Assignment 1

Global Thresholding

Due date: March 6th, 2017

Implement a simple program using C++ and the OpenCV library that:

1. Loads an image named “input.jpg”
2. Converts the loaded image to grayscale (8 bpp)
3. Computes the image histogram
4. Saves the image histogram as a 256x256 png image named “hist.png”
5. Implements the Otsu global thresholding method
6. Saves the produced thresholded image as “output.png”

Notes:

There are no particular constraints on the number of function/classes/cpp files produced as long as no additional libraries are used except for OpenCV.

Comment your code whenever possible. Since no additional report is required, source comments are a good way to clarify what your code is supposed to do. Small bugs may not hinder your assignment as long as I can understand what is going on.

A clean organization of the program code is considered a plus and promotes the recycling of code for your final assignment.

Additional requisites:

The following OpenCV functions cannot be used:

- cv::calcHist
- cv::threshold
- cv::adaptiveThreshold

How to submit

Make sure that your program compiles and works on a system with Ubuntu 16.04 Xenial or newer (use lab computers as reference). Then:

1. Remove both the dist and build subdirectories. You must not submit any executable or object files.

2. Add a README file if appropriate (example you want to clarify some of the choices you made in the assignment or some additional features you implemented). It is also a good idea to write your name and surname in the README
3. Compress the whole project directory to a zip or tar.gz file
4. Name the project package you submit as: <name>_<surname>_assignment1.zip
5. Submit via moodle

Please remember that the assignment has to be done individually. You are not allowed to group into teams and submit the same source code for more than one person.

For any question feel free to mail me at filippo.bergamasco@unive.it.

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Computer Vision 2016/2017