

Assignment 2 - Image Denoising Report

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1. RRMSE between noisy and noiseless images

	High Noise	Medium Noise	Low Noise
RRMSE	0.1555	0.1312	0.0519

2. Optimal values for the parameters

2.1. Quadratic Prior:

	High Noise	Medium Noise	Low Noise
Alpha	0.34	0.25	0.12
RRMSE(Alpha)	0.1246	0.1145	0.04606
RRMSE(0.8Alpha)	0.1248	0.1146	0.04613
RRMSE(1.2Alpha)	0.1252	0.1149	0.0463

2.2. Huber Prior

	High Noise	Medium Noise	Low Noise
Alpha	0.34	0.34	0.45
Gamma	15	5	5
RRMSE(Alpha, Gamma)	0.1509	0.1307	0.0484
RRMSE(1.2Alpha, Gamma)	0.1513	0.1308	0.0487
RRMSE(0.8Alpha, Gamma)	0.1512	0.1307	0.0490
RRMSE(Alpha, 1.2Gamma)	0.1511	0.1309	0.0487
RRMSE(Alpha, 0.8Gamma)	0.1509	0.1307	0.0486

2.3. Prior 3:

	High Noise	Medium Noise	Low Noise
Alpha	0.5	0.2	0.5
Gamma	12	11	8
RRMSE(Alpha, Gamma)	0.1509	0.1309	0.0487
RRMSE(1.2Alpha, Gamma)	0.1520	0.1309	0.0490
RRMSE(0.8Alpha, Gamma)	0.1512	0.1309	0.0490
RRMSE(Alpha, 1.2Gamma)	0.1511	0.1309	0.0487
RRMSE(Alpha, 0.8Gamma)	0.1509	0.1309	0.0487

3.

