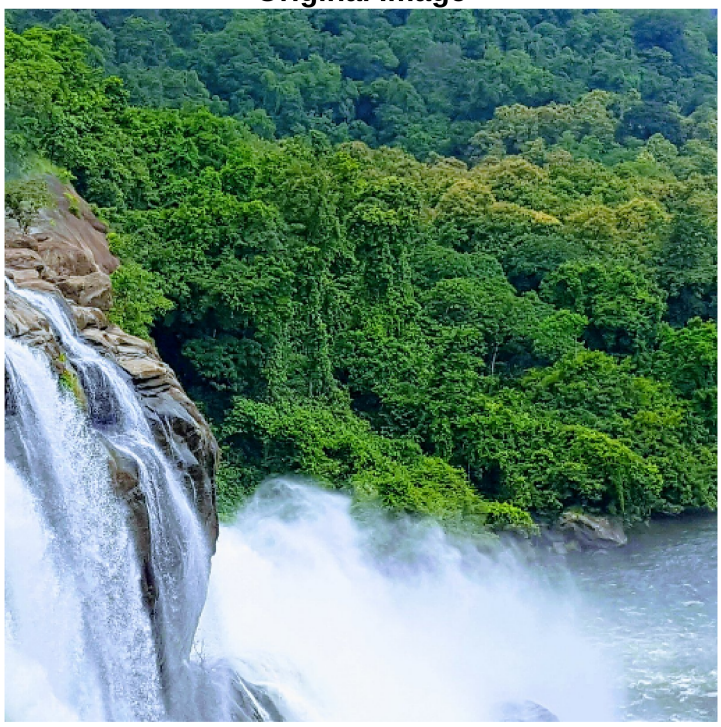
```
%%
% Create a binary mask for the region of interest in the image, then
apply low-pass filters (Gaussian and Average filters) and high-pass filters
(Laplacian and Prewitt filters)


input_img=imread('image.jpeg');

gray_image=rgb2gray(input_img);
% Creating Binary mask
binarymask=imbinarize(gray_image);

%Applying filters(Gaussian and Average filters)
gaussianFilter=fspecial("gaussian",[5,5],1);
avgFilter=fspecial("average",[5,5]);

%apply filters
lowpass_gaussian=imfilter(gray_image,gaussianFilter);
lowpass_avg=imfilter(gray_image,avgFilter);

%applying high pass filters
laplacianFilter=fspecial('laplacian',0.2);
prewittFilter=fspecial("prewitt");

highpass_laplacian=imfilter(gray_image,laplacianFilter);
highpass_prewitt=imfilter(gray_image,prewittFilter);

%Display results
imshow(input_img),title('Original Image');
```

Original Image

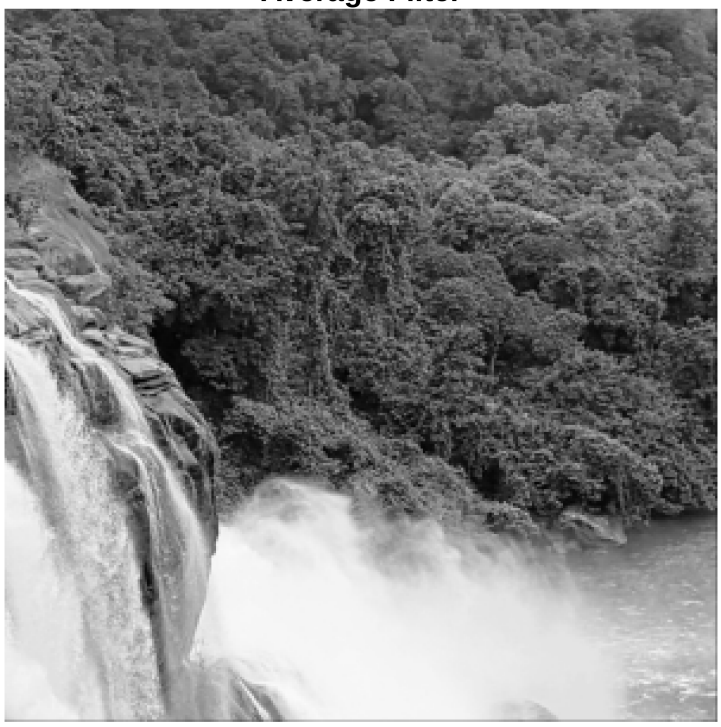


```
imshow(lowpass_gaussian),title('Gaussian Filter');
```

Gaussian Filter

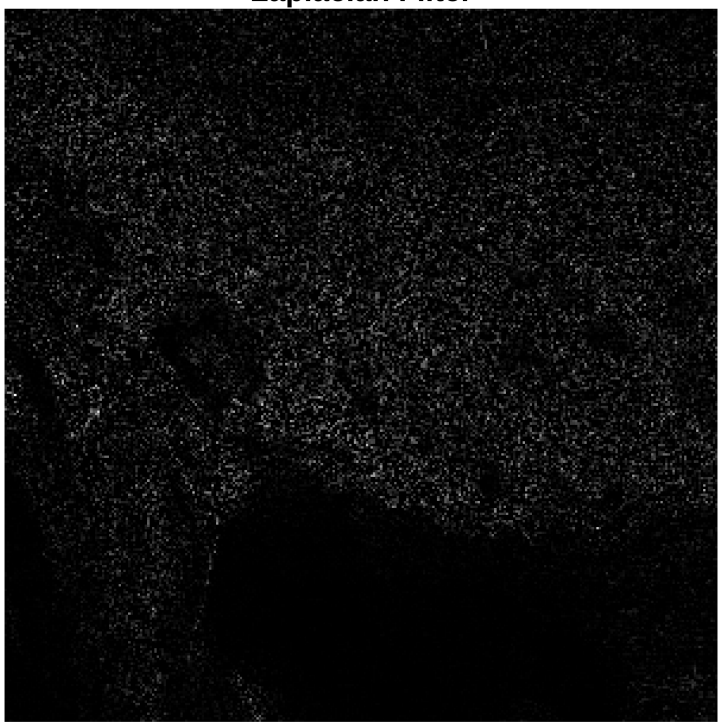
```
imshow(lowpass_avg),title('Average Filter');
```

Average Filter



```
imshow(highpass_laplacian),title('Laplacian Filter');
```

Laplacian Filter



```
imshow(highpass_prewitt),title('Prewitt Filter');
```

Prewitt Filter