Systems and Biomedical Engineering Department

Faculty of Engineering
Cairo University

Medical Image Processing & Computer Vision
Fall 2023

Assignment#7 Back Projection

Back Projection

Requirements:

Using the GUI you created in assignment 1, you are required to:

1. Create a new tab for back-projection
2. Display a Schepp-Logan phantom [phantom(256)]
3. Display a Sinogram of this phantom
4. Display a Laminogram with angles = [0, 20, 40, 60, 160]
   And no filter is used
5. Display a Laminogram with angles = [0, 1, 2, 3,…, 179]
   And no filter is used
6. Display a Laminogram with angles = [0, 1, 2, 3,…, 179]
   And Ram-Lak filter is used
7. Display a Laminogram with angles = [0, 1, 2, 3,…, 179]
   And Hamming filter is used

Submission

Submit working code files through Blackboard.

- This is an individual based assignment.
- The due date for submission on Blackboard is Wednesday, 23/12/2022
- No need to upload the GUI

General instructions

- You are allowed to use built-in functions for Radon, iRadon and Shepp-Logan creation
- Handle any errors or exceptions that might occur (e.g., corrupted image)
- You are allowed to use MATLAB (App Designer) or Python (PyQt)
- Your code should be clear, understandable, and documented (COMMENTS)
- Follow a consistent naming convention for variables and functions
- The assignment will be graded out of 5