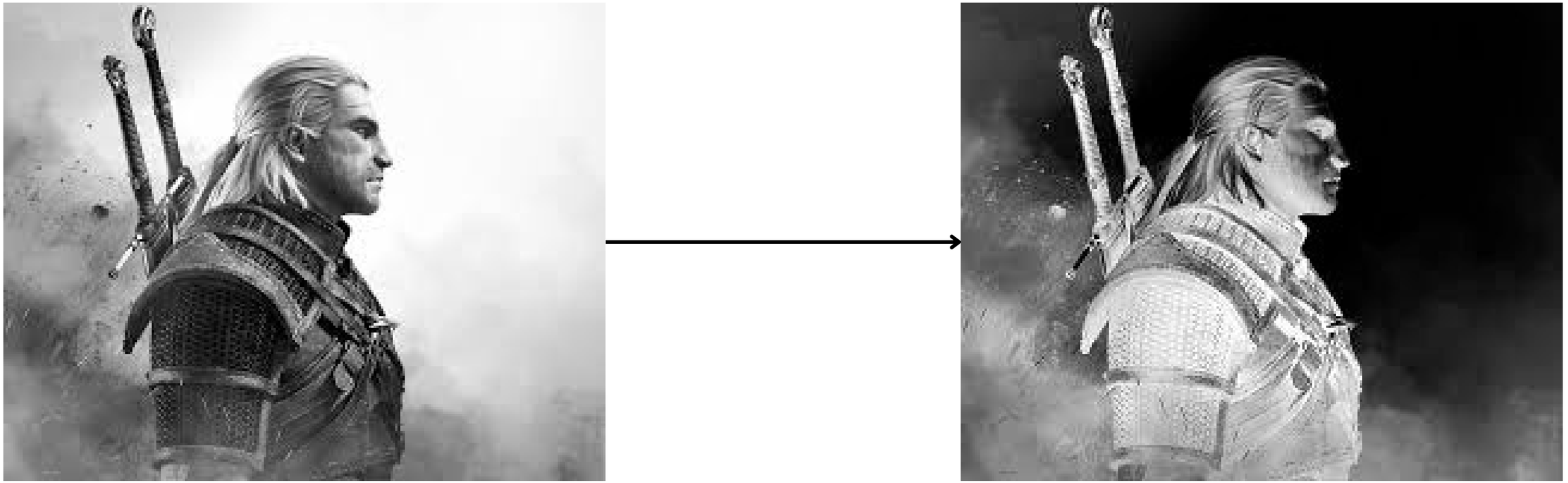
Computer Vision

Digital Image Processing Elementary Methods

1. Image Negative

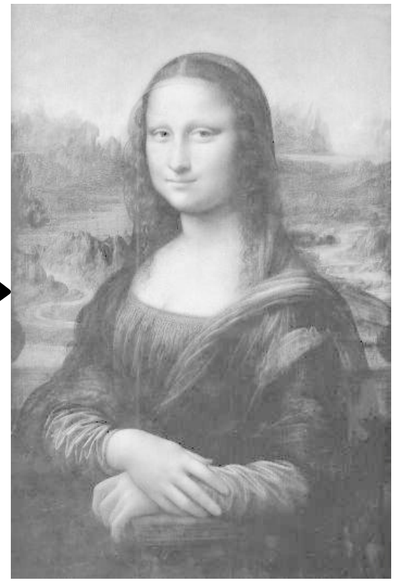
The image negative operation involves inverting the intensity values of pixels in an image. Bright areas become dark and vice versa, resulting in a reversed version of the original image.



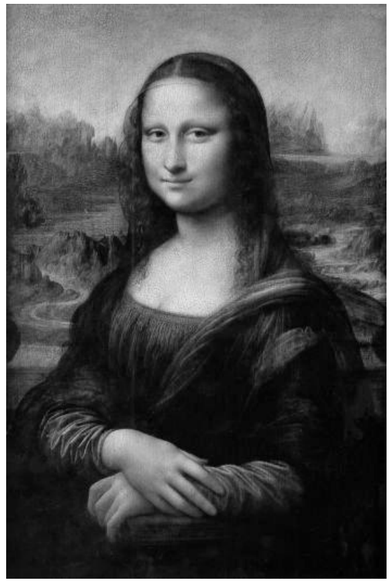
2. Gama Encoding/Correction

Gamma encoding or correction adjusts the brightness levels of an image by modifying the gamma value, altering the relationship between pixel intensity and displayed brightness. This helps to correct non-linearities in image capture or display systems.

