Contents

Load images

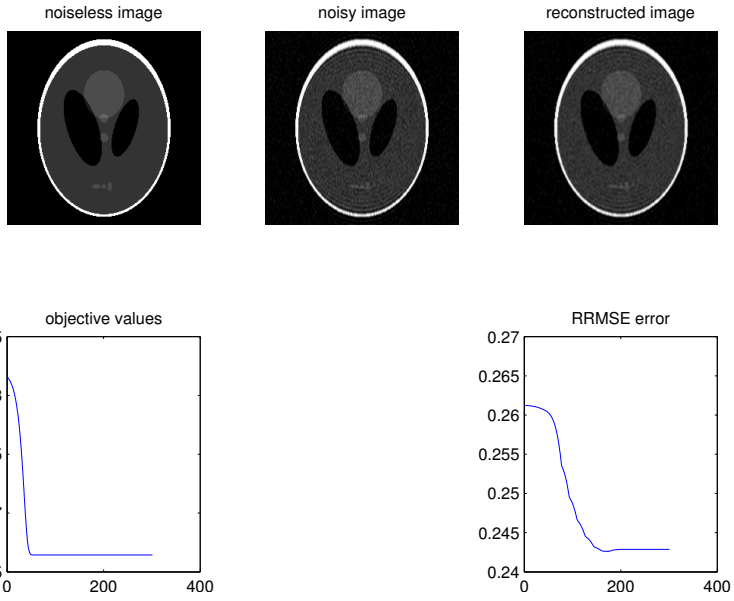
```
clc;clear;close all
load('assignmentImageReconstructionPhantom.mat')
initalIm = ifft2(imageKspaceData);
RRMSE(imageNoiseless,initalIm)
```

```
ans =

    0.2612
```

Quadratic potential

```
alpha = 0.935;
priorType = 'quad';
gamma = [];

gradientDescentScript; %actual code in this script. Parameters

figure
subplot(2,3,1)
imshow(real(imageNoiseless))
title('noiseless image')

subplot(2,3,2)
imshow(real(initalIm))
title('noisy image')

subplot(2,3,3)
imshow(real(currentIm))
title('reconstructed image')

subplot(2,3,4)
plot(values)
title('objective values')

subplot(2,3,6)
```

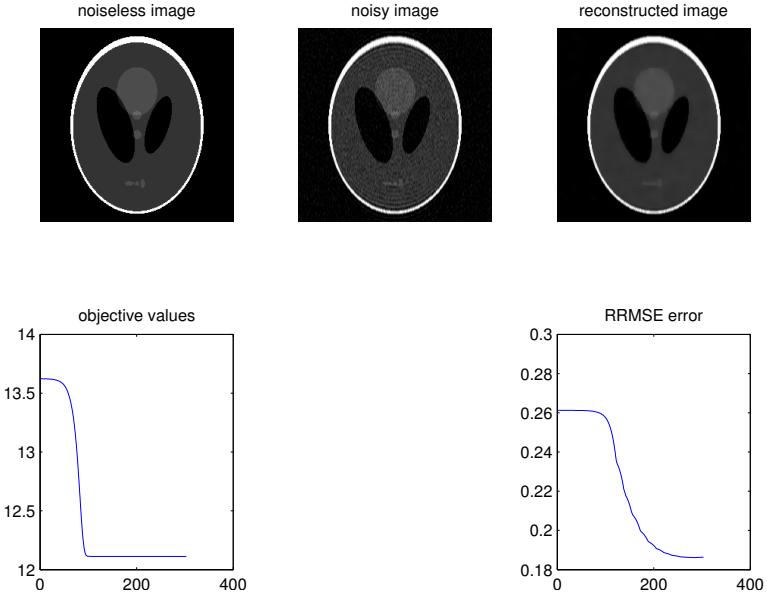
```
plot(error_rrmse)
title('RRMSE error')
```



Discontinous-Huber potential

```
alpha = 0.9993;
gamma = 0.005;
priorType = 'disc-huber';

gradientDescentScript;
figure
subplot(2,3,1)
imshow(real(imageNoiseless))
title('noiseless image')

subplot(2,3,2)
imshow(real(initalIm))
title('noisy image')

subplot(2,3,3)
imshow(real(currentIm))
title('reconstructed image')

subplot(2,3,4)
plot(values)
title('objective values')
```

```
subplot(2,3,6)
plot(error_rrmse)
title('RRMSE error')
```



Discontinous potential

```
alpha = 0.99993;
gamma = 0.001;
priorType = 'disc';

gradientDescentScript;

figure
subplot(2,3,1)
imshow(real(imageNoiseless))
title('noiseless image')

subplot(2,3,2)
imshow(real(initalIm))
title('noisy image')

subplot(2,3,3)
imshow(real(currentIm))
title('reconstructed image')
```

```
subplot(2,3,4)
plot(values)
title('objective values')

subplot(2,3,6)
plot(error_rrmse)
title('RRMSE error')
```