A Structured-Light Scanning Software for Rapid Geometry Acquisition

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Software Repository: https://github.com/theICTlab/3DUNDERWORLD-SLS-GPU_CPU
Software Archive:

Summary

This is a 3D scanning system which is based on the principle of structured-light. We introduce our open-source scanning software system “3DUNDERWORLD-SLS” which implements the techniques both on CPU and GPU. We have performed extensive testing with a wide range of models and the results are documented in our report.

How to compile demo binaries

CMake is used to build this project. To build the binaries, create a folder as building work directory.

\texttt{mkdir build}
\texttt{cd build}
\texttt{cmake ..}
\texttt{make}

Binaries are compiled and located in the \texttt{bin} folder.

\texttt{SLS} is the reconstructor running on GPU

if CUDA is detected on your machine, a binary \texttt{SLS\_GPU} will be compiled, which is a reconstructor running on GPU

\texttt{SLS\_CALIB} is a manual calibration application.

\texttt{SLS\_GRAYCODE} is an application to project graycode.

All of the binaries are designed to run with \texttt{alexander} data.

How to use the library

Please refer to the code in \texttt{src/app/} to use your own data set.
Known issues

Since there’s no good API for cameras, the camera acquisition is not implemented. However, interfaces are provided. We welcome you to implement your camera class and make a pull request to this project.