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% Read image
I = imread('cat.jpeg');

% Convert to grayscale before applying 2D filters
grayI = rgb2gray(I);

% Create a binary mask for ROI (can draw region of interest on the grayscale
image)
mask = roipoly(grayI); % Optional: You can draw or define ROI on grayscale

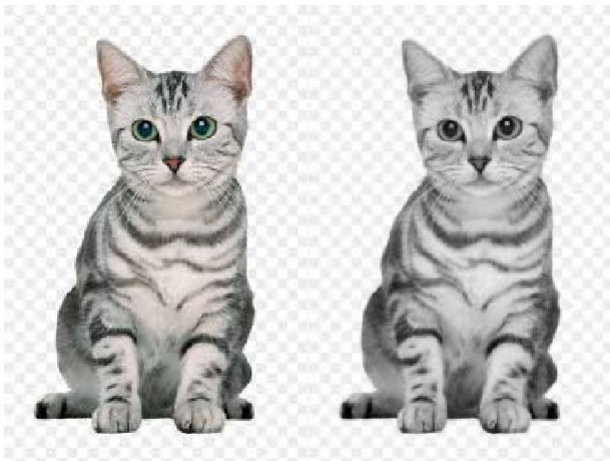
% Apply filters on the grayscale image
gauss_filtered = imgaussfilt(grayI);
average_filtered = filter2(fspecial('average', [3 3]), grayI);

laplacian_filtered = imfilter(grayI, fspecial('laplacian', 0.2));
prewitt_filtered = imfilter(grayI, fspecial('prewitt'));

% Display the original and filtered images in a montage
imshowpair(I, gauss_filtered, 'montage');
title('Original Image (Left) and Gaussian Filtered Image (Right)');

```

Original Image (Left) and Gaussian Filtered Image (Right)



```

figure;
imshowpair(laplacian_filtered, prewitt_filtered, 'montage');
title('Laplacian Filtered (Left) and Prewitt Filtered (Right)');

```

Laplacian Filtered (Left) and Prewitt Filtered (Right)

