CSE/ECE 478: Digital Image Processing

Assignment # 2

Due: Before 5:00pm on 21/09/2017

General Instructions:

- Assignment can be implemented in Matlab/Octave or any other language/platform agreeable to TA's.
- Ensure that submitted assignment is your original work. Please do not copy any part from any source including your friends, seniors and/or the internet. If any such attempt is caught then serious actions including an **F grade in the course** is possible.
- A single zip file needs to be uploaded to the Courses Portal. The file should contain a brief report, your results as well as the code you have written and its output.
- Include the assignment number, your name and roll number at the top-left of the first page of your submission.

Problem 1 Image Resampling: Implement following

A. **Gaussian & Laplacian Pyramid** (input: image and # of levels, output: image pyramid)
B. **Image blending with Laplacian Pyramid** (input: two images and mask image, output: final blended image and intermediate results at each level)
C. **Image up-sampling:** Nearest Neighbor, Linear, Bilinear and Bi-cubic

Problem 2 FFT & Frequency filters: Implement following

A. **Fast Fourier Transform (**Recursive Formulation)
B. **Low/High Pass filter: Ideal, Butterworth and Gaussian**
C. **Laplacian Filter**
D. **Notch Pass/Reject filter**