

# JRC 3D RECONSTRUCTOR®

POWERFUL . ADVANCED . PROFESSIONAL



## OVERVIEW

JRC 3D 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. JRC 3D Reconstructor is distributed in several packages (Full, Construction, Heritage/Architectural, Mining/Tunnelling, Forensic, Photo) and an Educational version also is available in the Full package. JRC 3D Reconstructor® technology gives you the best for your scans automatic registrations and geo-referencing thanks to the unique and powerful LineUp® tool.



“

*Thanks to JRC 3D 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 JRC 3D Reconstructor can be used to improve the performance of the whole laser scanning data processing providing a familiar software environment and meeting the needs of laser scanning data elaboration.*

## MAIN INDUSTRIES

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

\* The JRC 3D 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).

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.



## 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



## JRC 3D Reconstructor® **FULL**

JRC 3D Reconstructor® FULL is the leading and worldwide well known top level Gexcel software to easily integrate multi-platform and multi-resolution 3D models and manage large cartographic coordinates (UTM, ...), Lidar data, Hi-Res RGB images, GNSS topographic 3D surveyed points and 3D mesh models. Educational offer available.

### **FULL EDUCATIONAL**

JRC 3D Reconstructor® FULL is available even in Educational version: same capabilities at special sales conditions. The software is licenced through an USB dongle key and it is possible to upgrade the single license to the NET multiple license (at least 6 seats to contemporary work on different PCs inside a same local NET. Number of seats expandable on request).



## JRC 3D Reconstructor® **CONSTRUCTION**



JRC 3D Reconstructor® CONSTRUCTION is specifically designed for construction, infrastructures and civil engineering surveying projects.

The perfect answer to the needs of surveyors working in civil engineering.

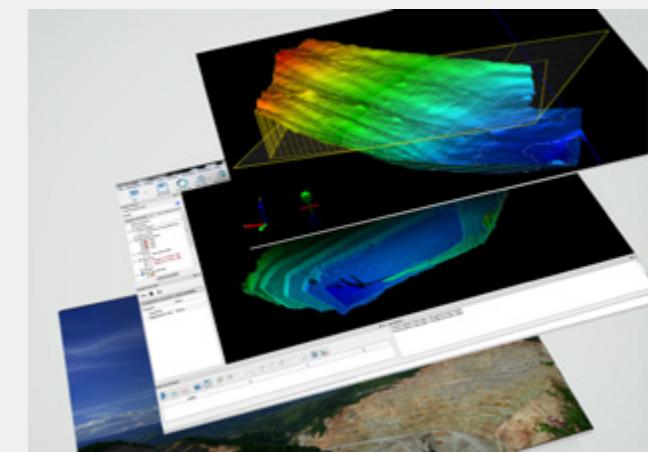
- CROSS SECTIONS AND FRONT BUILDINGS
- ORTHOGRAPHIC VIEWS EASY EXTRACTION
- DISPLACEMENT AND VERTICALITY MAPS, AREAS AND VOLUMES EVALUATION
- VERTICALITY CHECK
- EASY TRANSFER THE RESULTS TO CAD FOR EASY DELIVERABLES PRODUCTION



## JRC 3D Reconstructor® **MINING-TUNNELLING**

JRC 3D Reconstructor® MINING - TUNNELLING is the outstanding solution for mines and tunnels surveying projects using Lidar sensors and UAVs.

- CONTOUR LINES
- CRESTS & TOES
- CUT & FILL VOLUMES CALCULATION
- RIDGES & VALLEYS EXTRACTION
- PROFILES AND PLAN VIEWS
- DTM GENERATION AND EDITING WITH AN EASY WORKFLOW
- UAV GEOTIFF MAPPING
- SURFACE ANALYSIS
- DISTANCE, ANGLE, AREA, VOLUME CALCULATION
- TUNNEL TOOL





## JRC 3D Reconstructor® HERITAGE-ARCHITECTURAL

JRC 3D Reconstructor® HERITAGE - ARCHITECTURAL is the software designed for cultural heritage and architectural projects in order to easily create 3D colored models using Hi-Res RGB images acquired both from the cameras mounted on the laser and from independent external cameras.

