



Basics of Image Processing

In this lab, you will get yourself familiarize with the basic concepts of the image processing required for computer vision task.

Task-1: Load, Display and Save an image from a file and internet? (10-15 mins)

You have to load an image using simple image reading functions available in frameworks, but the real task is to load from internet sources and for that use HTTP request or some built-in function.

Task-2: Explore multiple colour spaces e.g. RGB, HSV etc.? (20-30 mins)

You have to explore the images in different colour space to get yourself familiarize with the colour space and how are they affected in different conditions.

Task-3: Perform some basic image manipulations as following: (1 Hour)

1. Load an image and extract regions from top left corner (20 width, 20 height), middle (10 width, 10 height) and from right bottom (40 width, 40 height), and then display the regions.
2. Replace the extracted regions with some arbitrary patch e.g. red, yellow etc.
3. On the replaced region place the textual information as TL, M, BR in a visible colour.
4. Place a footer at the bottom of the image with your name as follows:



5. Translate the image such that the name is in the middle.
6. Rotate the image by 180 degrees.
7. Now flip the image upside down.
8. Crop the above footer (now header) from the final image.
9. Create a mask to extract the header region from the image.

In this task make sure you choose big enough image to have extracted these regions without overlapping. Save each step image as task3-1.png for later use. For footer, you can use a rectangle with border, text and circle from built-in methods.

Note: You can use any framework, language but Python is recommended with its frameworks like OpenCV, scikit-image, PIL etc.