LIDAR DATA
SOFTWARE

RECONSTRUCTOR®

POWERFUL . ADVANCED . PROFESSIONAL

Italian pavilion in 3D | project for EXPO 2015, Milan (Italy)

Reconstructor®

SOFWARE FOR LIDAR DATA

GEXCEL

www.gexcel.it

Reconstructor®

OVERVIEW

Reconstructor® is the well-known **multi-platform** and **multi-resolution** software to manage point clouds and images coming from different lidar and imaging platforms. Perfect to combine lidar data coming from terrestrial, mobile and airborne sensors, with UAV and 3D imaging data. The unique and powerful LineUp® technology to get the best from your **scans' automatic registration** and **georeferencing** is now completely included. Moreover, for specific tasks, you can add dedicated sets of commands to manage the 3D model colorization workflow, get advanced terrain and mining analysis or process 3D data coming from the HERON® indoor mobile mapping system. The **Education version** is also available at very special conditions.

MAIN INDUSTRIES

ARCHITECTURE	CONSTRUCTION	EDUCATION	HERITAGE
BRIDGE	DEFENSE	FORENSICS	INDUSTRIAL
CIVIL ENGENEERING	DISASTER MANAGEMENT	FORESTRY	MINING & TUNNEL

The Reconstructor® technology has been used to develop the Stonex-Reconstructor software (for Stonex X300 TLS data processing) and the Atlas-Scan software (for Teledyne Optech Polaris TLS data processing).

" Thanks to Reconstructor has been possible to get a global 3D view in few time for the first evaluations of the building status. I recommend this software because it can seriously simplify the life.

WILFREDO TORRES
CEO, Restauro Sac

" I can say that the point cloud processing engine of Reconstructor can be used to improve the performance of the whole laser scanning data processing providing a familiar software enviroment and meeting the needs of laser scanning data elaboration.

PROFESSOR DR. YOSHIKI HORI
Department of Architecture and Urban Design, Kyushu University

MULTI PLATFORM

Directly import the most common LiDAR terrestrial laser scanner formats (FARO, RIEGL, STONEX, TOPCON, VELODYNE, Z+F).

MULTI RESOLUTION

Comfortably manage lidar data from terrestrial, mobile and airborne sensors, with UAV and images, in one single software.

