

IMAGE PROCESSING

By
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Image types (modes)

- An image can be of the following different types:
 - **Single channel images**—each pixel is represented by a single value:
 - **Binary (monochrome)** images (each pixel is represented by a single 0-1 bit)
 - **Gray-level images** (each pixel can be represented with 8-bits and can have values typically in the range of 0-255)

Image types (modes)

- Multi-channel images—each pixel is represented by a tuple of values:
- **3-channel images**; for example, the following:
 - RGB images—each pixel is represented by three-tuple (r, g, b) values, representing red, green, and blue channel color values for every pixel.
 - HSV images—each pixel is represented by three-tuple (h, s, v) values, representing hue (color), saturation (colorfulness—how much the color is mixed with white), and value (brightness—how much the color is mixed with black) channel color values for every pixel. The HSV model describes colors in a similar manner to how the human eye tends to perceive colors.
- **Four-channel images**; for example, RGBA images—each pixel is represented by three-tuple (r, g, b, α) values, the last channel representing the transparency.

6-Converting from one image mode into another

- We can convert an RGB image into a grayscale image while reading the image itself.
- Note that we can lose some information while converting into grayscale for some colored images. The following code shows such an example with Ishihara plates, used to detect color-blindness. This time, the `rgb2gray()` function is used from the `color` module, and both the color and the grayscale images are shown side by side. As can be seen in the following figure, the number 8 is almost invisible in the grayscale version
- ***Providing the correct path to the images on the disk***