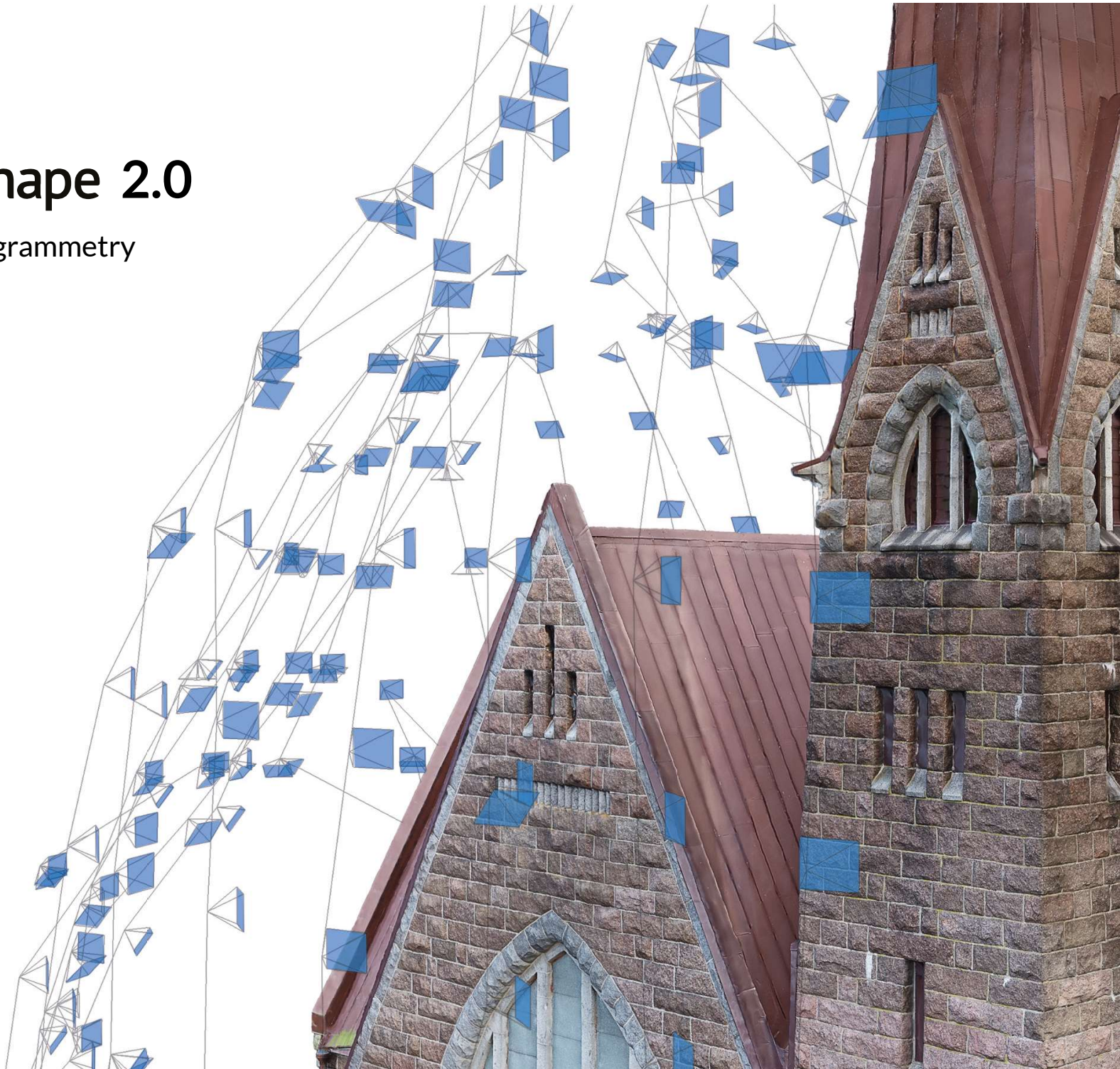


Metashape 2.0

Intelligent Photogrammetry

Agisoft



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Intelligent photogrammetry enhanced with LiDAR data processing

Agisoft Metashape is a cutting-edge software solution, with its engine core driving photogrammetry to its ultimate limits, while the whole system is designed to deliver industry specific results relying on machine learning techniques for post-processing and analysis tasks.

