```matlab
I = imread("/Users/charlesdavi/Desktop/Art/stairs.jpg");

im_size = size(I);


tic; [final_avg_matrix final_indexes] = partition_image_vectorized(I); t_A = toc;


N = size(final_avg_matrix,2);


avg_matrix = [];


avg_matrix(:,:,1) = final_avg_matrix(1:N,:);

avg_matrix(:,:,2) = final_avg_matrix(N+1:2*N,:);

avg_matrix(:,:,3) = final_avg_matrix(2*N+1:3*N,:);


[average_color_image] = generate_avg_color_image_vect(avg_matrix, im_size);


figure, imshow(average_color_image)


file_path = '/Users/charlesdavi/Desktop/IM_Part_Images/image_A_avg.png';


saveas(gcf,file_path);


[bounded_image] = generate_image_bound_vect(I,N);


figure, imshow(bounded_image)
```

```matlab
file_path = '/Users/charlesdavi/Desktop/IM_Part_Images/image_A_bound.png';

saveas(gcf,file_path);

im_size_A = im_size;


%--------------------------------------

I = imread("/Users/charlesdavi/Desktop/Art/human_art.jpg");
im_size = size(I);

tic; [final_avg_matrix final_indexes] = partition_image_vectorized(I); t_B = toc;

N = size(final_avg_matrix,2);

avg_matrix = [];

avg_matrix(:,:,1) = final_avg_matrix(1:N,:);
avg_matrix(:,:,2) = final_avg_matrix(N+1:2*N,:);
avg_matrix(:,:,3) = final_avg_matrix(2*N+1:3*N,:);

[average_color_image] = generate_avg_color_image_vect(avg_matrix, im_size);

figure, imshow(average_color_image)
```

```matlab
file_path = '/Users/charlesdavi/Desktop/IM_Part_Images/image_B_avg.png';

saveas(gcf,file_path);

[bounded_image] = generate_image_bound_vect(I,N);

figure, imshow(bounded_image)

file_path = '/Users/charlesdavi/Desktop/IM_Part_Images/image_B_bound.png';

saveas(gcf,file_path);

im_size_B = im_size;

%-------------------------------------

I = imread("/Users/charlesdavi/Desktop/Art/Pandora.jpg");
im_size = size(I);

tic; [final_avg_matrix final_indexes] = partition_image_vectorized(I); t_C = toc;

N = size(final_avg_matrix,2);

avg_matrix = [];
```

```matlab
avg_matrix(:,:,1) = final_avg_matrix(1:N,:);

avg_matrix(:,:,2) = final_avg_matrix(N+1:2*N,:);

avg_matrix(:,:,3) = final_avg_matrix(2*N+1:3*N,:);


[average_color_image] = generate_avg_color_image_vect(avg_matrix, im_size);


figure, imshow(average_color_image)


file_path = '/Users/charlesdavi/Desktop/IM_Part_Images/image_C_avg.png';


saveas(gcf,file_path);


[bounded_image] = generate_image_bound_vect(I,N);


figure, imshow(bounded_image)


file_path = '/Users/charlesdavi/Desktop/IM_Part_Images/image_C_bound.png';


saveas(gcf,file_path);


im_size_C = im_size;


%-------------------------------------


im_size_A
```

t_A

im_size_B

t_B

im_size_C

t_C