FARO

RIEGL

STONEX

SURESTAR
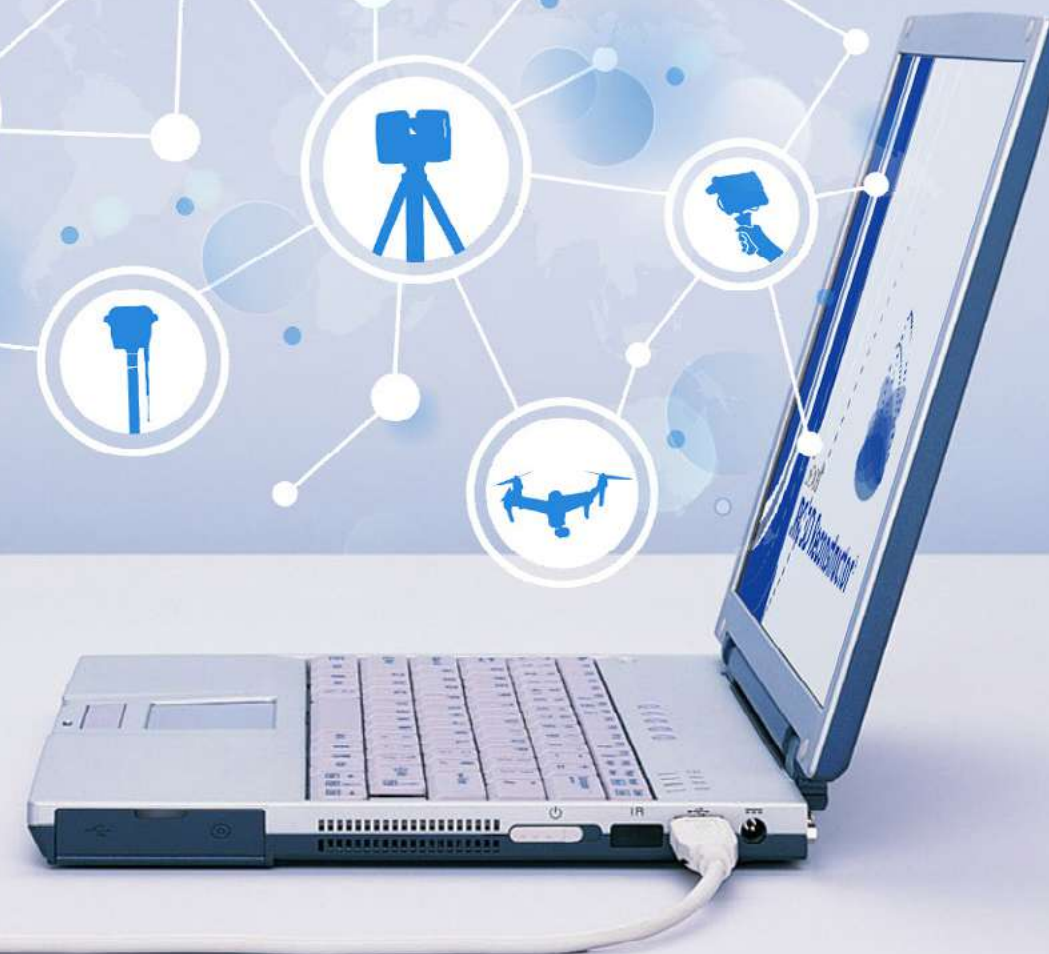
TOPCON

Velodyne

ZF
Zoller Fröhlich

FULL PROCESSING

Experience a complete LiDAR data processing workflow in a very user-friendly environment.

The turn-key solution for your work!

FULL EXPORTING

Go to the third-party software universe thanks to the most complete list of export formats.

1   LIDAR DATA IMPORT

2   AUTOMATIC SCANS REGISTRATION

3   DATA PROCESSING

4   DELIVERY EXTRACTION

5   FULL EXPORT

3D DATA REGISTRATION

Reconstructor® is equipped with the powerful and unique **LineUp**® technology for manual and automatic target-less scans registration. Based on the revolutionary **bundle adjustment** algorithm, LineUp® is able to align scans from different sensors, at different resolutions, without the usage of connecting targets or spheres and requiring only a 30%-40% of scans overlap.

