534 Computer Vision
Spring 2010

Due Monday March 1st 2010

Assignment 2

This assignment involves Texture synthesis. The goal is to implement the idea of
Texture Synthesis by Non-Parametric Sampling proposed by Efros and Leung,
ICCV99.

This paper can be found at

  http://graphics.cs.cmu.edu/people/efros/research/EfrosLeung.html

A pseudo-code for their work is provided in

  http://graphics.cs.cmu.edu/people/efros/research/NPS/alg.html

The algorithm is also described in Forsyth and Ponce text book in Chapter 9

Your task would be:

1. download the test images from

ftp://ftp.cs.rutgers.edu/pub/elgammal/CS534/HW2/

There, you can find five images that you are going to use for synthesis.

2. Write a Matlab program to synthesize a 200x200 pixel image for each of the
five example images T1,T2,…, T5.gif.

3. Show synthesized images by changing the WindowSize parameter to 5, 9,11
pixels around the center.

4. Use your code (with modification if necessary) to fill in the gaps (black
regions) in the images test_im1.bmp, test_im2.bmp. Try different parameter
settings 5, 9, 11, and others if necessary, to see which one give you the best
results.

5. Submit your code and all the 21 synthesized images (7 images x 3 parameter
setting). If you find different better parameter setting for part 4, submit that
as well.

It is very important to write an efficient matlab code. To achieve that, avoid
using loops and try to use array and matrix operations instead, which are much
faster. Also try to write your code using matlab built in functions.

 Submit a soft copy through Sakai and hard copy at my office.