Image Processing Lab
Sem 1
Lab 8: Image Restoration
27/09/2018

1.Try to complete the lab questions during the lab time (in lab submission)
2.Please do not copy programs.
3.Please use the files given in the resource folder.

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1. **Wiener Filtering**
   Perform Wiener Filtering on the motion blurred image of the image 'Book.tif' you got in labsheet 7.

2. **Radon Transform**
   Please use the image 'phantom.png'.
   (a) Find the Radon Transform of the image using inbuilt function.
   (b) Reconstruct the initial image using the inbuilt function.

   Explain about projections and Radon Transform.

3. **Fourier Slice Theorem**
   Please use the image 'phantom.png'.
   (a) Read in the image f(x,y)
   (b) Obtain the Radon Transform of the image p(r,θ)
   (c) For each θ , p(r) is the projection. Obtain each of its 1-D transform to get the matrix P(ρ,θ).
   (d) Fill up an empty matrix F(u,v) such that , $P(\rho, \theta) = F(\rho cos\theta, \rho sin\theta)$
   (e) Take the inverse FFT of F(u,v) to get f(x,y).
   (f) Display the reconstructed image f(x,y)
   (g) Find the 2-D FFT of the image and compare it with the F(u,v) you just got. What is the relation between the two?
   (h) Comment on the results obtained
   (i) Comment on other methods present for reconstruction.