- CREATION OF MESHES AND HIGH RESOLUTION MESH MODELS FROM POINT CLOUDS
- POINT CLOUD EDITING, FILTERING, COLOR AND CLASSIFICATION
- IMPORT MESHES FROM THIRD PARTIES SOFTWARE
- CALIBRATION AND MAPPING OF FULL RESOLUTION RGB IMAGES ON MESH MODELS
- AS-BUILT ANALYSIS AND CHANGE DETECTION
- CAD DRAWING OUTPUT
- EXTRACTION OF HI-RES ORTHOPHOTOS FOR A PERFECT COLORED REPRESENTATION



## JRC 3D Reconstructor® FORENSIC



JRC 3D Reconstructor® FORENSIC is the successfully applications of JRC 3D Reconstructor® capabilities in forensic field, improved with some dedicated features. Appreciated by the scientific law institutions.

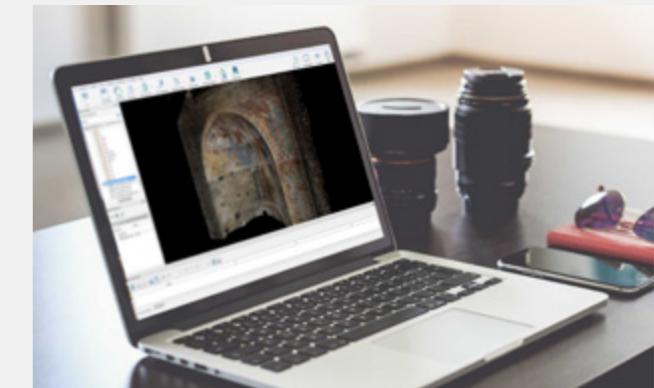
- LINEUP® PRO (FOR AUTOMATIC TARGET-LESS SCANS REGISTRATION) INCLUDED
- INSPECTION TOOL TO POINT OUT THE GEOMETRIC DIFFERENCES OF THE CRIME SCENES IN TIME
- EASY 3D MEASURING TOOLS
- MAPPING HI-RES RGB IMAGES ON MESH MODELS
- ROAD ACCIDENT SIMULATION
- DISTANCE MAPS FROM REFERENCE PLANES
- FLIGHT THROUGH VIDEO



## JRC 3D Reconstructor® PHOTO

JRC 3D Reconstructor® PHOTO is the best solution for users who need to create 3D colored models starting from point clouds or mesh models using any type of digital camera.

- CALIBRATION OF HIGH RESOLUTION DIGITAL IMAGES AND TEXTURE MAPPING
- POINT CLOUD EDITING, FILTERING, COLOR AND CLASSIFICATION
- PHOTO DRAPING AND CALIBRATION
- EXTRACTION OF HIGH RESOLUTION ORTHOPHOTOS
- EXTRACTION OF ELEVATIONS, PLANS, CROSS SECTIONS, VIDEOS
- FAÇADE COLOR SIMULATIONS
- EXTRACTION OF CYLINDRICAL, SPHERICAL AND ORTHOPHOTOS
- EXPORT TO CAD OR OTHER MODELING SOFTWARE





# LineUp®

## JRC 3D RECONSTRUCTOR® TOOL

The powerful and unique tool for the automatic target-less scans registration and georeferencing

