

C/C++ programming with Visual Studio 2019 and OpenCV 4.1.0

Preparation of the computer

- Download **Visual Studio 2019 Community** (be sure to install the necessary workloads and components, e.g. with this command: `vs_community.exe --passive --norestart --wait --includeRecommended --add Microsoft.VisualStudio.Component.CoreEditor --add Microsoft.VisualStudio.Workload.NativeDesktop --add Microsoft.VisualStudio.Workload.ManagedDesktop --add Microsoft.VisualStudio.Component.VC.Tools.x86.x64 --add Microsoft.VisualStudio.Workload.NativeCrossPlat --add Microsoft.VisualStudio.Component.VC.ATLMFC --add Microsoft.VisualStudio.Component.VC.CLI.Support --add Microsoft.VisualStudio.Component.VC.Modules.x86.x64 --add Microsoft.VisualStudio.Workload.Python --remove Microsoft.Component.CookieCutterTools --remove Microsoft.Component.PythonTools.Web --remove Component.CPython3.x64 --remove Microsoft.Component.PythonTools.Minicondax64 --add Microsoft.VisualStudio.Component.Graphics --add Component.GitHub.VisualStudio --add Microsoft.VisualStudio.Component.JavaScript.Diagnostics --add Microsoft.VisualStudio.Component.JavaScript.TypeScript --add Component.Linux.CMake` , check also the required prerequisites) and <http://www.ensta-bretagne.fr/lebars/Share/OpenCV4.1.0.zip> , install Visual Studio with **Desktop development with C++ Workload** and extract OpenCV4.1.0.zip in C:\ (check that the extraction did not create an additional parent folder (we need to get only C:\OpenCV4.1.0\ instead of C:\OpenCV4.1.0\OpenCV4.1.0\), run as administrator if needed).
- In Windows Explorer, right-click on **Computer**, choose **Properties**.
- In the **System** window, click on **Advanced system parameters**. If you do not have administrative rights, on Windows 10 you can press the Windows button, type **path**, and choose **Edit the system environment variables for your account** in the search results to directly access the **Environment variables** window.
- In the **System Properties** windows, click on **Environment variables**.
- In the **Environment variables** window, double-click on the **PATH** variable and add in the end of the **Value** part (without deleting its initial content and add the semi-colons!) `;C:\OpenCV4.1.0\x86\vc16\bin;`
- Restart.
- If needed, see http://www.ensta-bretagne.fr/lebars/tutorials/screenshots_vs2015_cv249_win10.pdf and http://www.ensta-bretagne.fr/lebars/tutorials/Complements_C-C++.pdf for more information.

Tricks/common problems OpenCV

- Depending on the functions you need, check all the libraries **opencv_XXX.lib** you need to add to the project settings.
- Do not call **cvReleaseImage()/cv::Mat::release()** on an **IplImage/cv::Mat** returned by **cvQueryFrame()/cv::VideoCapture::read()**.
- Be careful to check the type and dimensions of an image returned by **cvQueryFrame()/cv::VideoCapture::read()**, they might be unusual depending on the characteristics of the camera.
- Always use **cvWaitKey()/cv::waitKey()** somewhere after **cvShowImage()/cv::imshow()** to display an **IplImage/cv::Mat** in a window, otherwise the image might not be displayed.
- Although several samples use the C API, most of the new functionalities of OpenCV are now in its C++ API. Version 4 is C++11-only.
- See also https://www.ensta-bretagne.fr/lebars/tutorials/Complements_C-C++.pdf .

Test

http://www.ensta-bretagne.fr/lebars/Share/ImageOpenCV410_vs2019.zip

http://www.ensta-bretagne.fr/lebars/Share/VideoWebcamOpenCV410_vs2019.zip