

ECE 4310/6310 Introduction to Computer Vision

Lab #4 – region interaction

In this project each student must implement interactive region growing. Your program will build upon two pieces of code given at the web site. The plus program allows the user to load and display an image, and demonstrates several GUI and event handling techniques. The region growing code demonstrates growing a region based upon several predicates. These pieces must be integrated into a new program that allows the user to click any location in an image and visualize the results of growing a region there.

The plus program was written using Microsoft Visual Studio 6.0. The project file must be converted to use later versions of the software. You can obtain any version of the software from CCIT, and a free version is available at Microsoft's web site.

The program should visualize the region growing by coloring pixels as they join the growing region. The program should have a GUI option that allows the user to select the color for pixels that join the region. The program should also have an option that clears the result of a previous region grow, displaying the original image.

The program should have a menu option to grow the region in “play” mode or in “step” mode. In play mode, a pixel should join the region each 1 ms. In step mode, a pixel should join the region each time the user presses the key “j”. The program should allow the user to change between modes while a region is growing.

The program should use a dialog box to allow the user to select values for two predicates for joining the region. The first predicate is the absolute difference of the pixel intensity to the average intensity of pixels already in the region. (To join, a pixel must be within this range.) The second predicate is the distance of the pixel to the centroid of pixels already in the region. (To join, a pixel must be within this range.) Both predicates should be applied at the same time while growing a region.

Grading will be determined via demonstration. The TA will schedule demos. Submit your C-code and report to Canvas. The submission is due by midnight of the due date.