BEFORE   AFTER
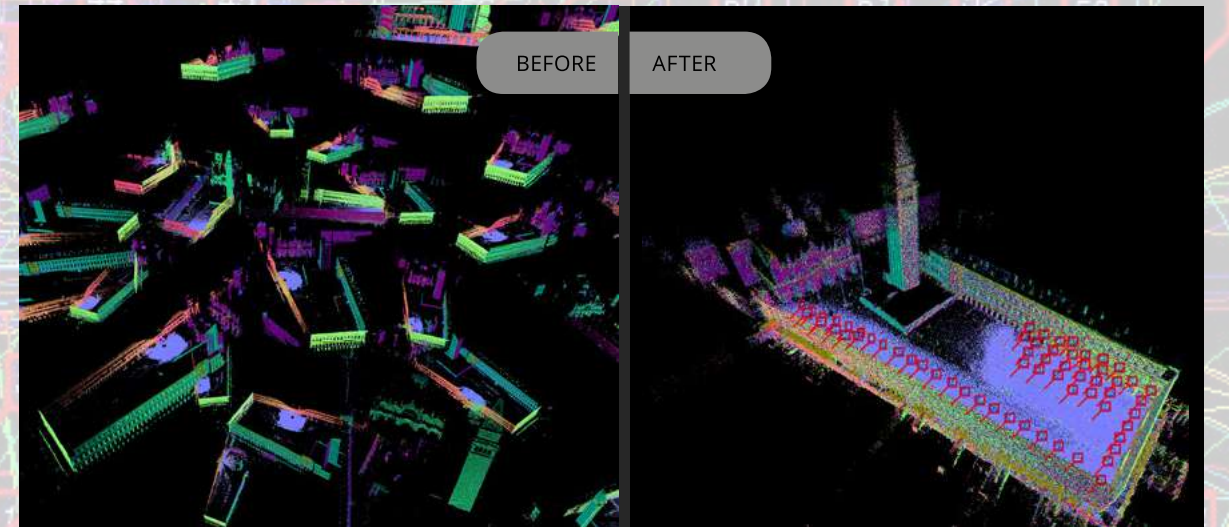
In the picture: S.Marco square, Venice (Italy), automatic target-less alignment of 64 scans in only 20 minutes!
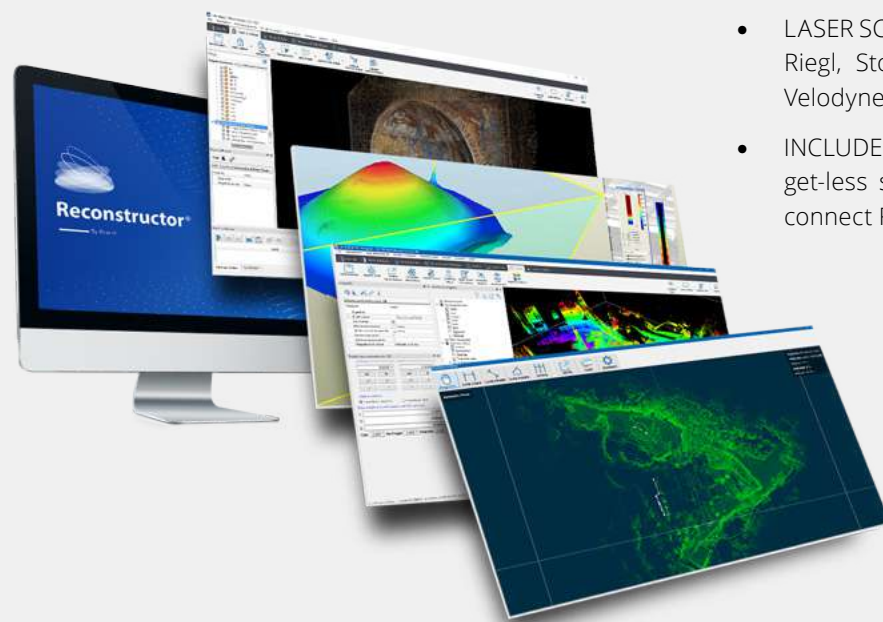
Reconstructor®
SOFTWARE FOR LIDAR DATA

Import, process and manage your LiDAR data from terrestrial, handheld, mobile, airborne laser scanner and easily integrate UAV and 3D imaging data in a single platform. Thanks to the LineUp® Pro technology, automatically align your 3D scans, even without targets!

- MAIN FEATURES: Point clouds filtering and editing; Automatic and manual scans registration; Meshing; Advanced data analysis.

- MAIN OUTPUTS: Mesh models; 3D distances; Areas; Volumes; Cross sections and isolines; Mesh borders and edges; Orthophotos and X-Ray orthophotos; Change detection; Planarity and verticality maps; Fly-through videos.

- IMPORTED DATA: Point clouds from LiDAR, UAV, total station in open formats; Scans in native formats from 3D laser scanner sensors; Meshes, CAD/BIM models and polylines; Colorization of raw scans (FARO and TOPCON supported); Projects from third parties lidar software (RIEGL RiSCAN PRO, Z+F LaserControl (thermal camera included), FARO Scene and TOPCON).

- LASER SCANNERS COMPATIBILITY: DotProduct, Faro, Riegl, Stonex, Surestar, Teledyne-Optech, Topcon, Velodyne, Zoller + Fröhlich.

- INCLUDED: LineUp® technology for automatic target-less scans registration; *Gexcel ReCap Plug-in* to connect Reconstructor® with ReCap™ Pro.

