Project #1

assign April 5 due May 11, 2019

1. (30%) Apply the same strategy of Figures 3.57 to the image file, dew on roses (noisy).tif. Plot all the intermediate (in-process) images as illustrated in Figure 3.57 (a)-(h).

2. (30%) Consider the centered DFT for dew on roses (noisy).tif and tulips irises.tif, (i) re-synthesize the images using the DFT coefficients inside the circular region with radius=30 pixels (based on the original image size), plot the resulted images; (ii) similar to problem (i), however, use the DFT coefficients outside the circular region.

3. (40%)

   (a) (20%) Determine the possible noise model and model parameters for the noise in dew on roses (noisy).tif (10%). Determine an appropriate method to reduce the noise and plot the reconstructed image (10%).

   (b) (20%) Estimate the possible degradation function $H(u,v)$ [hint: motion blurring] and determine the model parameters (10%) for the degraded image dew on roses (blurred).tif. Construct and plot the restored image using the $H(u,v)$ obtained (10%).

Upload your project report
to the new e3 web before midnight of due date.

Dew on roses (noisy).tif
(512×512)

Dew on roses (blurred).tif
(512×512)

Tulips irises.tif
(512×512)