3.1. High Noise

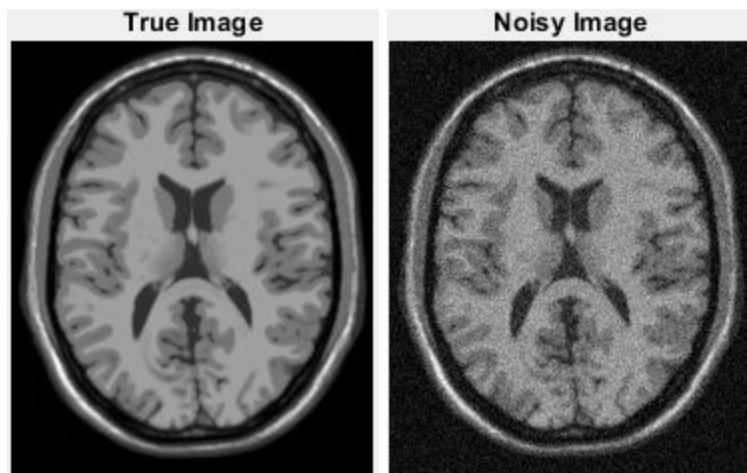


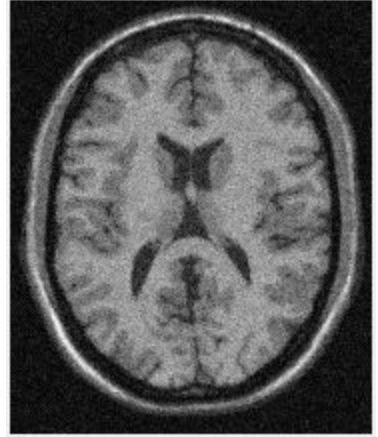
Image denoised using Quadratic Prior



Image denoised using Huber Prior

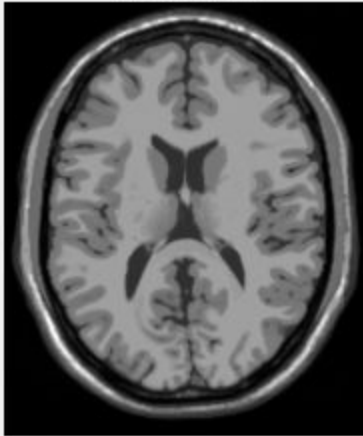


Image denoised using Prior 3



3.2. Medium Noise

True Image



Noisy Image



Image denoised using Quadratic Prior

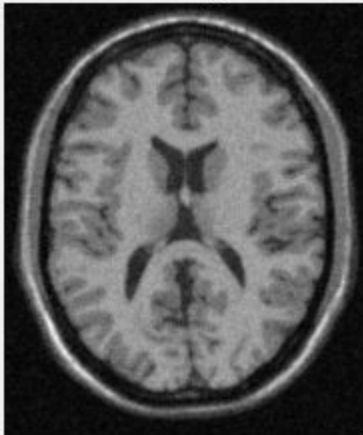


Image denoised using Huber Prior

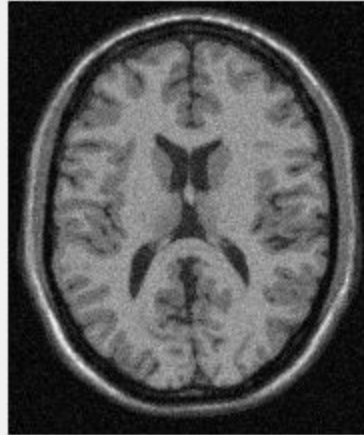
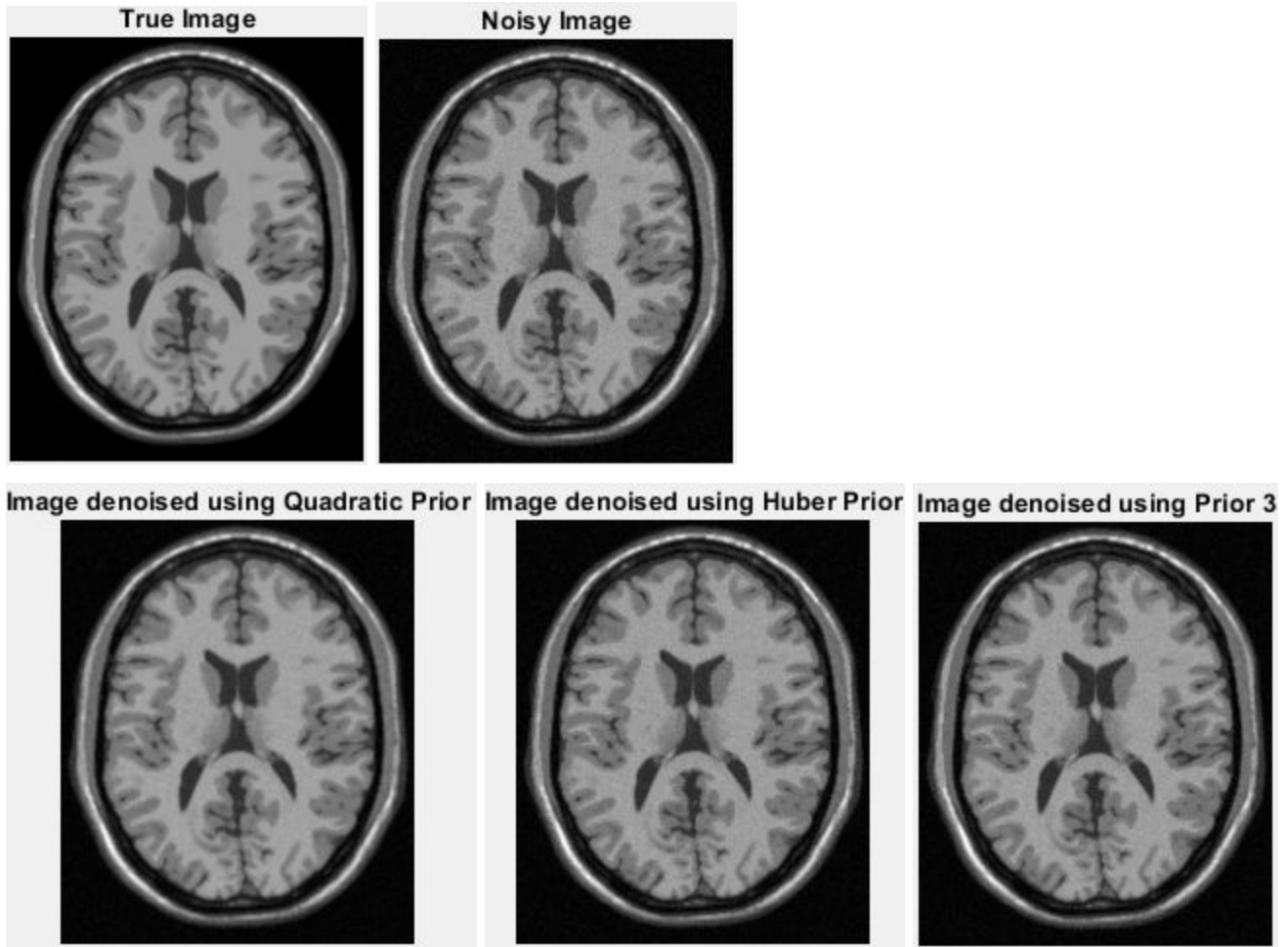


Image denoised using Prior 3

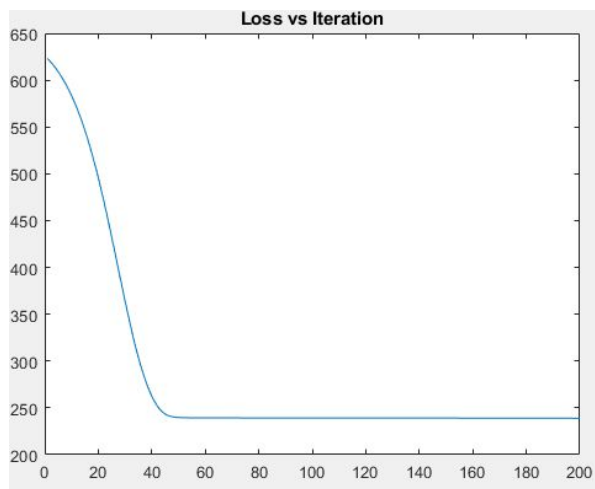


3.3. Low Noise

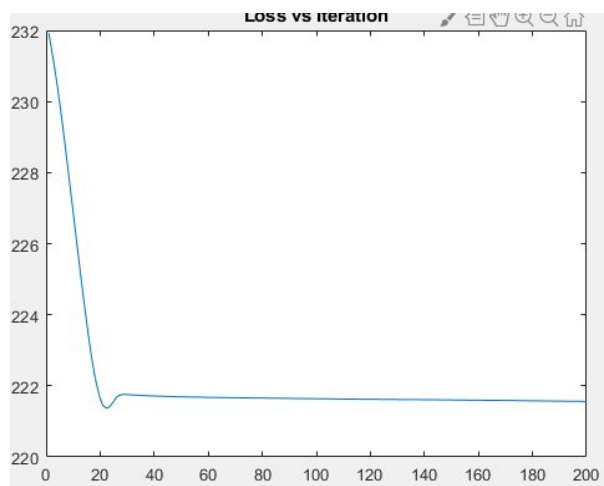


4. Plots of Objective function vs Iteration

4.1. Quadratic Prior



4.2. Huber Prior



4.3. MRF Prior 3