*developed by Gexcel for JRC 3D Reconstructor®*

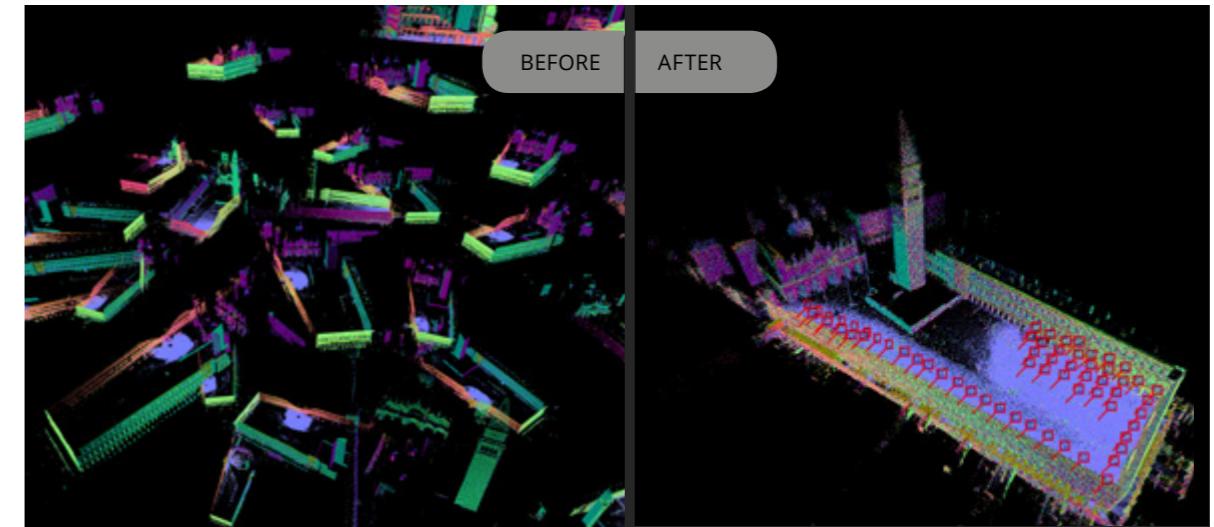
### LineUp®

LineUp® is able to speed up and manage all the registration and georeferencing processes.

**CAPABILITIES:** Automatic recognition of target and sphere. ICP automatic scan-to-scan alignment algorithm. Bundle adjustment global alignment. Least squares adjustment.

### LineUp® PRO (ADD-ON)

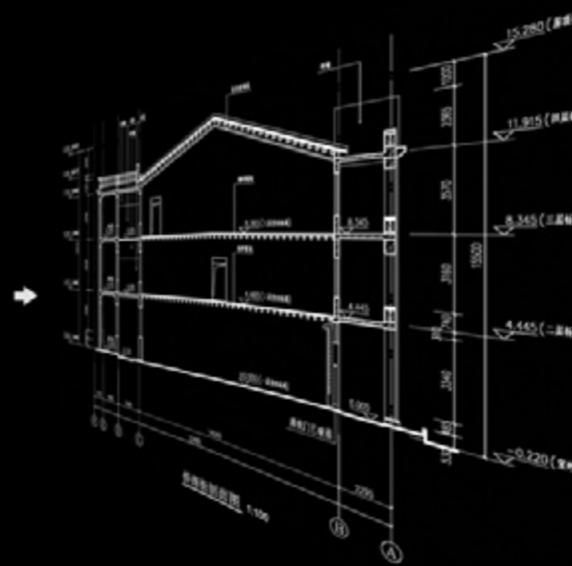
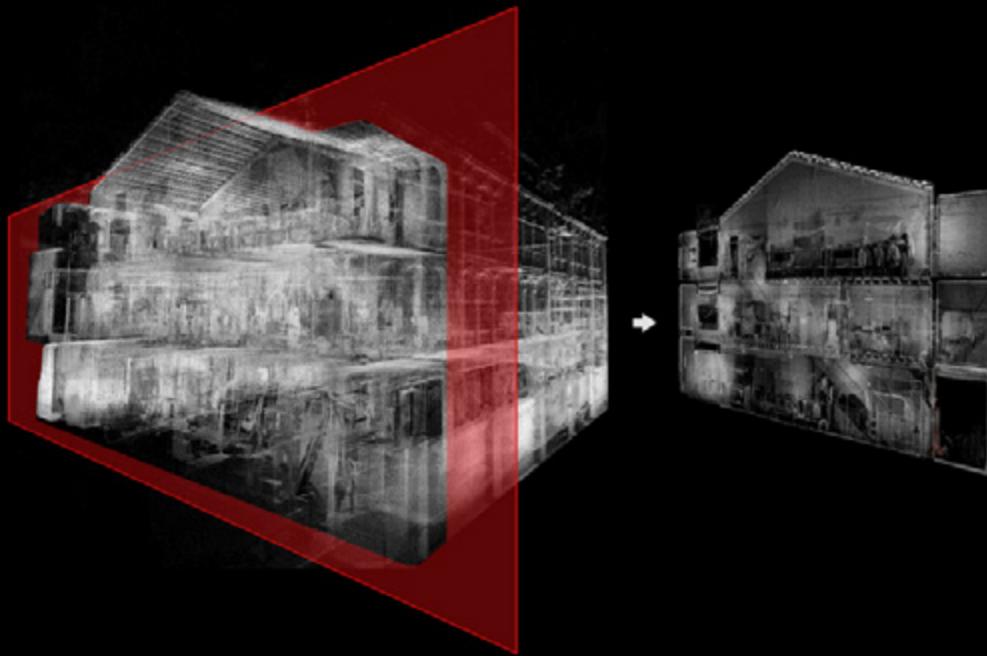
LineUp® PRO contains all the LineUp® features and is based on the **revolutionary automatic target-less scans registration algorithm**, able to align scans from different sensors (both static and HERON® point clouds), at different resolutions, without usage of connecting targets or spheres and requiring only a 30%-40% of scans overlap.