ADD-ON SETS OF COMMANDS

ADD-ONS BASED STRUCTURE

Customize your Reconstructor® software adding special set of features

- To satisfy specific industries demands, some dedicated set of commands can be added to the Reconstructor® main structure.
- The add-ons are not stand alone software, so they only work with a Reconstructor® 4.0 version correctly licensed.
- The currently available add-ons are HERON add-on, MINING add-on, COLOR add-on (learn more on the next page).
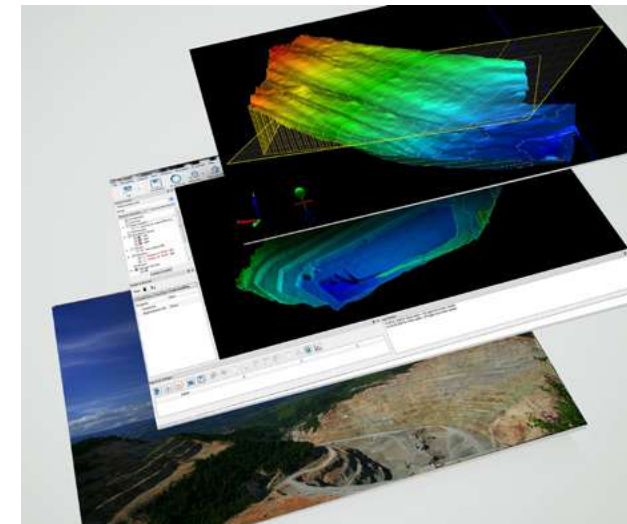
Reconstructor®
HERON ADD-ON

Reconstructor®
MINING ADD-ON

Reconstructor®
COLOR ADD-ON

Expand your Reconstructor® with the HERON add-on set of commands to get major and better results with data coming from the indoor mobile mapping HERON® system. Adjust the trajectory, navigate and retrace the survey with a 360° spherical view, obtain completely measurable technical views that can be shared with the final customer, produce videos or georeference by constraining data to static scans and much more.

- SURVEYING EDITING
- REFERENCE MAPS GENERATION
- GEOREFERENCING
- ORTHOPHOTO VIEWER TO MEASURE DISTANCES, ANGLES, AREA AND SHARE RESULTS WITH YOUR COLLEAGUES OR CLIENTS
- DIRECT CONNECTION TO THIRD-PARTY SOFTWARE

Expand your Reconstructor® with the MINING add-on set of commands particularly suitable for users working on spatial data, quarries or open pit mines who want to optimize the development of a site and take in-progress decisions based on detailed information.

- INCLINATION FROM A PLANE
- TOPOGRAPHIC MESH
- CUT&FILL VOLUME
- CYLINDRICAL VIRTUAL SCAN
- CROSS SECTIONS FROM MESHES AND GRID POINT CLOUDS
- GEOREFERENCED .TIFF FILE IMPORTING

Expand your Reconstructor® with the COLOR add-on set of commands designed for users who work with high-resolution images to integrate with 3D models to obtain high-level results such as CAD drawings with photographic details.

- CAMERA CALIBRATION: MANUAL, INTRINSIC AND FROM 3D POINTS
- GRID POINT CLOUD COLORED WITH CALIBRATED IMAGES
- PANORAMA IMAGES
- TEXTURE MAPPING
- PROJECTOR FROM CALIBRATION FILES
- PERSPECTIVE, SPHERICAL, CYLINDRICAL, ORTHO PROJECTOR FROM AN IMAGE
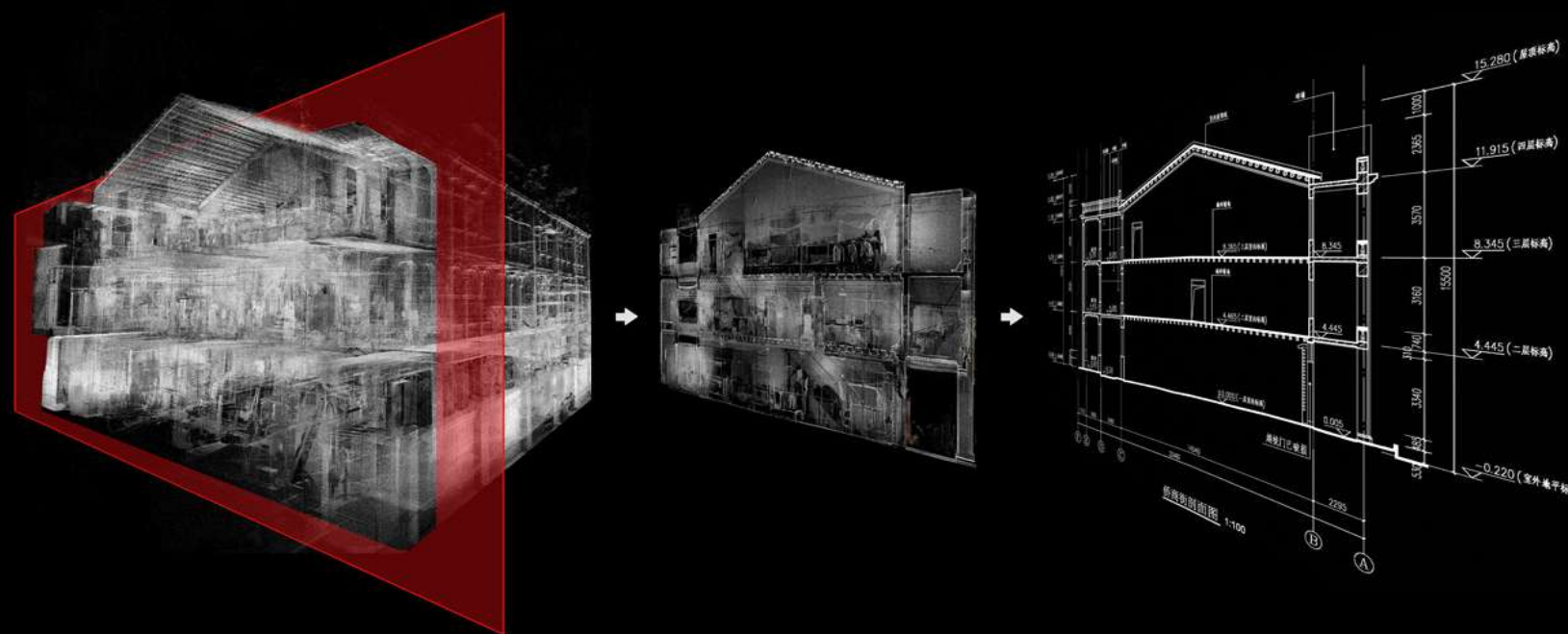
RECONSTRUCTOR TECHNICAL DETAILS

