Computational Photography - Assignment 3.

March 30, 2008

1 Introduction

The objective of this assignment is to implement that texture synthesis paper of Efros and Leung that we covered in class. The paper can be downloaded from the course web-page. Pseudo-code for this algorithm can be found at `http://graphics.cs.cmu.edu/people/efros/research/NPS/alg.html`. Print this out and read through it very carefully. It contains all the details you need to implement the algorithm.

You can perform this assignment in whatever language you prefer. The algorithm is somewhat slow in when implemented in Matlab, hence alternative languages may offer speed benefits. However, it is perfectly possible to do the whole assignment in Matlab, with the code running in reasonable time on the examples provided.

2 Objectives

Download the file `assign3.zip` from the course webpage. It contains two small images, `D20.png` and `fill-bread.png`. The objective of this assignment is to implement the texture synthesis algorithm so that you can:

1. Extend `D20.png` by 11 pixels all around. I.e. it is currently 53x49 pixels and you need to add pixels to make it up to 75x71 pixels.

2. Fill in the hole in `fill-bread.png`.

To make things easier (and faster), you can convert the images to grayscale if you prefer. Bonus marks will be awarded for a color version, however.