Report

CS 736 – Medical Image Computing

Assignment 3 - Reconstruction

Instructor: Dr. Suyash Awate

By,

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| Aditya Modi | 18305R007 |
| Saavi Yadav | 170020003 |

Submission Date: 03/04/2020

# Notes

1. The code is written in Python 3.6. The following libraries are used and hence are necessary for the code to work seamlessly:
   1. matplotlib
   2. numpy
   3. os
   4. skimage
   5. cv2
2. The range of image intensities is .
3. The results (images) are saved in “results” folder, in case, the images in the report aren’t up to the desired resolution.
4. We use a polar system instead of Cartesian system where a point in Cartesian grid is represented by where

and

where,

# Part A

To execute part A, uncomment #193. The images used are “ChestCT.png” and “SheppLogan256.png”. We use a pseudo brute-force approach to find the optimal angle , for which reconstruction RRMSE is the minimum.

1. .
2. .

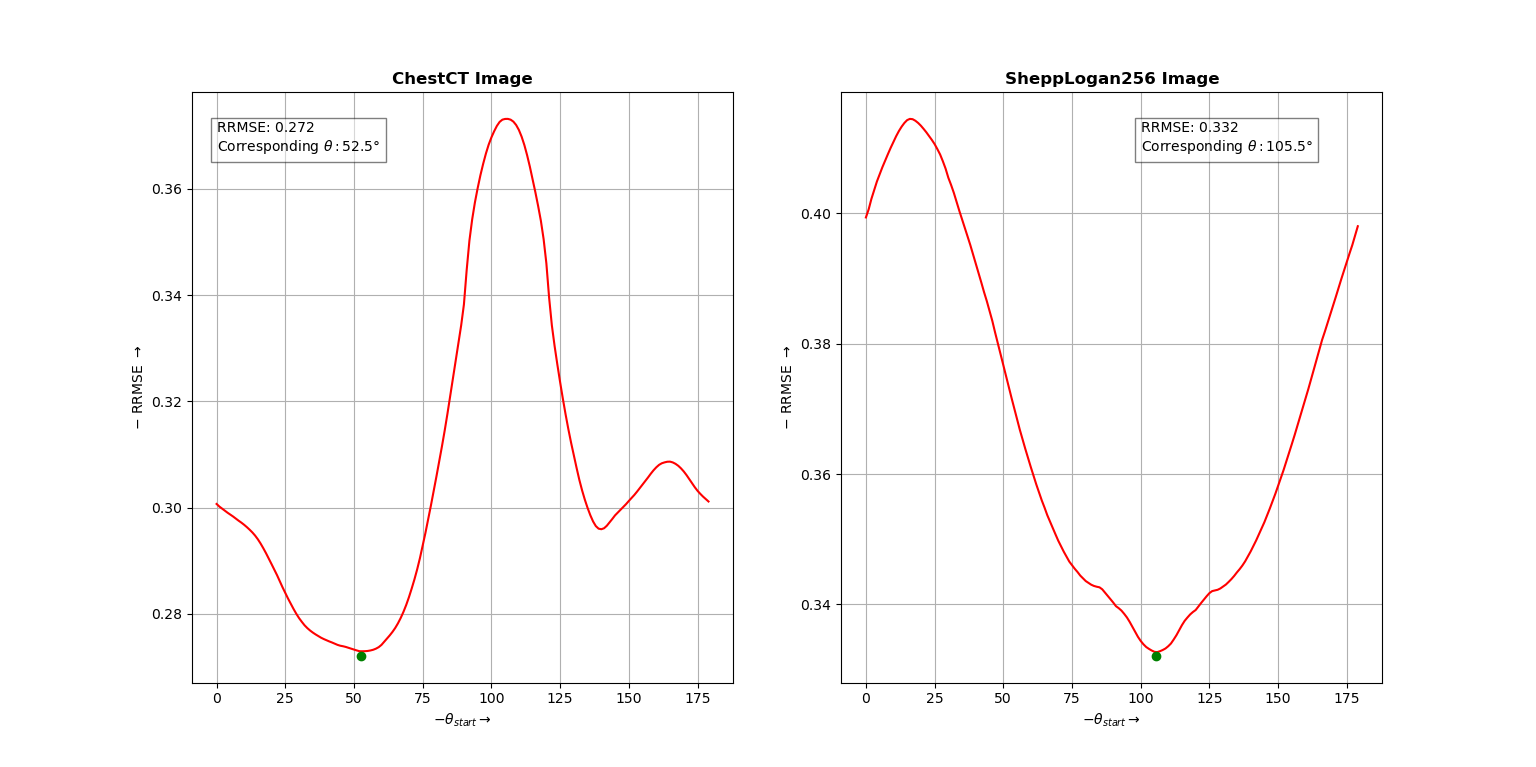
## ChestCT

1. Minimum RRMSE = 0.272
2. Corresponding

## SheppLogan256

1. Minimum RRMSE = 0.332
2. Corresponding

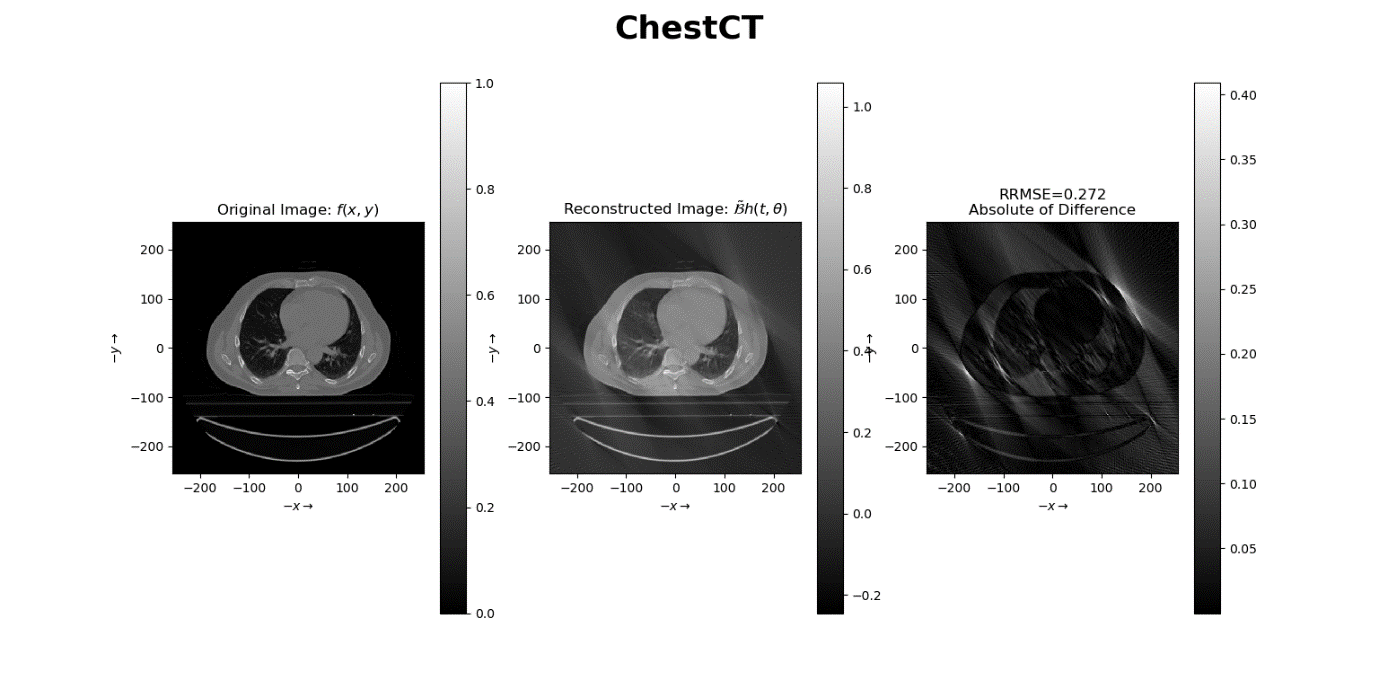
The images are saved under the name “Question 3a.png”.



# Part B

## ChestCT

The image is saved under the name “Question 3b (ChestCT)”.



## SheppLogan256

The image is saved under the name “Question 3b (SheppLoagn256)”.

