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## 1 Overview

**1.1 Location**    `$(AMDAPPSDKSAMPLESROOT)\samples\opencv\examples\OpenCV-CLIntro`

**1.2 How to Run**    See the *Getting Started* guide for how to build samples. You first must compile the sample.

Use the command line to change to the directory where the executable is located. The pre-compiled sample executable is at `$(AMDAPPSDKSAMPLESROOT)\samples\opencv\bin\x86\` for 32-bit builds, and `$(AMDAPPSDKSAMPLESROOT)\samples\opencv\bin\x86_64\` for 64-bit builds.

Type the following command(s).

1. `OpenCV-CLIntro`  
This command runs the program with the default options.

## 2 Introduction

This introductory sample demonstrates how to use OpenCV and OpenCV-CL functions in an OpenCV program. The OpenCL support has been added to the OpenCV library, allowing users to accelerate their OpenCV programs by using OpenCL kernels on an AMD GPU.

## 3 Implementation Details

This example uses image filters to introduce OpenCV-CL. The overloaded “=” operator supports copying from an OpenCV matrix (or CPU) to an OpenCV-CL matrix (or GPU), and vice versa.

To demonstrate Morphology using the `cv::ocl::` functions, the `cv::ocl::erode` and `cv::ocl::dilate` functions are applied on the input image and the results are subtracted using the overloaded “-” operator.

Box Filter and Laplacian Filter can be run on AMD GPUs by using the OpenCV-CL APIs, `cv::ocl::boxFilter` and `cv::ocl::Laplacian` functions. The results are validated by running the same filters on the CPU by using the OpenCV APIs, `cv::boxFilter` and `cv::Laplacian`. The `NORM_INF` of the results obtained by using the OpenCV-CL functions and the OpenCV functions is calculated.

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**Contact**

Advanced Micro Devices, Inc.  
One AMD Place  
P.O. Box 3453  
Sunnyvale, CA, 94088-3453  
Phone: +1.408.749.4000

For AMD Accelerated Parallel Processing:  
URL: [developer.amd.com/appsdk](http://developer.amd.com/appsdk)  
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