Original



gamma = 0.25



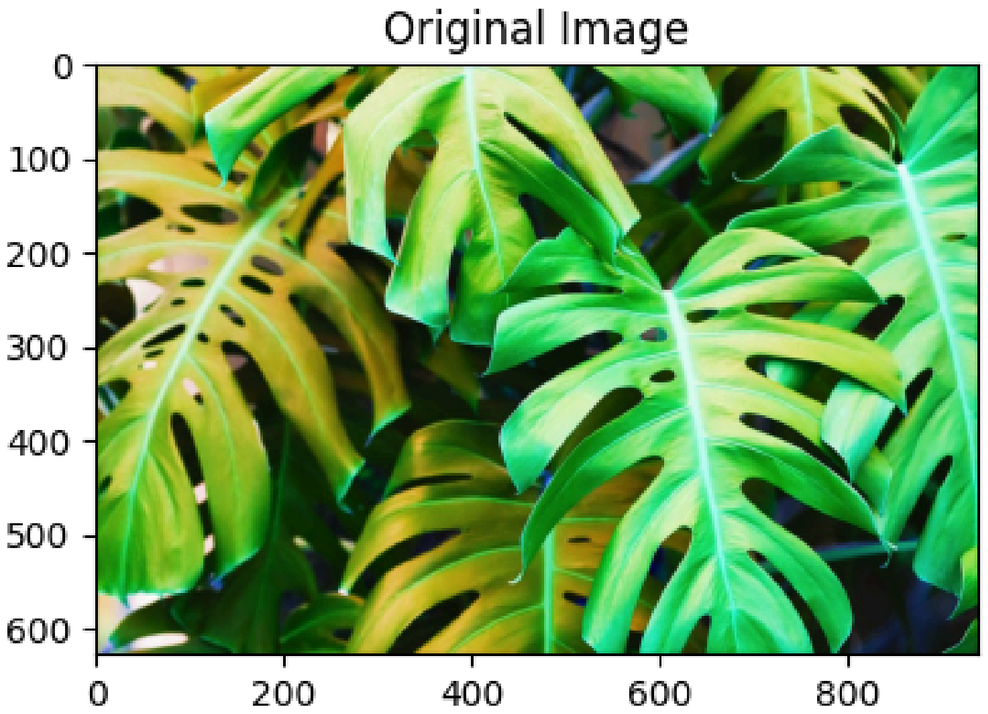
gamma = 0.75

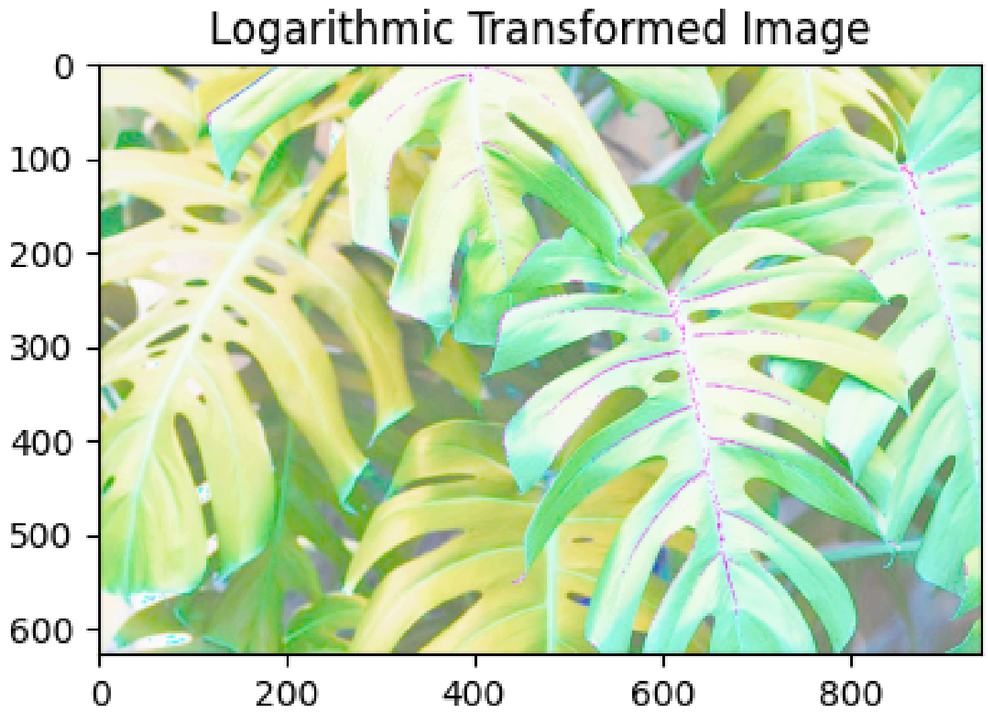
gamma = 2

gamma = 3

3. Logarithmic

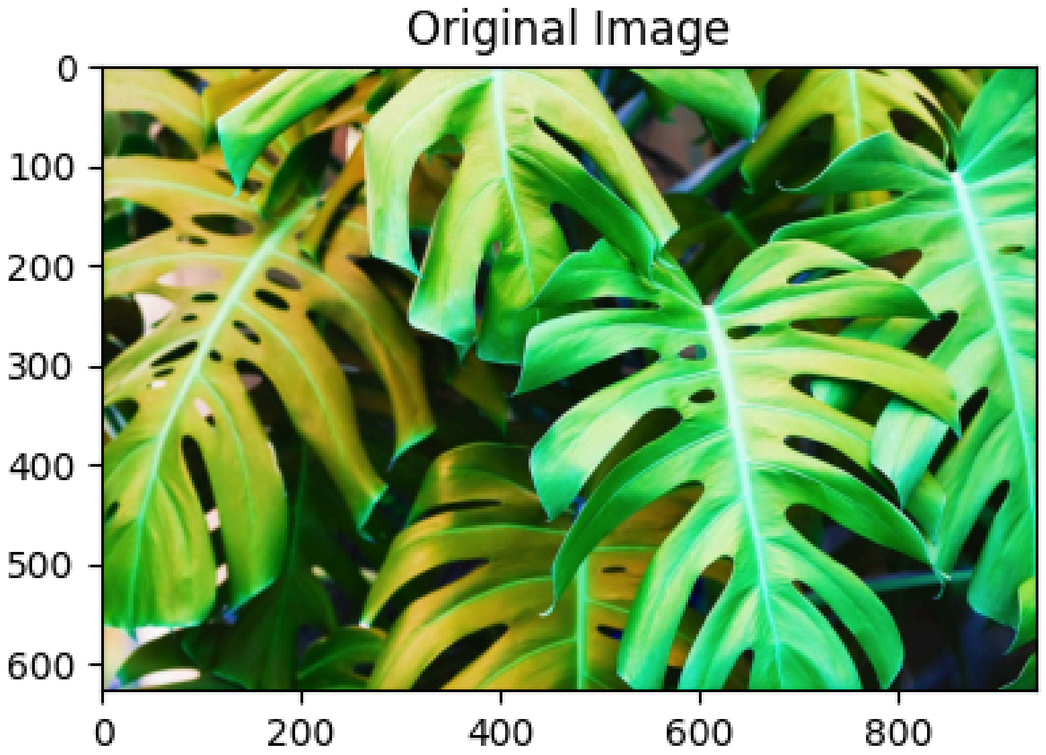
Contrast stretching enhances the contrast of an image by spreading the intensity values over a wider range. This method improves the visual appearance of the image.

