Image Processing Workshop

{ Day\_1 }

1. Installation of Ubuntu, OpenCV, Sublime text

2. Basic C++ syntax

3. Basic LINUX commands

4. Image ( defined as matrix of pixel intensities )

* Intensity for each pixel ranges from 0 to 255
* **Gray scale image**: 0-black 255-white
* **Coloured images**: Red,Blue,Green - 0 to 255 ; White(255,255,255) Black(0,0,0)
* **HSV Colour Spacing** - Hue(0 to 360) , Saturation(intensity),Value(brightness)
* **Defining** Mat img(500,500,CV\_8UC3,Scalar(0,0,0));
* 500x500 pixels; 8- 8bit ; 3-channel (BGR-3, grayscale-1)
* **For accessing any pixel of a coloured image**: img.at<Vec3b>(i,j)
* img.at<Vec3b>(i,j)[0] for Blue
* img.at<Vec3b>(i,j)[1] for Green
* img.at<Vec3b>(i,j)[2] for Red
* **For accessing any pixel of a coloured image:** img.at<uchar>(i,j)
* a.rows - no.of rows; a.cols - no.of columns of the image
* **For copying a image:** b=a.clone()
* **To convert an image to a grayscale image:** 0.114\*B+0.387\*G+0.299\*R
* **RGB to HSV conversion:** cvtColor(source,dest,flag)
* **flag**:CV\_BGR2HSV, CV\_BGR2GRAY

5. Submissions to be done

* Matrix multiplication
* Chessboard
* Mirror image