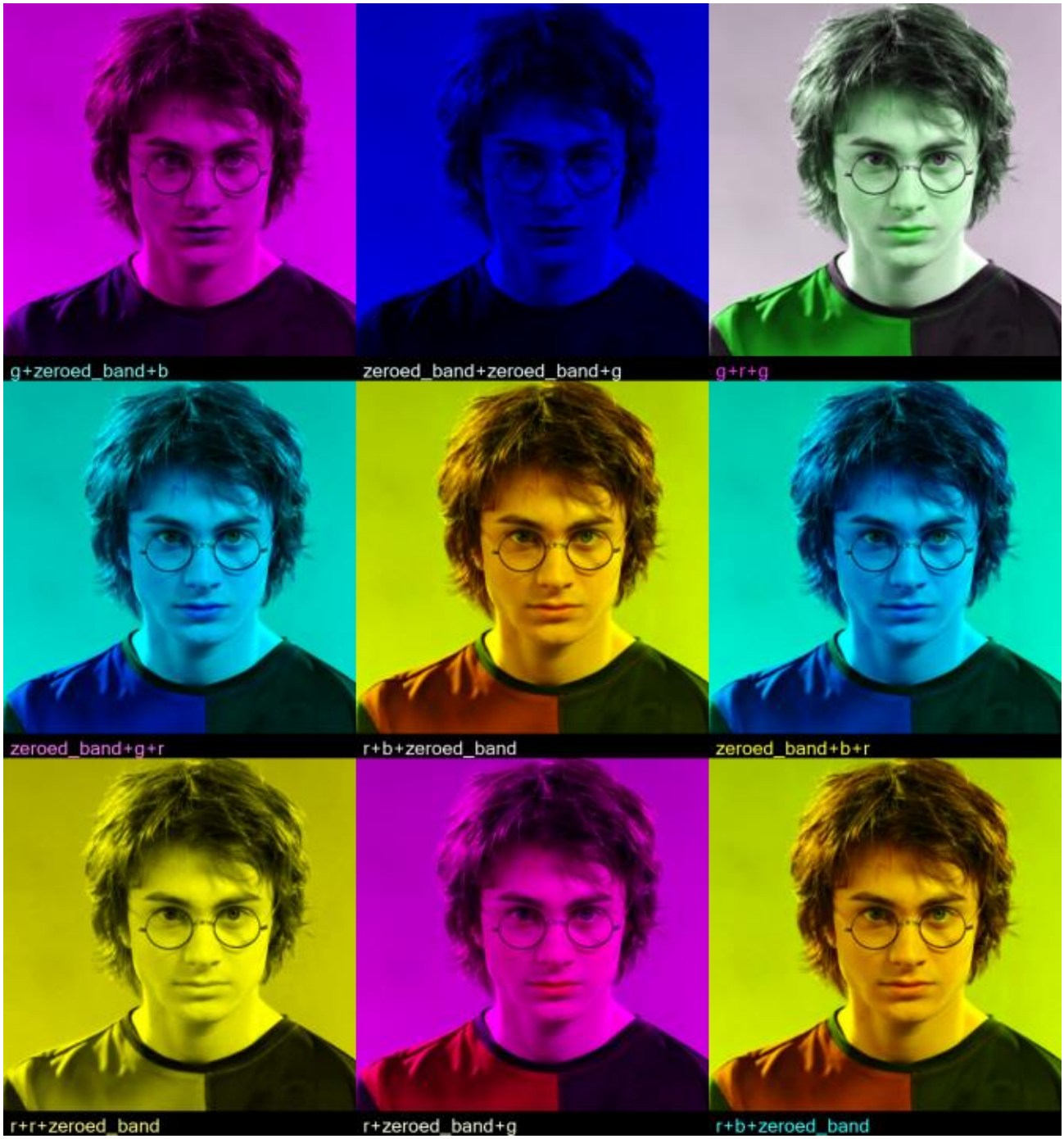
Input image:



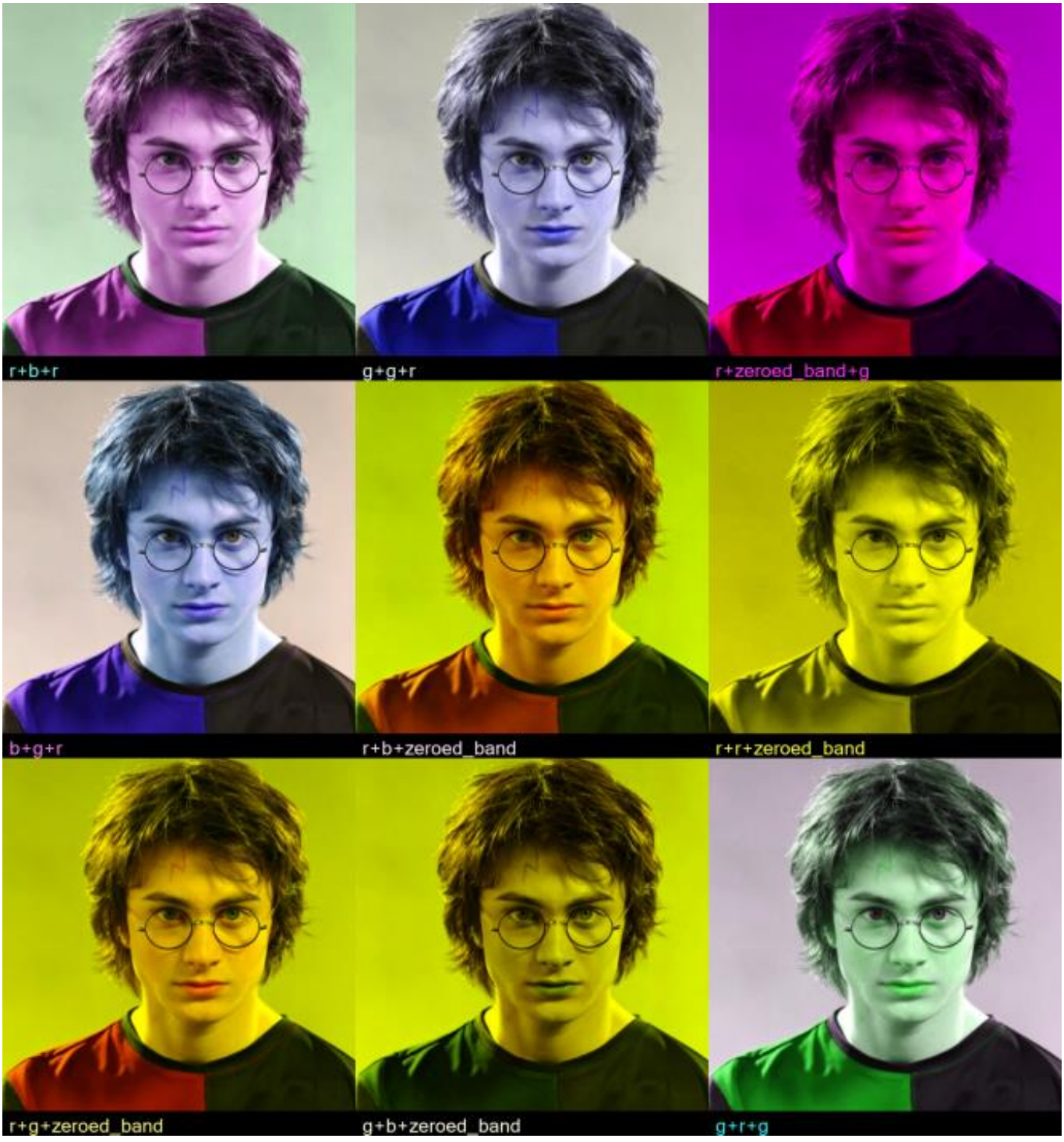
Poster 1



Poster 2


g+zeroed_band+b
zeroed_band+zeroed_band+g
g+r+g
zeroed_band+g+r
r+b+zeroed_band
zeroed_band+b+r
r+r+zeroed_band
r+zeroed_band+g
r+b+zeroed_band

Poster 3



Content of the report:

Submit a Jupyter notebook with the problem statements, code, input and output images as a report.

Note: *To complete these tasks, you can use the provided images, or any others you like.*