The software allows to process images from RGB or multispectral cameras, including multi-camera systems, into the high-value spatial information in the form of photogrammetric point clouds, textured polygonal models, georeferenced true orthomosaics and DSMs/DTMs. Images can be co-processed with LiDAR points to exploit advantages of both data sources. Further post-processing enables to eliminate shadows and texture artifacts from the models, calculate vegetation indices and extract information for farming equipment action maps, automatically classify dense point clouds, etc.



Runs on Windows,
macOS and Linux



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- **Very fast & highly accurate**

Based on the state-of-the-art technology developed by Agisoft, Metashape allows for very fast processing, providing at the same time consistent and highly accurate results both for aerial and close-range photography (up to 3cm for aerial, and up to 1mm for close-range photography), as well as for LiDAR data based surface reconstruction.

- **Local or cloud processing**

Agisoft Metashape is capable of processing of 50 000+ photos across a local cluster, thanks to distributed processing functionality. Alternatively, the project can be easily sent to the cloud to minimize hardware investment, with all the processing options being still available.

- **Intuitive UI & stereo mode**

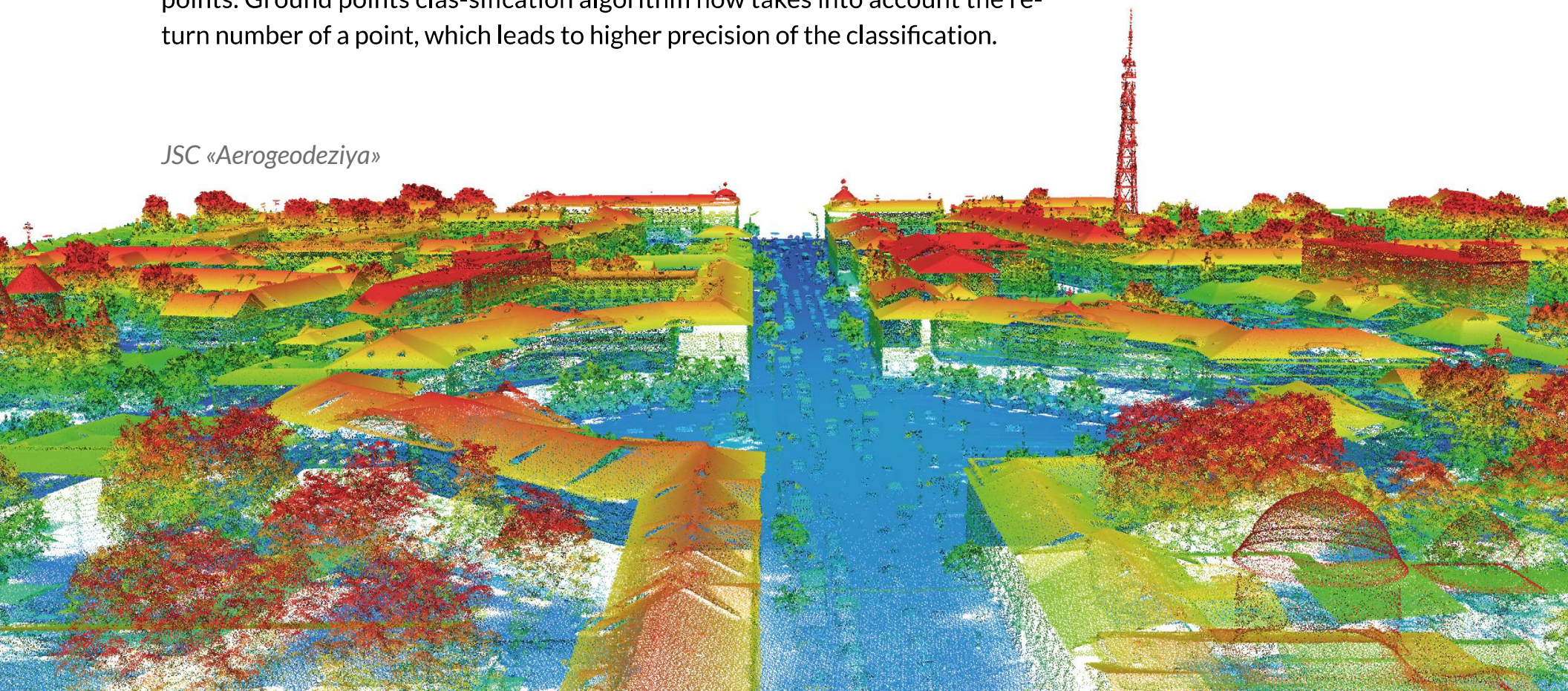
The software package has a linear project-based workflow that is intuitive and can be easily mastered even by a non-specialist, while professional photogrammetrists can benefit from advanced features like stereo mode and have complete control over the results accuracy, with detailed report being generated at the end of processing.

