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OpenCV Exercise

Ex1

The order of a program reading the cvMat object is from rows to column to type. In particular, the order of a pixel structure is bit depth (number of bits which make up each channel), data type (data type can be 32-bit floats (CV 32FC1), of unsigned integer 8-bit triplets (CV 8UC3), or of countless other elements), and number of channel (the number of data in each pixel).

Ex2

For the ColorImage.cpp, every image except the original one displays its image of individual channel. For RGB, red, green, blue channels’ images are displayed, For YIQ, Y, Cb, Cr channels’ images are displayed, For HSV, H(hu), S(Saturation), V(value) channels’ images are displayed. For RGB, the range of pixel value is 0 -255. For YIQ, the range of pixel value of Y is 0-255, the range of pixel value of Cb, Cr is 16 -255, For HSV, the range of pixel value of H is 0-360, the range of pixel value of S, V is 0 -100. For value of pixel at (20,25), R:156 G: 165 B 102 for RGB, Y: 98 Cb:129 Cr 155 for YIQ, H: 165 S: 97 V:34 for HSV

Ex3

From all the image displayed, for the Gaussian Noise, using 3x3 kernel size to smooth the noised image seems have the better performance. For the Salt and Pepper, using median filter seems have better performance.

Ex4

The disadvantage of binary threshold is that the information in the image may be lost since there is only one threshold value. For the adaptive threshold, it will calculate a threshold for each small region of the filter image, thus, it will offer a better performance when the illuminance of an image is not constant.