RealityCapture

Capturing Reality s.r.o.

Introduction

RealityCapture is a 3D modelling and mapping software. It automatically extracts beautiful and accurate 3D models from an unordered set of images and / or laser scans. We offer the software as a Windows (7/8+) x64 application with a nice, intuitive, and friendly user interface. We also offer a command-line interface (CLI) version.

Standards

RealityCapture is a unique piece of software which pushes the envelope of what can be done with the photogrammetric methods. Moreover, it is the only software which is able to mix lasers and photos easily without seams and limitations.

What Is Inside?

- Automatic alignment/registration/calibration of images and/or laser-scans,
- Yes! RealityCapture can mix Laser scans and photos easily,
- Automatic 3D model reconstruction of a triangular mesh,
- Advanced coloring and texturing algorithms,
- Geo-registration into all world coordinate systems,
- Support for flight logs, GPS in EXIF/XMP, and ground control points,
- Ortho projections, DSM computation and export into the recognized standards such as tiff, geotiff,
- 3D model export into standard formats (ply, obj, xyz),
- Camera motion/calibration export to world standards (with custom scripts),
- A set of tools for analyzing alignment quality and accuracy, geo-registration, mesh reconstruction, 3D model post-processing (filtration, simplification, smoothing), etc.
- And much more…

Why to Choose RealityCapture

> "Can you align/register 3,000 images in two hours? "
> A: Yes, you can do it with our software on a computer you already have.

RealityCapture brings great freedom to your work. Simply focus on your business targets and let the software do the rest. You do not need to limit yourself to a small number of images because RealityCapture is astoundingly fast. Simply take pictures, event 10,000, and press a button, it will not take days, only a few hours on a single $1,000 computer. You can afford inspecting shots on site, take more pictures and go home with all the data that you need for beautiful and accurate results. So no more small sub-optimal reconstructions, no more painful grouping of partial reconstructions, no more jumps in geometry.

- Amazing alignment speed, align hundred images in less than 100 seconds on a $1,000 notebook, without any prior knowledge, pre-calibration, etc., simply drag & drop images into the application,
- Low memory requirements:
    o Image (laser scans) registration – 3,000 images (scans)/16GB RAM. It scales linearly, so you need twice more memory (32GB RAM) for 6,000 images.
    o Model computation – 16GB RAM – unlimited detail, unlimited count of images/laser scans,
- Impressive detail of reconstructions

> "What the others call ultra-quality, we call normal.
> What we call high-quality the others call impossible."

- No limits on model size! Unlimited size models in unlimited detail. Even billions of triangles on a computer with 16GB of memory*,
- Our customers have reduced their operating costs to **30%** after buying RealityCapture, while getting **100%** better results. Moreover, they have obtained ability to do what simply was not possible before.

Even More Unique Features

Meet the state-of-the-art computer vision algorithms, extremely optimized, and processed in parallel.

- Incrementally extend existing reconstruction, simply add more images and press "align". It will reuse the information from the previous calculations to deliver results even faster,
- Draft alignment: even faster image registration, which you can use in the field to see if you captured all you wanted,
- Automatic lens distortion recovery, even for highly distorted cameras,
- Automatic merging of partial reconstructions. These can be prepared in parallel – e.g. separate rooms/floors, front & back yard, etc.,
- Automatic/seamless/robust/adaptive combination of geometry, coloring and texturing computed from images and laser-scans. The final 3D model contains the best of all,
- Adaptive/seamless level of detail, mixture of details,

> For example, a statue captured in 1mm detail from the ground with surrounding with 10cm precision captured from the air.

- Wide variety of quality assessment tools.