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```
tic;
```

Your code here

```
image = imread('../data/grass.png');
```

Generate filtered image using the given values of sigma-intensity and sigma-space

```
[filtered_img, img] = getFilteredImg(image, 23, 2);
```

Uncomment this line to get optimal RMSD for grass.png and similarily for other images

[sigif, sigsf, min_rms] = getOptimalRMSD(image, img, 1:30, 2:4);

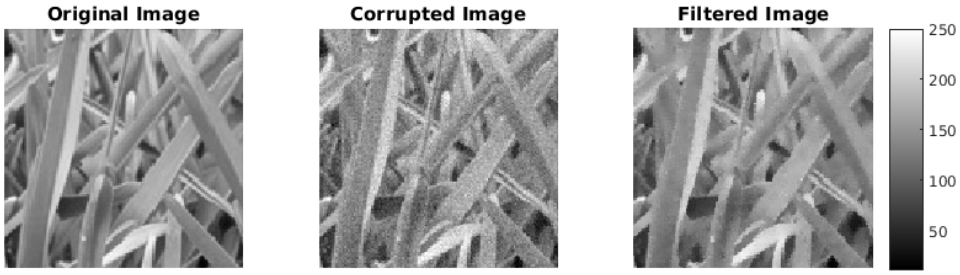
Grass

The optimal sigma intensity was found to be 23 and optimal sigma space as 2. The optimal value of rms is 8.2109

- The value of rmsd at 0.9sigma_space and sigma_int = 8.0526
- The value of rmsd at 0.9sigma_space and sigma_int = 8.2950
- The value of rmsd at 0.9sigma_space and sigma_int = 8.0663
- The value of rmsd at 0.9sigma_space and sigma_int = 8.2887

```
figure('Renderer', 'painters', 'Position',[10 10 900 600]);
subplot(1,3,1);
imshow(uint8(image), 'DisplayRange', []);
title('Original Image');
subplot(1, 3, 2);
imshow(uint8(img), 'DisplayRange', []);
```

```
title('Corrupted Image');
x = subplot(1, 3, 3);
pos = get(x, 'position');
imshow(uint8(filtered_img), 'DisplayRange', []);
title('Filtered Image');
colorbar;
set(x, 'position', pos);
% suptitle('Grass');
```



HoneyComb

The optimal sigma intensity was found to be 27 and optimal sigma space as 2. The optimal value of rmsd is 7.85

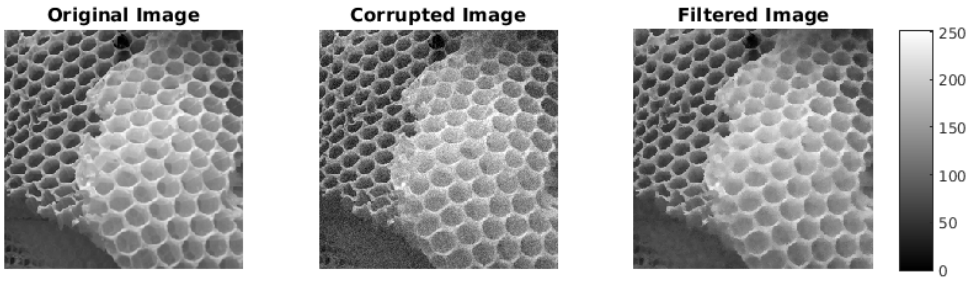
- The value of rmsd at 0.9sigma_space and sigma_int = 3.3067
- The value of rmsd at 0.9sigma_space and sigma_int = 3.3109
- The value of rmsd at 0.9sigma_space and sigma_int = 3.362
- The value of rmsd at 0.9sigma_space and sigma_int = 3.3027

```
image = imread('../data/honeyCombReal.png');

[filtered_img, img] = getFilteredImg(image, 27, 2);


figure('Renderer', 'painters', 'Position',[10 10 900 600]);
subplot(1,3,1);
```

```
imshow(uint8(image), 'DisplayRange', []);
title('Original Image');
subplot(1, 3, 2);
imshow(uint8(img), 'DisplayRange', []);
title('Corrupted Image');
x = subplot(1, 3, 3);
pos = get(x, 'position');
imshow(uint8(filtered_img), 'DisplayRange', []);
title('Filtered Image');
colorbar;
set(x, 'position', pos);
% suptitle('HoneyComb');
```



Barbara

The optimal sigma intensity was found to be 9 and optimal sigma space as 2. The optimal value of rmsd is 3.3058

- The value of rmsd at 0.9sigma_space and sigma_int = 7.7455
- The value of rmsd at 0.9sigma_space and sigma_int = 7.9437
- The value of rmsd at 0.9sigma_space and sigma_int = 7.9015
- The value of rmsd at 0.9sigma_space and sigma_int = 7.9017

```
image = load('../data/barbara.mat');
image = image.imageOrig;
```

```
[filtered_img, img] = getFilteredImg(image, 9, 2);


figure('Renderer', 'painters', 'Position',[10 10 900 600]);
subplot(1,3,1);
imshow(uint8(image), 'DisplayRange', []);
title('Original Image');
subplot(1, 3, 2);
imshow(uint8(img), 'DisplayRange', []);
title('Corrupted Image');
x = subplot(1, 3, 3);
pos = get(x, 'position');
imshow(uint8(filtered_img), 'DisplayRange', []);
title('Filtered Image');
colorbar;
set(x, 'position', pos);
% suptitle('Barbara');
```

Spatial Gaussian

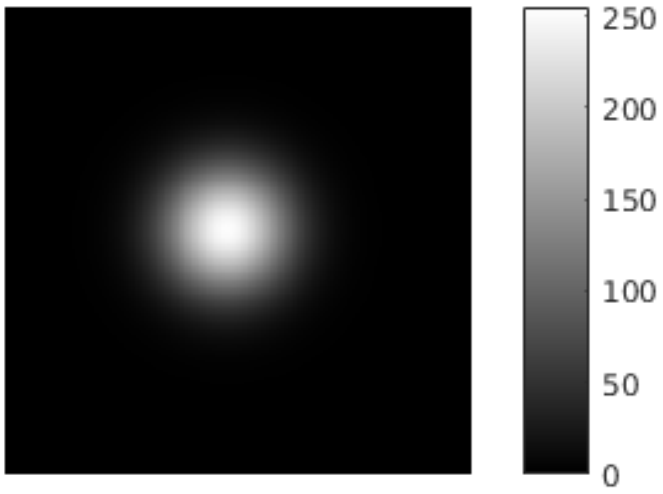
```
window = 21;
centre = window/2;
spatial_gaussian = zeros(window, window);
for i = 1:window
    for j = 1:window
        spatial_gaussian(i, j) = 255*exp(-(((i - centre)^2 + (j -
 centre)^2)/(2*((2^2)))));
    end
```

```
end
spatial_gaussian = imresize(spatial_gaussian, [256, 256]);
figure;
imshow(uint8(spatial_gaussian));
colorbar;



toc;
```

Elapsed time is 3.497921 seconds.



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