NEW FEATURES

Aerial LiDAR data support

The major feature introduced in Metashape 2.0 is aerial LiDAR data support. Metashape reads and saves main point attributes, including colors, scan angle, source id, number of returns, intensity, etc. The data can be inspected in Model View, being visualized in different modes in accordance with metadata of the points. Ground points classification algorithm now takes into account the return number of a point, which leads to higher precision of the classification.

JSC «Aerogeodeziya»



NEW FEATURES

Native support for terrestrial laser data

In Metashape 2.0 terrestrial laser data is loaded as a point cloud, which ensures against data loss on import and allows for point cloud visualisation in Metashape window. Both laser scans aligned in external tool and marker-based alignment within Metashape interface are supported in the processing workflow. Ground points classification algorithm has been adapted to work both with photogrammetric and LiDAR data.



An aerial photograph of a harbor area, likely a port or shipyard. The water is a deep blue-green. In the foreground, there's a large paved area with several large ships docked. To the left, there's a city street with cars and buildings. A semi-transparent green overlay, representing a Digital Elevation Model (DEM), is applied to the land areas, showing the topography of the terrain and buildings. The green overlay is most prominent on the left side of the image, covering the city and the land adjacent to the harbor. The right side of the image shows the water and the docked ships, which are not covered by the green overlay.

NEW FEATURES

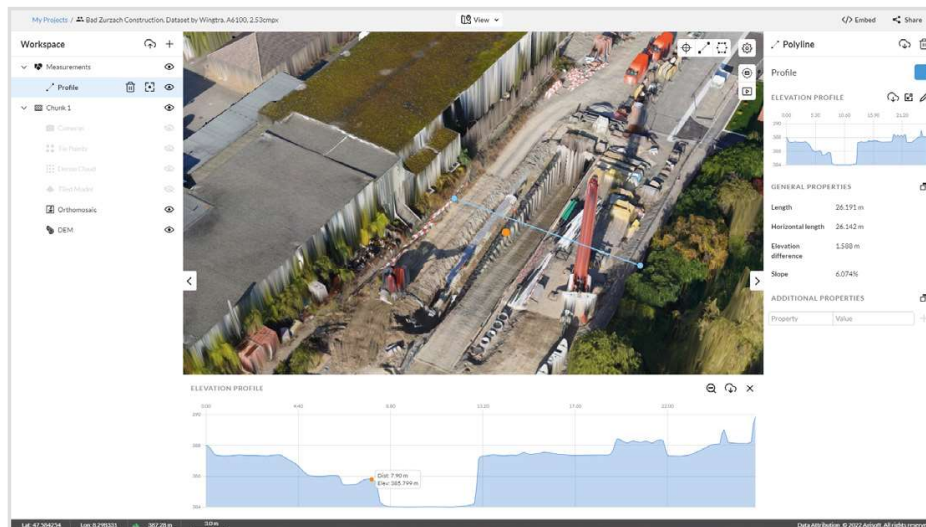
DEM editing tools

Metashape 2.0 presents DEM editing tools for manual patching of elevation models. The tools enable to edit DEM to improve, for example, roof edges with Break-line instrument or add plane surface in water areas, which is typically difficult for photogrammetric reconstruction. It is also possible to exclude unwanted objects from the elevation model with the help of Fill tools.

