Digital Image Processing (1082)

Homework #1 (DUE: 2020.03.23)

(Please note that you have to upload your source codes (and a brief description about your codes or algorithms, optional) to the server before the deadline. Please check the course website for more details.)

Construct a simple image processing tool with the following functionalities:

1. A simple graphic user interface.
2. Open/save/display 256-gray-level images in the format of JPG/TIF.
3. Adjust contrast/brightness of images by the changing the values of "a" and "b" in 3 different methods:
   (A) linearly (Y = aX +b);
   (B) exponentially (Y = exp(aX+b));
   (C) logarithmically (Y = ln(aX+b), b > 1).
4. Zoom in and shrink with respect to original size of images by using bilinear interpolation.
5. Display the histogram of images. An "auto-level" function by using histogram equalization should be provided.