

CS 8, Winter 2015
Homework Assignment #? (draft)

Assignment Overview

This assignment allows you to further practice Python cImage class to implement Harr Wavelet decomposition and reconstruction filters.

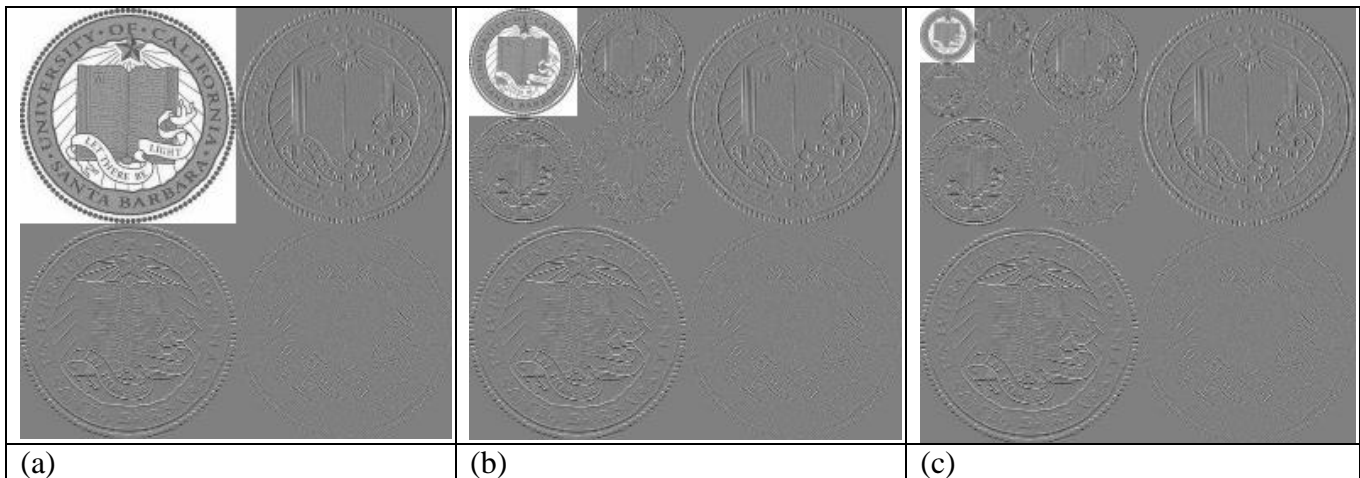
Background

Wavelet is a type of image transform that has been used in a large variety of disciplines. It is beyond the scope of this course to introduce you to the mathematics theory of wavelets. However, a rudimental understanding of a simple wavelet like Harr Wavelet and its use in progressive image coding and transmission can be explained without assuming much mathematic background. Be sure you do not miss the lectures on wavelets as the details will be not covered in the handout!

Assignment Description

Two functions are to be implemented here:
harrWaveletDcompose (inputFile, level, outputFile = "")
harrWaveletReconstruct(inputFile, level, outputfile="")

These two functions are inverse of each other and the output of the decomposition is used as the input of reconstruction. Examples of the decomposition results at levels 1 (a), 2 (b), and 3 (c) are shown below:



Reconstruction goes the reverse direction: you will be given results of (c) and then you can go back to (b) and then (a)

Assignment Deliverables

The deliverable for this assignment is the following file:

wavelet.py – the source code for your Python program

Be sure to use the specified file name and submit it for grading via the **turnin** system before the project deadline.