**How to connect Matlab with OpenCV on Windows7**

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**1- The software you need to install first, ---**

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**3- Connect Matlab to OpenCV library, ---**

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**1- The softwer you need to install first : ---**

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This tutorial will show you how to connect Matlab (2010a 32bits version) to

the OpenCV library version (2.3) and to do that we need to install the

following softwere :

--> Matlab (2010a 32bits version),

--> Visual C++ Express Edition 2008 (32 bits version),

--> The compiled OpenCV library 2.3,

For the two first softwere use directly the default instalation parameters

and for the OpenCV library see the next section.

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**2- How to install OpenCV : ---**

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After downloading the library, put it in the following folder:

"C:\OpenCV2.3" << see picture 0 >> and inside this folder you will have two other folder (build & opencv) << see picture 1 >>.

Now we need to add to the "ENVIRONMENT VARIABLE" the appropriate folder, to do that go to "Advance System Parameters" and click on << see picture 2 >>

"Environment Variable" << see picture 3 >> and in "System Variables" click new:

Variable name : OPENCV23

Variable Value : C:\OpenCV2.3\build << see picture 4 >>

After that click on "Path" and add in the end of the line : %OPENCV23%\x86\vc9\bin; << see picture 5 >>

Click ok -> ok -> ok ====> and now we need to configure Matlab,

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**3- Connect Matlab to OpenCV library : ---**

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After runing Matlab 32bits version type the following command :

*>> mex -setup % and if you did install visual c++ correctly you will have*

*% the following liste of compilers at minimum :*

*Please choose your compiler for building external interface (MEX) files:*

*Would you like mex to locate installed compilers [y]/n? y*

*Select a compiler:*

*[1] Lcc-win32 C 2.4.1 in C:\PROGRA~2\MATLAB\R2010a\sys\lcc*

*[2] Microsoft Visual C++ 2008 Express in C:\Program Files (x86)\Microsoft Visual Studio 9.0*

*[0] None*

We will choose the second compiler, and now we have to edit the MEXOPTS.BAT

file, but first we need to find it :

*>> fullfile(prefdir,'mexopts.bat')*

In my machine, this file is in

C:\users\<username>\AppData\Roaming\MathWorks\MATLAB\R2009b\mexopts.bat

Once the file found you can open it using for exemple Notepad++ and add at

the end this lines :

*rem rem \*\*\*\*\*\*\*\*\*\*\*\**

*rem rem OpenCV2.3*

*rem rem \*\*\*\*\*\*\*\*\*\*\*\**

*set OCVDIR=C:\OpenCV2.3\build*

*set INCLUDE=%OCVDIR%\include; %INCLUDE%*

*set LIB=%OCVDIR%\x86\vc9\lib; %LIB%*

*set PATH=%OCVDIR%\x86\vc9\bin; %OCVDIR%\bin; %PATH%*

In case you did not install OpenCV in the "C" Partition like i did you need to change the value of "OCVDIR" by giving it the correct path of the OpenCV library,

In the same file look for the section "Linker parameters", after that add the different lib files of OpenCV to the end of the line of the command:

set LINKFLAGS ....... opencv\_calib3d230.lib opencv\_calib3d230d.lib ....

The list of all this files:

opencv\_calib3d230.lib

opencv\_calib3d230d.lib

opencv\_contrib230.lib

opencv\_contrib230d.lib

opencv\_core230.lib

opencv\_core230d.lib

opencv\_features2d230.lib

opencv\_features2d230d.lib

opencv\_flann230.lib

opencv\_flann230d.lib

opencv\_gpu230.lib

opencv\_gpu230d.lib

opencv\_haartraining\_engine.lib

opencv\_haartraining\_engined.lib

opencv\_highgui230.lib

opencv\_highgui230d.lib

opencv\_imgproc230.lib

opencv\_imgproc230d.lib

opencv\_legacy230.lib

opencv\_legacy230d.lib

opencv\_ml230.lib

opencv\_ml230d.lib

opencv\_objdetect230.lib

opencv\_objdetect230d.lib

opencv\_video230.lib

opencv\_video230.lib

Now, all you have to do is restart Matlab and do not forget to save "MEXOPTS.BAT" you will find with inside the folder of the tutorial the MEXOPTS.BAT file which is used on my computer.

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**4- Exemples on how to use the OpenCV library: ---**

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To use the OpenCV library in Matlab we must use the "mex files" and because this is not the topics of this tutorial is will not talk about these files but you can read the PDF file: "introMEX-TR.pdf",

The examples that i will present here are the two examples given by

"Georgios Evangelidis" :

--> displayImage.cpp (with no input argument)

--> smoothImage.cpp (with inputs argument)

To compile these files all you need to do is the following:

*>> mex displayImage.cpp*

And to call the function all you need to do is:

*>> dispalayImage*

For more details about this two function and how to use theme take a look at the pdf file written by "Georgios Evangelidis" or in his website :

http://perception.inrialpes.fr/~evangelidis/.

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**I hope this tutorial did help you to connect Matlab with OpenCV, and if you have any questions feel free to ask me ...**

**Best regards**

**Merwan BIREM**

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