Final Project

In the final project, I want to develop a program to make a normal image be an oil image. I have read some relevant papers and algorithms, I choose one of them to implement. And I will also use some technologies I learned from the class. To successfully fulfill this algorithm, I need do the following things:

1. choose a suitable radius and intensity levels as parameter to process the image

2. for each pixel, examining the nearest pixels from (x- radius, y - radius) to (x + radius, y + radius), and calculate the most repeating intensity value. The intensity of a pixel can calculate as (r + g + b) / 3

3. calculate the average pixel value of these pixels whose intensity equal to the most repeating intensity, and set it as the value of the current pixels.

4. do this for all pixels

Then we will get a oil image.

To make this project more funny, it will allow users to specify an area to apply this effect, the area can be a circle, quadrangle or triangle. To make the users easy to decide which area they want to use this effect, the project will add three button, they are “circle”, “quadrangle” and “triangle”, use they buttons users can specify different area easily .

Users also can do these operation by press the following keys:

W or w: save the current image at anytime

F or f: horizontally flip the image

I or i: vertically flip the image

S or s: change between the original image an oil image

The rubric that I’ve devised for this project is as followings:

+1 Code can correctly read, write, flip,and display the image, if the second filename is specified, if the code can change between the original image an oil image by pressing s or S

+2 Code can correctly computes the most repeating intensity value.

+1 Code can correctly computes the average value for each pixel

+2 User can specify an area doing this

press the “circle” button, then click at two point, the first is the center of circle, and the distance between the two point is radius.

press the “quadrangle” button, then click at two point, the first is the start position, and the distance between the two point is width and height.

press the “triangle” button, then click at three point, it will be the vertex of triangle.

+2 Does the code can load more than one images and can display them by hit the left and right key. Always make the image at the central of window when user resizing

+1 Does the code have good structure? Is the code commented and is a README provided? Is a working build script provided?

+1 If code can create a good oil image.

And the following is an example: