OpenCV Learning Notes

Contents

[1. Introduction 2](#_Toc463818924)

[2. Introduction to OpenCV 2.x 3](#_Toc463818925)

[(1) Read Image and Show In a Window: 3](#_Toc463818926)

[(2) Read Video and Display In a Window: 3](#_Toc463818927)

[(3) Process Image Example: 3](#_Toc463818928)

# 1. Introduction

reference book:

Learning OpenCV (Computer Vision in C++ with the OpenCV Library)

Get OpenCV source code:

git clone <https://github.com/Itseez/opencv.git>

# 2. Introduction to OpenCV 2.x

tip: OpenCV function live with namespace called cv.

## (1) Read Image and Show In a Window:

Mat img = **imread**( argv[1], -1 );

if( img.empty() ) return -1;

**namedWindow**( "Example2", WINDOW\_AUTOSIZE );

**imshow**( "Example2", img );

waitKey( 0 );

**destroyWindow**( "Example2" );

## (2) Read Video and Display In a Window:

cv::namedWindow( "Example3", cv::WINDOW\_AUTOSIZE );

cv::**VideoCapture** cap;

cap.open( string(argv[1]) );

**cv::Mat frame**;

while( 1 ) {

**cap >> frame**;

if( !frame.data ) break; // Ran out of film

cv::imshow( "Example3", frame );

if( cv::waitKey(33) >= 0 ) break;

}

get video properties:

int frame\_numbers = (int) g\_cap.get(cv::CAP\_PROP\_FRAME\_COUNT);

int frame\_width = (int) g\_cap.get(cv::CAP\_PROP\_FRAME\_WIDTH);

int frame\_height = (int) g\_cap.get(cv::CAP\_PROP\_FRAME\_HEIGHT);

## (3) Process Image Example:

Gaussian Blur One Image

cv::Mat out;

// Do the smoothing

// Could use GaussianBlur(), blur(), medianBlur() or bilateralFilter().

cv::**GaussianBlur**(frame, out, cv::Size(5, 5), 3, 3);

cv::**GaussianBlur**(out, out, cv::Size(5, 5), 3, 3);

cv::imshow("Example2\_4", out);

Gaussian Blur and Downsample:

cv::pyrDown( img, img2);

Canny Edge Detector:

cv::Canny( img\_gry, img\_cny, 10, 100, 3, true );

Access several pixel / modify pixel:

cv::Vec3b intensity = frame.at< cv::Vec3b >(y, x);

uchar blue = intensity.val[0]; // We could write img\_rgb.at< cv::Vec3b >(x,y)[0]

uchar green = intensity.val[1];

uchar red = intensity.val[2];