PROJECT 03

Following is the brief description of the functions I have written in the code:

- Gaussianfilter: Creates the Gaussian filter for given sigma
- Conv2: This is the function for convolution from Project 2
- Upscale: upscales the given image to new size
- Downscale: downscales the given image to required level
- Build_gaussian: creates the Gaussian pyramid
- Build_laplacian : creates the Laplacian pyramid
- Draw_circle: used to read the mouse pointer reading and draw small circles on the points for visualization.
- Selectroi: This is the function that selects the ROI.

  NOTE1: To select the ROI please click once and drag as much as you want. Whenever you want to end the selection, click again. You don't have to keep the mouse clicked ☺.

- Blend_images: This is where the blending happens, where the main equation for blending is implemented.
- Create_image: This function takes care of padding zeros to smaller foreground images and returns padded image. It also aligns the image in the right place.

Following is the description for the way the code works:

- The code asks, Do you want to run examples? If you want to see the 4 examples I have implemented, please type 1.
- The next question, if you chose 1 for previous question is which example. Choose any number from 1 to 4.
- Next, it will ask for image type: color or gray
- Next, pad type: for convolution
- Next, number of layers
- A screen pops up, select the ROI on it as described in the NOTE1.
- In some time, the blended image pops up.

Description of code:

I have shown the working of the code with 4 examples.

Example 1: Both the images are of the same size. There is no padding or alignment done for this.

Example 2-4: The foreground image is smaller than the background and hence, padding and alignment has been done.

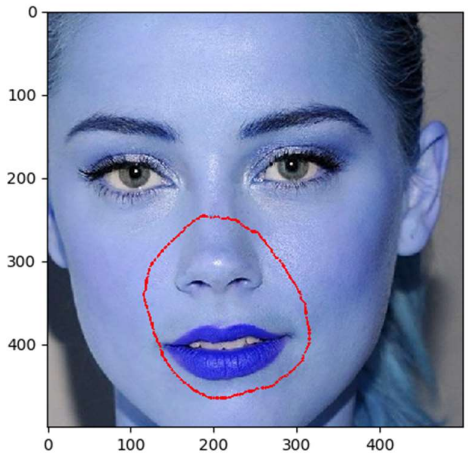
If you want to test the code with other images, please select 0 for the question: Do you want to run examples? Please ensure the images are of same size and read the images using the run_ex == 0 block at line 454.

EXAMPLE 1:

Blending face.png and hand.png

Selected Mask:

Please ignore the color, I have taken care of BGR to RGB at the end.

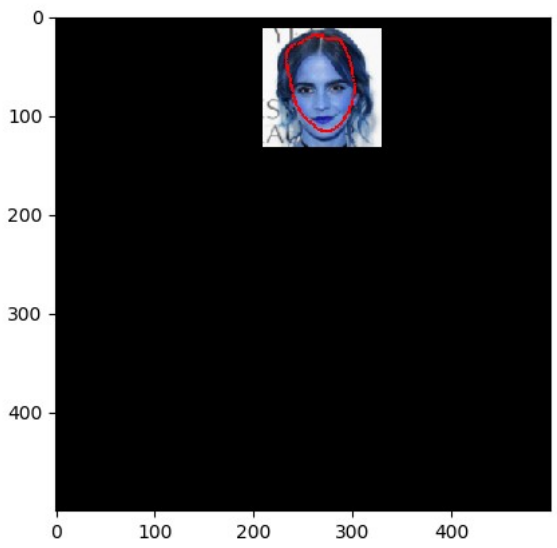


Blended Image:

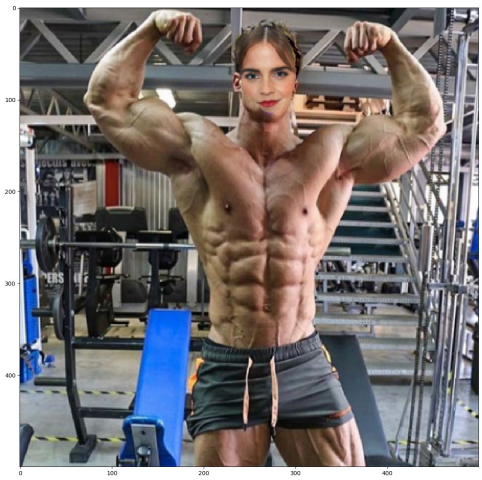
EXAMPLE 2:

Blending emma.png and body.png

Selected ROI:



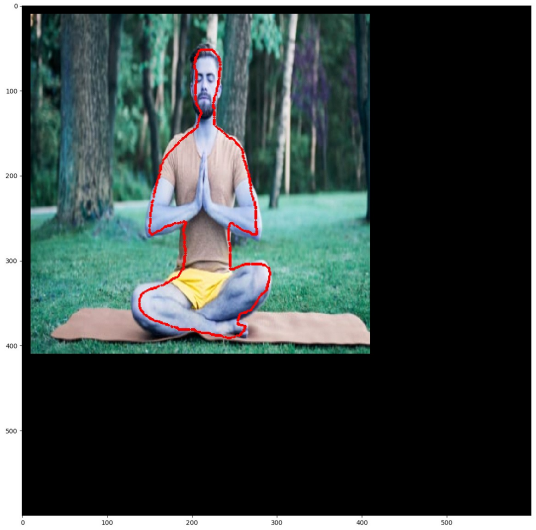
Blended image:



EXAMPLE 3:

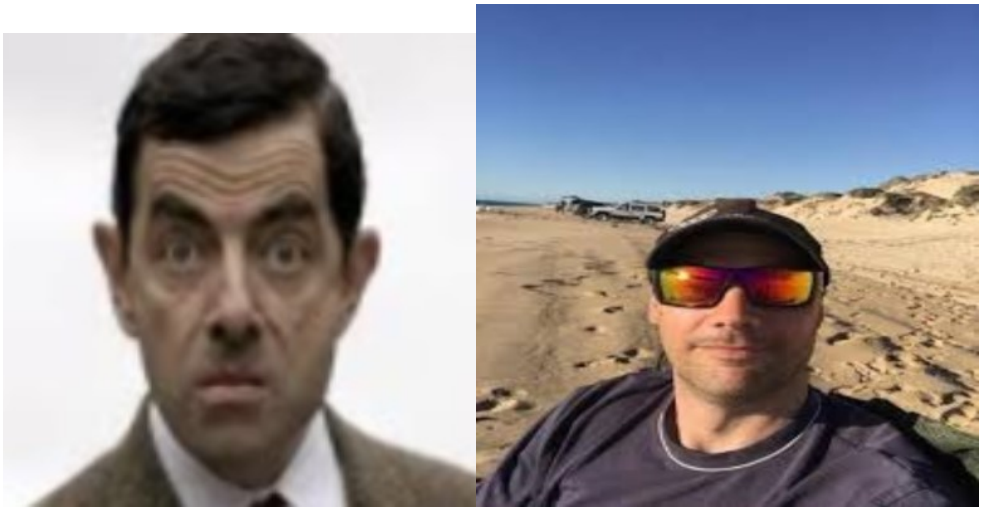
Blending yoga.png and water.png

Selected ROI:

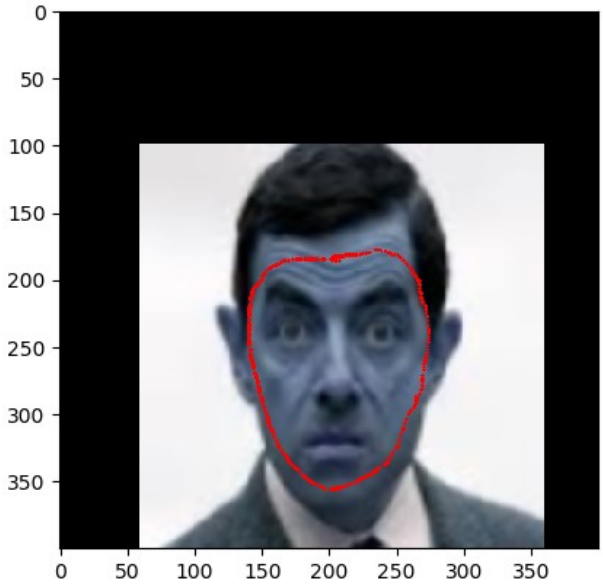


Blended image:

EXAMPLE 4:



Selected ROI:



Blended image: