

Image Manipulation

Description

The goal of this assignment is to ensure that you can write code to read an image file, do some basic processing on the image, and write an image file.

Assignment

Write a program to perform the following steps:

1. Read an image file (PNG format file will be supplied)
2. Separate the image into three components (red-green-blue)
3. Compute the mean, standard deviation, minimum, and maximum of the pixels in the green component
4. Subtract the mean from each pixel of the input green component
 - a. If the pixel value drops below 0, set that pixel value to 0
5. Write the resultant image to an image file (BMP, PNG)
6. Subtract the standard deviation from each pixel of the input green component
 - a. If the pixel value drops below 0, set that pixel value to 0
7. Write the resultant image to an image file (BMP, PNG, other “standard” uncompressed format)

Deliverables

- Two image files (mean subtracted and standard deviation subtracted) from steps 6 and 8 above
- The four statistical values computed in step 3 above
 - If your program prints these you may produce a screen shot of the running program or you may type them into your Blackboard text submission
- All source code files
- A brief reflective essay describing your degree of success, what difficulties you had, how you overcame those difficulties, and what you learned from this assignment.
- Place all of your files in a ZIP or RAR archive and attach to the assignment in Blackboard. No email submissions.