

Assignment 3

Marks (10 in total)

A mini project of image reconstruction from projections

1. Write a MATLAB program to implement the image reconstruction by calling Radon Transform function provided by MATLAB's tool box. (1 mark)
2. Write a MATLAB program to implement the image reconstruction using Parallel-Beam Filtered Backprojections with your own codes. (4 marks)
3. Reading Section 5.11.6 first, then write a MATLAB program to implement the image reconstruction using Fan-Beam Filtered Backprojections with your own codes. (5 marks)

Please use both of Figure 5.3 and Figure 5.39 (c) as the testing images.

As a minimum requirement of your typed project report, you should

1. Provide your thoughts and reasons on your codes;
2. Use MSE (Mean Square Error), SNR (Signal to Noise Ratio), and PSNR (Peak Signal to Noise Ratio) to compare all of your results obtained from applying three different types of image reconstructions;
3. Analyze your results and provide your conclusions.