Learn OpenCV by Examples

OpenCV simplified for beginners by the use of examples. Learn OpenCV with basic implementation of different algorithms.

OpenCV example to convert RGB to gray / other color spaces

void **cvtColor**(InputArray src, OutputArray dst, int code, int dstCn=0)
Parameters:

- **src** – input image: 8-bit unsigned, 16-bit unsigned (`CV_16UC...`), or single-precision floating-point.
- **dst** – output image of the same size and depth as `src`.
- **code** – color space conversion code (see the description below).
- **dstCn** – number of channels in the destination image; if the parameter is 0, the number of the channels is derived automatically from `src` and `code` .

Note that the default color format in OpenCV is often referred to as RGB but it is actually BGR (the bytes are reversed).

The conventional ranges for R, G, and B channel values are:

- 0 to 255 for `CV_8U` images
- 0 to 65535 for `CV_16U` images
- 0 to 1 for `CV_32F` images

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RGB ↔ GRAY (`CV_BGR2GRAY, CV_RGB2GRAY, CV_GRAY2BGR, CV_GRAY2RGB`)

RGB ↔ YCrCb JPEG (or YCC) (`CV_BGR2YCrCb,CV_RGB2YCrCb,CV_YCrCb2BGR,CV_YCrCb2RGB`)

RGB ↔ HSV (`CV_BGR2HSV, CV_RGB2HSV, CV_HSV2BGR, CV_HSV2RGB`)

RGB ↔ HLS (`CV_BGR2HLS, CV_RGB2HLS, CV_HLS2BGR, CV_HLS2RGB`)

RGB ↔ CIE L*a*b* (`CV_BGR2Lab, CV_RGB2Lab, CV_Lab2BGR, CV_Lab2RGB`)

RGB ↔ CIE L*u*v* (`CV_BGR2Luv, CV_RGB2Luv, CV_Luv2BGR, CV_Luv2RGB`)

Bayer → RGB (`CV_BayerBG2BGR, CV_BayerGB2BGR, CV_BayerRG2BGR, CV_BayerGR2BGR, CV_BayerBG2RGB, CV_BayerGB2RGB, CV_BayerRG2RGB, CV_BayerGR2RGB`)

RGB ↔ CIE XYZ.Rec 709 with D65 white point (`CV_BGR2XYZ, CV_RGB2XYZ, CV_XYZ2BGR, CV_XYZ2RGB`)

Steps:

1. Load an image
2. Convert to gray scale
3. Show result

Functions:

cvtColor, imshow, imread, namedWindow, waitKey.

Example:

```
#include "opencv2/core/core.hpp"
#include "opencv2/highgui/highgui.hpp"
#include "opencv2/imgproc/imgproc.hpp"
#include "iostream"

using namespace cv;
using namespace std;

int main( )
{

       Mat image;
       image = imread("lena.jpg", CV_LOAD_IMAGE_COLOR);

       if(! image.data )
       {
              cout <<  "Could not open or find the image" << std::e
              return -1;
```


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```
        }

        // Create a new matrix to hold the gray image
        Mat gray;

        // convert RGB image to gray
        cvtColor(image, gray, CV_BGR2GRAY);

        namedWindow( "Display window", CV_WINDOW_AUTOSIZE );
        imshow( "Display window", image );

        namedWindow( "Result window", CV_WINDOW_AUTOSIZE );
        imshow( "Result window", gray );

        waitKey(0);
        return 0;
}
```

Sources:
http://docs.opencv.org/index.html

Labels: Basics

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