In the picture: S.Marco square, Venice (Italy), automatic target-less alignment of 64 scans in only 20 minutes!

	LineUp®	LineUp® PRO
Point clouds importing and filtering (from scanners & UAVs)	•	•
Automatic Gexcel target detection	•	•
Georeferencing	•	•
Scans alignment per groups	•	•
Cloud to cloud best fitting alignment (with bundle adjustment)	•	•
<b>Automatic target-less scans registration</b>		•
Interactive validation process		•
Registration of BIM & CAD models with point cloud		•
Guided workflow between different levels of automation		•

LineUp® is included in any JRC 3D Reconstructor® package, excluded the PHOTO one. LineUp® PRO is included in FULL, FULL EDU and FORENSIC packages and can be added to all the other packages.



Courtesy of South China University of Technology SCUT

## JRC 3D RECONSTRUCTOR TECHNICAL DETAILS

### IMPORT

- Point clouds from LiDAR, UAV, total station in open formats (txt, LAS, E57, ptx, pts, asc, ply)
- Scans from 3D laser scanner manufacturers (fls, zfc, rxp, 3dd, x3s, x3m, clr, cl3, dp, ifx, imp)
- Meshes and CAD models (dxf, ifc, stl, wrl, 3ds, ply, obj, dae)
- RIEGL RiSCAN PRO projects and Z+F LaserControl projects (thermal camera included)
- Raw scans colorization (FARO and TOPCON supported)

### EXPORT

- Point clouds (txt, LAS, E57, ptx, pts, asc, ply, ptc, ifx)
- 3D mesh models (dxf, stl, wrl, 3ds, ply, obj, dae)
- Cross sections, edges, polilines (dxf, txt)
- Maps, orthofoto, spherical and cylindrical views (bmp and standard image formats)
- Inspection report (pdf)
- Volume report (pdf)
- Volume and cut&fill report (pdf)
- Videos (avi)
- ReCap 360™ formats (rcp, rcs) through Gexcel ReCap Plug-in
- JRC 3D Reconstructor projects (recprj) and raw data (rup, rgp) for direct importation in ReCap 360™ through Gexcel ReCap Plug-in

Scan the QRCode to see the JRC 3D Reconstructor® technical comparative table, or access the direct link: [www.gexcel.it/en/software/jrc-3d-reconstructor/full-full-educational-comparative-table](http://www.gexcel.it/en/software/jrc-3d-reconstructor/full-full-educational-comparative-table)



### SYSTEM REQUIREMENTS

- OS: Windows® (XP SP2, Vista, 7, 8, 10)
- Version: 64 bit
- CPU: multi-core processor (8 Cores at least)
- Graphics card:
  - NVIDIA® GeForce GTX 2GB ram (for large use of points)
  - NVIDIA® Quadro (for large use of mesh and texture)
- RAM: 16 GB

### MARKETING INFORMATION

- LANGUAGES: English, Chinese, Japanese, Spanish, Italian
- LICENSING SYSTEM: USB dongle key
- TRIAL: 30 days evaluation. All functions available. Saving locked. On [www.gexcel.it/en/download](http://www.gexcel.it/en/download)
- EDUCATIONAL OFFER: available for JRC 3D Reconstructor® Full



## CONTACTS

**phone:** (+39) 030 65 95 001

**fax:** (+39) 030 65 95 020

**e-mail:** [info@gexcel.it](mailto:info@gexcel.it) | [sales@gexcel.it](mailto:sales@gexcel.it)

**web:** [www.gexcel.it](http://www.gexcel.it)



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