NEW FEATURES

Upload geospatial data from various sources to Agisoft Cloud

Agisoft Cloud platform capabilities have been enhanced with support for geospatial data from various sources, not limited to Metashape projects. External vector layers, raster maps, digital elevation models, point clouds and tiled models can be uploaded and organized into the individual projects or combined with processing results from Metashape for inspection, annotation and sharing online.



In addition to the distance and area measurements, the platform now offers terrain volume and profile measurement tools. All measurements are performed and displayed in a coordinate and a unit systems selected for the project. For the purposes of tracking changes over time a side-by-side comparison tool has been introduced.

FIELDS OF APPLICATION

Seamless orthomosaic for Surveying and Mapping

Metashape is a perfect tool for aerial imagery processing. The functionality of the program is being constantly developed according to the tasks set by rapidly emerging UAS industry.

Metashape has proved to be a professional level post-processing tool capable of dense point clouds generation and classification for further exceptionally detailed DSMs/DTMs calculations and high-resolution seamless orthomosaics export, not to mention reconstruction of precise polygonal models of large scale objects. It is an indispensable part of GIS workflow starting with a UAV system.



FIELDS OF APPLICATION

Highly accurate measurements for Mining and Quarrying

Highly accurate DEMs produced by Metashape lay the grounds for precise area and volume measurements, both for excavations and piles. Once multiple flights performed at different time moments, Metashape allows for volume change tracking, soil erosion and glacier studies. Automatic non-coded targets detection capability saves up on manual work in inspection projects done on a regular basis.

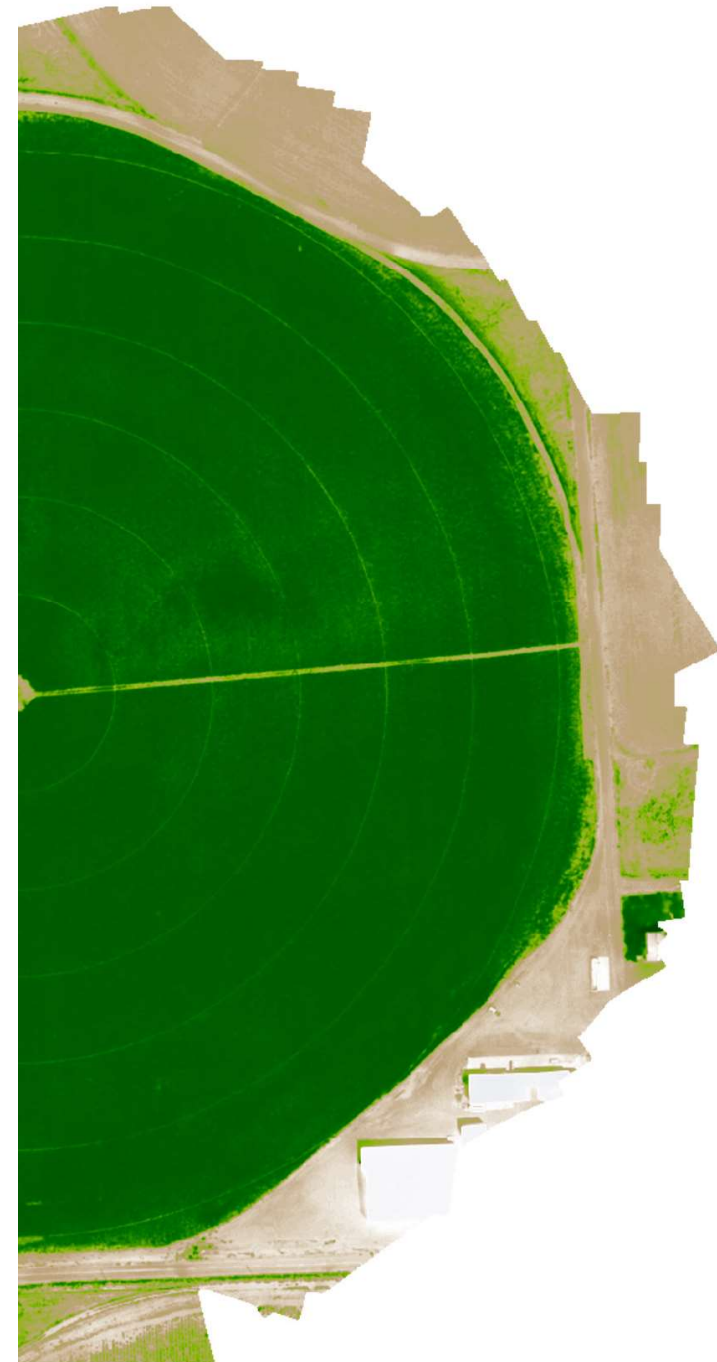


FIELDS OF APPLICATION

Customized vegetation index calculation for Precision Agriculture and Environmental Management

