CS 691E: Homework 1

(100 points)
Assigned: Feb. 9, 2016

You will practice the programming of Gaussian pyramid and Laplacian pyramid. Both pyramids are very useful in low level image analysis and synthesis, and even for image compression. Please read the text by F&P at Chapter 7 and 9.2 for details on the pyramids. Specifically we have the following requirements:

■ Write your C/C++ code (or Matlab if you still do not know C/C++) to compute the Gaussian and Laplacian Pyramids with 4 or 5 levels depending on the image size. If you use C/C++ programming, you may get 5 extra points.

■ You may use either Unix or Windows system, the lab computer or your own notebook.

■ You can use PGM image format as the input. See the following link for details on PGM image, http://netpbm.sourceforge.net/doc/pgm.html, or use OpenCV to load images with popular formats.

■ You can use XnView (for Windows) or XV (for Unix) to display images or transform images into different formats, such as from *.pgm to *.jpg.

■ Some examples images can be accessed at

   http://www.csee.wvu.edu/~gdguo/courses/Vision16S/examples/Pyramid/
   or you can use your own images.

■ You need to submit a short report which includes the algorithms you programmed, your code, and the input and output images you obtained.

■ You may also demo your work to the class some time later.

■ **Due date**: February 18, 2016.