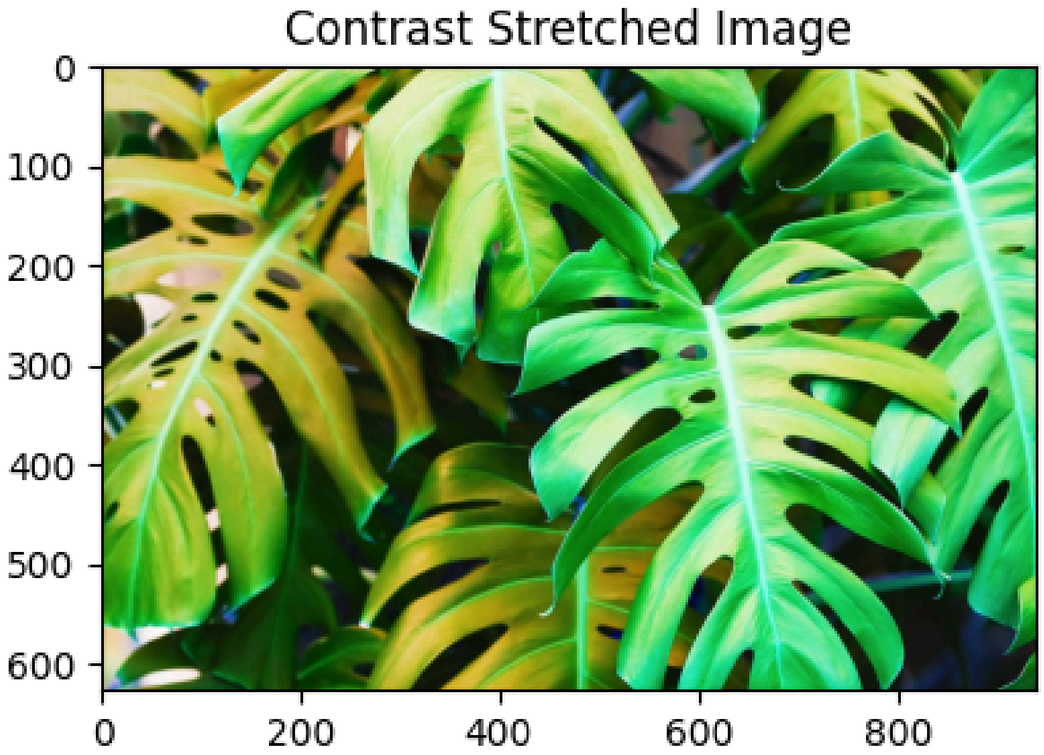




4. Contrast Stretching

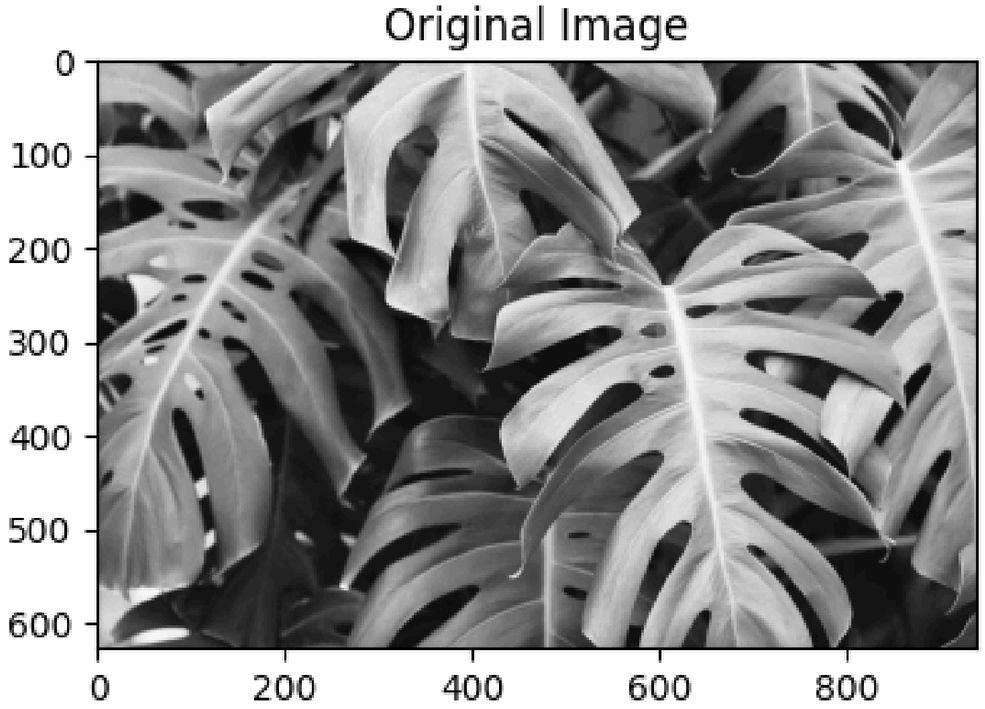
Contrast stretching enhances the contrast of an image by spreading the intensity values over a wider range. This method improves the visual appearance of the image.

