Mosaic Magnifique

Guide

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Contents

Chapter 1

Install Instructions

1.1 Pre-built

Download the pre-built Windows app from: https://gitlab.com/MorganGrundy/photo-mosaic/-/releases
Only use the CUDA version if you have a CUDA-capable GPU or the app will just crash.
You may need to run the included vc_redist executable first.

1.2 Dependencies

Name	Version	Modules
GCC/MinGW or MSVC	>= 5.3.1 >= 2017	
Qt	>= 5.13.1	core, gui, svg, widgets
OpenCV	>= 4.1.1	core, highgui, imgcodecs, imgproc

1.3 Optional Dependencies

If you have a CUDA-capable GPU, then you can use the following to generate Photomosaics faster.
Currently only Windows .pro file has CUDA linking setup.

Name	Version	Modules
CUDA	>= 10.1	
OpenCV Contrib	>= 4.1.1	cudaarithm, cudafilters, cudaimgproc, cudawarping

CUDA usage controlled by "CONFIG += CUDA" in .pro file.
OpenCV Contrib usage controlled by "CONFIG += OPENCV_W_CUDA" in .pro file.
Note: OpenCV Contrib requires CUDA.

1.4 Linux

Linux .pro file requires pkg-config for linking OpenCV.

1.4.1 Ubuntu

The provided install-ubuntu.mk makefile can be used to easily install dependencies and build Mosaic Magnifique. Tested on Ubuntu 20.04.

```
make -f install-ubuntu.mk all
```

or instead can install dependencies separately:

```
make -f install-ubuntu.mk gcc
make -f install-ubuntu.mk pkg-config
make -f install-ubuntu.mk qmake
make -f install-ubuntu.mk qt
make -f install-ubuntu.mk opencv
make -f install-ubuntu.mk build
```

1.4.2 Other

Qt

Use installer or build from source: https://doc.qt.io/qt-5/gettingstarted.html

OpenCV

Build from source: https://docs.opencv.org/master/d7/d9f/tutorial_linux_install.html
In configuring step give cmake: -DOPENCV_GENERATE_PKGCONFIG=ON
-DCMAKE_BUILD_TYPE=Release
And for minimal build give cmake module list: -DBUILD_LIST=core,imgcodecs,imgproc,highgui

Mosaic Magnifique

Download source from: https://gitlab.com/MorganGrundy/photo-mosaic/-/releases
Create sub-directory "build"
From build run:

```
qmake ../src/MosaicMagnifique-Linux.pro
make
```

1.5 Windows

1.5.1 Batch script

The provided install-windows.bat batch script can be used to help install OpenCV and build Mosaic Magnifique, but not MSVC/CUDA/Qt.
It has an additional dependency: wget. Set environment variable %wgetdir% to the directory containing wget.exe.
After installing other dependencies, run the script with admin (Setting OpenCV environment variables requires admin) from command line:

```
set mode=all
install-windows.bat
```

If you have installed OpenCV manually then instead:

```
set mode=build
install-windows.bat
```

1.5.2 Manual

MSVC

Download MSVC installer from: https://visualstudio.microsoft.com/downloads/
Run installer and select Workload "Desktop development with C++", the minimum needed is MSVC C++ x64/x86 build tools and Windows SDK.

Qt

Use installer or build from source: https://doc.qt.io/qt-5/gettingstarted.html
Add Qt bin to %PATH% environment variable.

CUDA (Optional)

Download CUDA installer from: https://developer.nvidia.com/cuda-downloads

OpenCV

Build from source: https://docs.opencv.org/master/d3/d52/tutorial_windows_install.html
In configuring step, give cmake: -DCMAKE_BUILD_TYPE=Release
And for minimal build give cmake module list: -DBUILD_LIST=core,imgcodecs,imgproc,highgui

If you are using CUDA you can give cmake: -DWITH_CUDA:BOOL=ON
-DOPENCV_EXTRA_MODULES_PATH="C:/Path to/OpenCV Contrib/modules"
And add the relevant contrib modules to module list:
-DBUILD_LIST=core,imgcodecs,imgproc,highgui,cudaarithm,cudawarping,cudaimgproc,cudafilters

Mosaic Magnifique

Download source from: https://gitlab.com/MorganGrundy/photo-mosaic/-/releases
Create sub-directory "build"
From build run:

```
qmake ../src/MosaicMagnifique-Windows.pro -spec win32-msvc
jom qmake_all
jom
```