IMAGE PROCESSING

By

Viral 3

Some color spaces (channels)

- The following represents a few popular channels/color spaces for an image: RGB, HSV, XYZ, YUV, YIQ, YPbPr, YCbCr, and YDbDr. We can use Affine mappings to go from one color space to another. The following matrix represents the linear mapping from the RGB to YIQ color space:

RGB to YIQ

$$\begin{bmatrix} Y \\ I \\ Q \end{bmatrix} = \begin{bmatrix} 0.299 & 0.587 & 0.114 \\ 0.596 & -0.274 & -0.322 \\ 0.211 & -0.523 & 0.312 \end{bmatrix} \begin{bmatrix} R \\ G \\ B \end{bmatrix}$$

YIQ to RGB

$$\begin{bmatrix} R \\ G \\ B \end{bmatrix} = \begin{bmatrix} 1 & 0.956 & 0.621 \\ 1 & -0.272 & -0.647 \\ 1 & -1.106 & 1.703 \end{bmatrix} \begin{bmatrix} Y \\ I \\ Q \end{bmatrix}$$

7-Converting from one color space into another

- We can convert from one color space into another using library functions;
- h (heu or color: dominant wave length of reflected light), s (saturation or chroma) and v (value or brightness)
- ***Providing the correct path to the images on the disk***