
```
% Created By Deepanshu Lodhi.
% Define the image URL.
url = "https://img.freepik.com/free-photo/adorable-brown-white-basenji-dog-smiling-giving-high-five-isolated-white_346278-1657.jpg?semt=ais_hybrid";
% Read the image from the internet
img = imread(url);
% Convert the image to grayscale (if it's RGB)
if size(img, 3) == 3
    img = rgb2gray(img);
end
% Get the size of the image
[rows, cols] = size(img);
% Initialize reconstruction
reconstructed_img = zeros(rows, cols, 'uint8');
% Create a figure to display all results
figure;
% Display the original image
subplot(3, 4, 1);
imshow(img);
title('Original Image');
% Perform Bit Plane Slicing and Reconstruction
for k = 0:7
    % Extract the k-th bit plane
    bit_plane = bitget(img, k+1);
    % Scale to full intensity for visualization
    bit_plane_image = uint8(bit_plane * 255);
    % Add the weighted contribution to reconstruct the image
    reconstructed_img = reconstructed_img + uint8(bit_plane * 2^k);
    % Display the k-th bit plane
    subplot(3, 4, k+2);
    imshow(bit_plane_image);
    title(['Bit Plane ', num2str(k)]);
end
% Display the reconstructed image
subplot(3, 4, 10);
imshow(reconstructed_img);
title('Recon. Image');
% Add a super title
sgtitle('Original Image, Bit Planes & Recon. Image');
```

Original Image, Bit Planes & Recon. Image

Original Image Bit Plane 0 Bit Plane 1 Bit Plane 2



Bit Plane 3



Bit Plane 4



Bit Plane 5



Bit Plane 6



Bit Plane 7 Recon. Image

