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CMPMVS - Multi-View Reconstruction Software

Authors: Michal Jancosek & Tomas Pajdla
Software written by: Michal Jancosek
Latest version: 0.6.0
Release date: September 28, 2012
Reference to cite:
[1] *M. Jancosek, T. Pajdla. Multi-View Reconstruction Preserving Weakly-Supported Surfaces*, CVPR 2011 - IEEE Conference on Computer Vision and Pattern Recognition 2011 (pdf).

Introduction

CMPMVS is a multi-view reconstruction software. The input to our software is a set of perspective images and camera parameters (internal and external camera calibrations). The output is a textured mesh of the rigid scene visible in the images. Non-rigid objects are implicitly ignored.

For discussion on the software please visit our Google group at

http://groups.google.com/group/cmpmvs

Note

It is just images from your camera which you need to compute detailed textured 3D reconstructions using VisualSfM+CMPMVS. Since version 0.5.18, you can choose VisualSfM to export the result of the calibration directly in the CMPMVS-v0.5 (and later) format and to create an appropriate .ini file for CMPMVS-v0.5 (and later).

Download

cmpmvs-v0.6.0-binary-win64-cuda.zip
- Complete binary distribution package for 64-bit Windows 7 OS with CUDA

cmpmvs-v0.5-binary-win64-cuda.zip
- Complete binary distribution package for 64-bit Windows 7 OS with CUDA

cmpmvs-v0.4-binary-win64-cuda.zip
- Complete binary distribution package for 64-bit Windows 7 OS with CUDA

cmpmvs-v0.3-binary-win64-cuda.zip
- Complete binary distribution package for 64-bit Windows 7 OS with CUDA

cmpmvs-v0.2-binary-win64-cuda.zip
- Complete binary distribution package for 64-bit Windows 7 OS with CUDA

lionHanau.zip
- Sample dataset for initial testing of a binary.

Changes

version 0.6.0

- several bugs have been fixed
- added possibility to reconstruct unlimited large scenes in the highest possible level of detail see ini\README.txt
- added possibility to simplify mesh into chosen number of triangles
- added possibility to create new mesh with one texture file (merge texture files)
- added possibility for beta testing of the first version of our final mesh refinement step (still in developement)
- added possibility for testing of a experimental version of better texturing approach (still in developement)
- added possibility to generate georeferenced DEM and ortoPhoto
- more parameters are described

version 0.5

- several critical bugs have been detected and removed
- added visualSfM_CMPMVS.bat for complete 3D reconstruction just from images using VisualSfM (v0.5.18 and higher) + CMPMVS
- you can use parameters doComputeDEMandOrtoPhoto, doGenerateVideoFrames to turn on and off (default is on) the dem+ortoPhoto and video computation

version 0.4

- qs file export for QSplat viewer available at QSplat
- flyover video export (including stereo video)
- DEM + ortophoto export
- much better and higher quality plane-sweeping
- higher quality mesh
- several bugs has been detected and removed

version 0.3

- found bug in ini files ... there has to be hallucinationsFiltering instead of fullSpaceHull
- slightly updated files (ini\defaultCons2.ini, ini\defaultCons3.ini, ini\README.txt, README.txt)
- new file CHANGES.txt
- no change in the binary

Dependencies

Download and install:
- Microsoft Visual Studio C++ 2008 x64 redistributable package
- DirectX August 2009 redistributable package
- Latest GPU driver (CUDA 3.1 or higher required)

Terms and Conditions

CMPMVS software is provided for research purposes only. In case you use this software for a publication, cite reference [1], please. See the LICENSE file provided with the demo software.

Third-Party Software

The binary depens on the following third-party software (note that all needed libraries are included in the distribution zip file already):

OpenCV

- http://opencv.willowgarage.com/wiki/
- licensed under the BSD license

CGAL

- http://www.cgal.org/download.html
- licensed under the Open Source License

SiftGPU

- http://cs.unc.edu/~ccwu/siftgpu/

zlib

- http://www.zlib.net/
- licensed under the following license

maxflow-v3.01

- http://www.cs.ucl.ac.uk/staff/V.Kolmogorov/software.html

Contacts

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References

[1] *Multi-View Reconstruction Preserving Weakly-Supported Surfaces*, M. Jancosek, T. Pajdla, IEEE Conference on Computer Vision and Pattern Recognition 2011 (pdf).