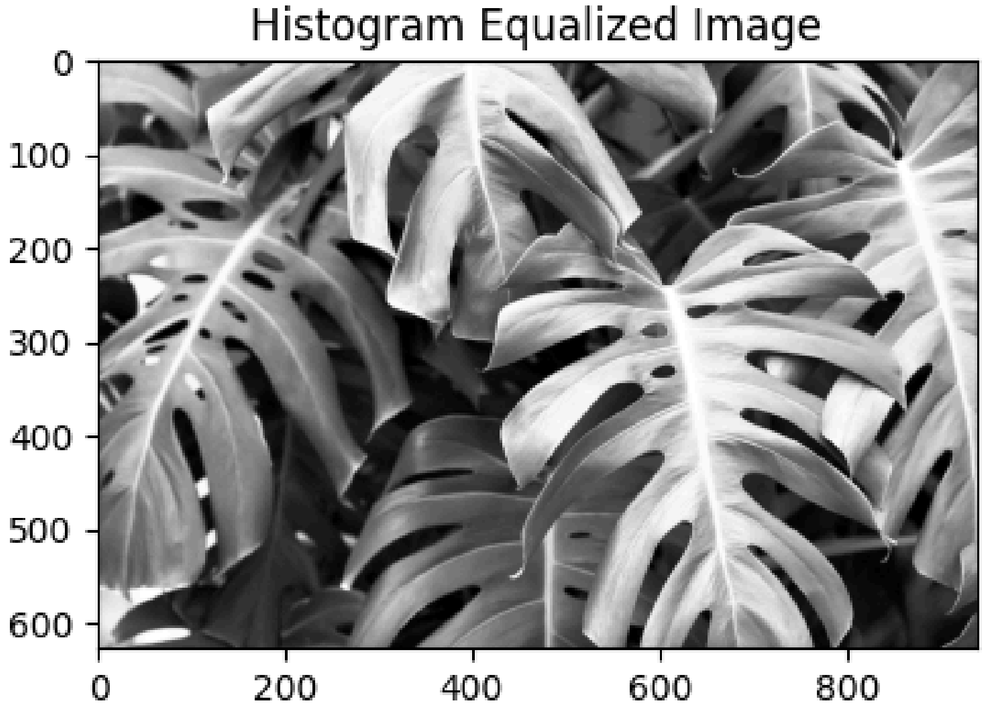




5. Histogram Equalization

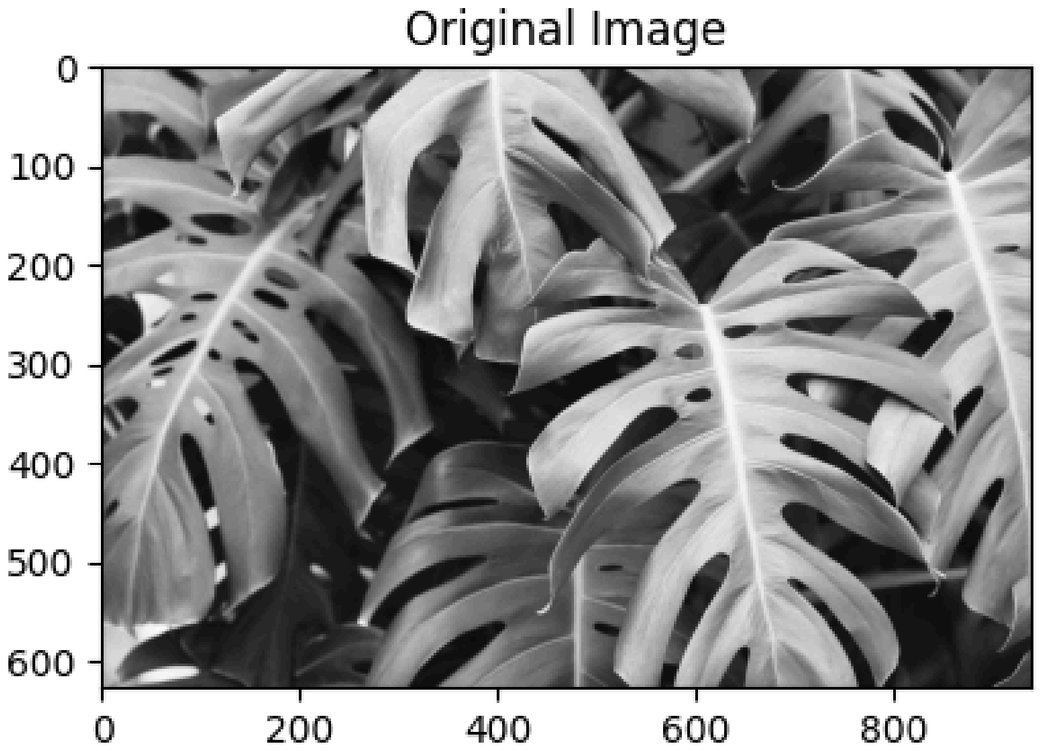
Histogram equalization is a technique used to enhance the contrast of an image by redistributing the intensity values. It effectively spreads out the intensity levels to cover the entire range, making the image more visually appealing.