IMPORT

· Point clouds from LiDAR, UAV, total station in open formats (.txt, .las, .laz, .e57, .ptx, .pts, .asc, .ply, .csv)

· Scans from 3D laser scanner manufacturers (.fls, .zfs, .rxp, .3dd, .x3s, .x3m, .clr, .cl3, .dp, .ixf, .nctri)

· Meshes CAD models and polylines (.dxf, .ifc, .stl, .wrl, .vrml, .3ds, .ply, .obj, .dae)

· Projects from RIEGL RiSCAN PRO, Z+F LaserControl (thermal camera included), FARO Scene and TOPCON

· Raw scans colorization (FARO and TOPCON)

EXPORT

· Point clouds (.txt, .las, .laz, .e57, .ptx, .pts, .asc, .ply, .ptc, .ixf)

· 3D mesh models (.dxf, .stl, .wrl,. 3ds, .ply, obj, .dae)

· Cross sections, edges, polylines (.dxf, .txt)

· Maps, orthofotos, spherical and cylindrical views (.bmp and standard image formats)

· Inspection report (.pdf report)

· Planarity and verticality maps (.pdf report)

· Volume and cut&fill report (.pdf report)

· Videos (.avi)

· Formats from Reconstructor to ReCap™ Pro: (.rcp, .rcs); Reconstructor projects (.recprj); raw data (.rup and .rgp)

SYSTEM REQUIREMENTS

MINIMAL

· Processor: 64 bit single core
· Main memory (RAM): 4 GB
· Graphics card supporting OpenGL 3.3
· Windows 7 service pack 1
· Mouse with two buttons plus a clickable scroll wheel
· Screen resolution: 1440x960

RECOMMENDED

· Processor: Intel Core i7/ Core i9/Xeon or equivalent, 4 or more physical cores, on a single CPU socket
· Main memory (RAM): 32 GB
· Graphics card supporting OpenGL 4.0 or higher, 4 GB dedicated GPU memory, single GPU
· Windows 10
· Mouse with two buttons plus a clickable scroll wheel
· Screen resolution: 1920x1080 or higher
· Hard disk: SSD or RAID10 HDD array, for optimal data read/write performance

MARKETING INFORMATION

· LANGUAGES: English, Italian, Russian, Chinese
· LICENSING SYSTEM: USB dongle key
· TRIAL: 30 days evaluation. All functions and all add-ons available. Export locked.
· EDUCATIONAL OFFER: 5 seats concurrent users net-based, 1 seat independent for the teacher (computer based).

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