With support for panchromatic, multispectral and thermal imagery, Metashape seamlessly integrates into workflows involving processing of data from diverse sources, like vegetation and soil analysis, fires and night studies, etc.

Vegetation indices calculation according to a user-defined formula allows to analyze crop problems and generate prescriptions for variable rate farming equipment.



FIELDS OF APPLICATION

Consumer camera support for Archaeology and Documentation

Archaeology more and more often relies on photogrammetric approaches today, be it a need to model an artifact or a demand for an excavation mapping.

Thanks to the capability to process imagery from any digital camera, Metashape is widely used in various archaeological projects both up in the mountains and deep under the water, including special researches like greenery pattern studies to find ancient ruins under the ground or rock art documentation and analysis projects.



FIELDS OF APPLICATION

Oblique imagery support for Architecture and Cultural Heritage Preservation

Numerous projects prove that Metashape is a quality tool to solve the tasks of facade and building modeling.

With support for oblique imagery processing, Metashape allows to reconstruct the whole building, which can be employed for virtual tours creation, with reconstruction results being exhibited as illustrative models of large-scale cultural heritage objects. 3D models of partially ruined monuments and artifacts generated with Metashape present reliable basis for restoration works thanks to exceptional accuracy of reconstruction results.

Castle Spangenberg by Aibotix GmbH
www.aibotix.com



FIELDS OF APPLICATION

Photorealistic texture for Visual Effects and Game Design

Thanks to being highly detailed and photorealistic, Metashape models meet the strict requirements of professional animation studios, which successfully employ the software for movie and game production. Face and body capture results, being among the most demanded ones, prove that Metashape potential goes beyond one's imagination.

Human scan by Infinite Realities
www.ir-ltd.net



Advantages

Highly accurate and detailed results

Combined processing of imagery, terrestrial laser scans and aerial LiDAR data

Agisoft Cloud for processing, visualization and sharing of the results

Easy sharing with PDF or fly through video export and direct upload to online resources

Fully automated and intuitive workflow

GPU acceleration for faster processing

Stereoscopic measurements for precise feature extraction

Reasonably powerful Standard edition for art projects

Network processing for large projects

Compatibility

Processes images from digital/film/video cameras, multi-camera systems, terrestrial laser scans and aerial LiDAR data

Works well with most UAVs (copters, fixed-wings, VTOLs)

Exports results in widely supported formats

Supports frame/fisheye/spherical/cylindrical/RPC camera models

Supports most EPSG coordinate systems and configurable vertical datums

Runs on Windows, macOS, Linux

Capabilities

Satellite, aerial and close-range triangulation

Combined alignment of imagery and terrestrial laser scanner data

Mission planning for complex sites

Image set redundancy analyses

Photogrammetric point cloud generation and automatic classification

True orthomosaic generation in user defined projections

Marker-based point clouds (photogrammetric, TLS, aerial LiDAR) registration in one coordinate system

Incremental image alignment

DSM/DTM generation

Elevation contour lines generation

Automatic seamline refinement for traditional DTM-based orthomosaics

DEM editing tools

Manual orthomosaic seamline editing

Georeferencing using flight log and/or GCPs

Coordinate/distance/area/volume/profile measurements

Automatic powerlines detection

Polygonal model reconstruction

Hierarchical tiled model generation and visualization

Deghosting filters for texture and orthomosaic

Spherical panorama stitching

Headless operation support

Coded and non-coded targets auto detection

Multispectral imagery processing and vegetation index calculation

Prescription maps generation and export

Texture generation with delighting filter

Ambient occlusion, normal and displacement maps generation

4D reconstruction for dynamic scenes

Python scripting and Java API for job automation



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