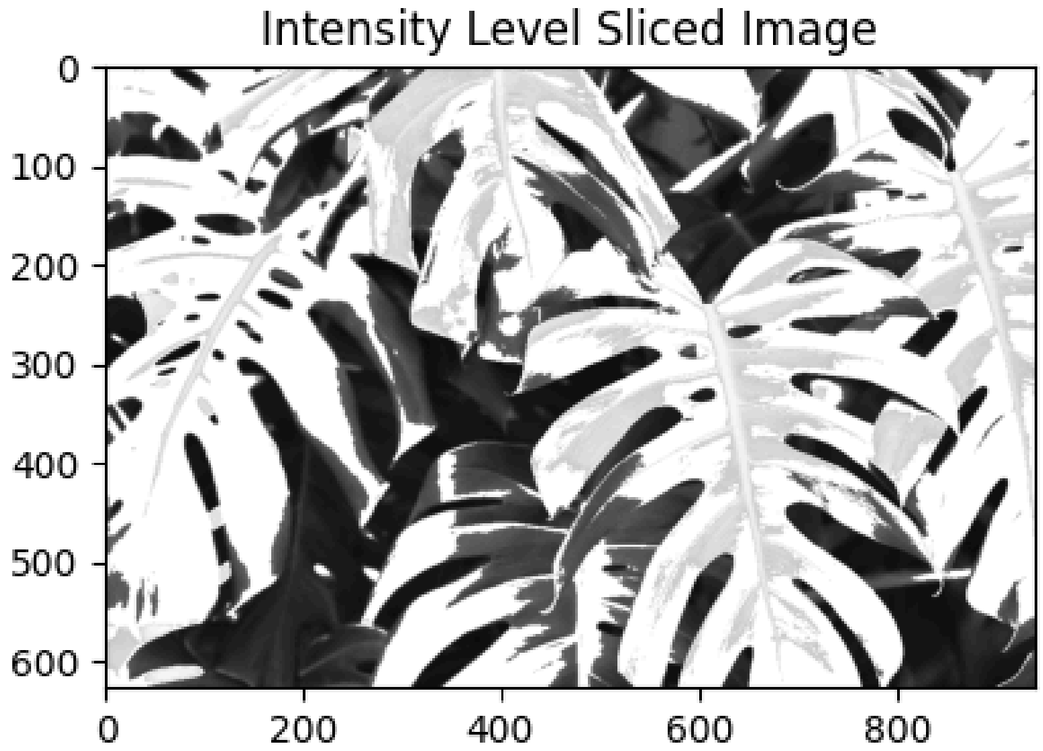




6. Intensity Level Slicing

Intensity level slicing is a technique used to highlight specific intensity levels in an image while suppressing others. This is particularly useful for emphasizing certain features or objects in the image based on their intensity values.





7. Bit Plane Slicing

Bit plane slicing is a technique used to extract specific bit planes from the pixel intensities of an image. Each pixel in a digital image is represented by a binary number, where each bit of the number represents a certain level of intensity.

Original Image

Bit Plane 5 Sliced Image

Thank you