Features	Advantages
INPUTS	
Aerial (nadir and oblique) and terrestrial imagery	Process images taken at any angle and from any aerial manned or unmanned platform as well as from the ground
Video (mp4 or avi format)	Automatically extracts still frames from video files to create a project
Any camera (compact, SLR, thermal, multispectral, GoPro, 360-degree, large-frame add-on, etc.) images in .jpg or .tiff	Use images acquired by any camera, from small to large frames, from consumer-grade to highly specialized cameras
Multi-camera support for the same project	Create a project using images from different cameras and process them together
Camera rig support	Process images using known rig relatives from multiple synchronized cameras, customized or from known manufacturers for more robust, accurate and faster processing
Ground control point edit and import	Import and edit ground control points to improve the absolute accuracy of your project
Known or custom reference coordinate system support in imperial or metric units	Select EPSG code from known coordinate systems or define your own local system
Camera exterior orientation support	Optimize camera exterior orientation parameters starting from GPS and IMU input parameters
External point cloud import	Import a point cloud from different sources, such as LiDAR, and use it to create a DSM and orthomosaic
PROCESSING	
Processing templates	Automate processing and generation of outputs by using standard or customized templates
Rapid Check with Quality Report	Rapid processing template for a dataset quick check while still on site
Camera self-calibration	Optimize internal camera parameters, such as focal length, principal point of autocollimation and lens distortions
Rolling shutter effect correction	Correct the warp of images taken with rolling shutter cameras (like GoPro, DJI Phantom 2 and 3, etc.) to maintain good accuracy, especially useful when flying fast and low.
Automatic Aerial Triangulation (AAT) and Bundle Block Adjustment (BBA)	Process with or without known camera exterior orientations: (x, y, z, omega, phi, kappa)
Automatic point cloud densification	Produce a dense and detailed 3D point cloud, which can be used as a basis for DSM and 3D mesh
Automatic point cloud filtering & smoothing	Use presets for point cloud filtering and smoothing options
Machine-learning point cloud classification	Automatically classify the RGB dense point cloud into five groups: ground, road surfaces, high vegetation, buildings and human-made objects
Automatic DTM/DEM extraction	Remove above-ground objects from DSM and create a bare-Earth model. For additional control, select and delete points manually in the rayCloud to improve DTM/DEM generation
Automatic brightness and color correction	Compensate automatically for change of brightness, luminosity and color balancing of images
Automatic outlier detection	Detect incorrectly-clicked MTPs/GCPs to reduce human errors
Quality Report	Assess the accuracy and quality of projects
Project merging and splitting	Combine multiple projects into one or split large projects into several for more efficient processing
Project area definition	Import (.shp) or draw specific areas to faster generate results inside specific boundaries
Targeted Feature Extraction	Give the number of features to find, getting more features in low-texture images to assist the reconstruction or less features for large-frame images to speed up processing
Multiprocessor CPU + GPU support	Increase the processing speed by leveraging the power of CPU cores and threads, as well as GPUs
RAYCLOUD EDITOR	
Project visualization	Assess quality of optimized camera positions, 3D point cloud and mesh
Navigation modes	View 3D point cloud and mesh in standard, trackball, or first person viewing modes
Scale Constraint	Accurately scale projects with no or imprecise geolocation by defining one/multiple distances
Orientation Constraint	Orientate projects with no or imprecise geolocation by defining directions of one/multiple axes
Ground control point (GCP) / Manual tie point (MTP) editing	Annotate and edit 2D and 3D ground control points (GCPs), check points and manual tie points with the highest accuracy, using both original images and 3D information at the same time
Project reoptimization	Reoptimize camera positions and/or rematch images based on GCPs and manual tie points to improve reconstruction of difficult areas
Image masking	Carve: Remove points from 3D point cloud and create filters based on image content.
	Mask: Clear the unwanted background in orthoplane results.
	Global Mask: Disregard objects which appear in all images, such as a drone leg or tripod which occluded the lens during all image acquisition.
Point cloud editing	Select, classify or delete points from the point cloud using various selection tools
Orthoplane creation	Define a plane to generate a DSM and orthomosaic from building facades, bridge piles, etc
Polyline and surface object creation	Annotate and measure polylines and surfaces in the point cloud.
	Accurately refine vertexes in multiple original images.
3D mesh and DSM editing	Annotate and create surfaces in the point cloud to flatten an area, or to fill up holes in the mesh and DSM caused by insufficient image content.
Fly-through animation	Create a virtual camera trajectory in 3D rayCloud viewer, play the animation in real-time, export the animation as a video (in mp4 and avi format) and the editable flightpath waypoints in .csv format

VOLUME MANAGER	Volume object creation	Annotate and measure volumes based on the DSM
	Volume object management	Import and export selected volume bases in .shp files to enable easy monitoring of stockpiles on site.
	Base adjustment	Adjust the reference base to fit different terrain and obtain accurate measurement.

MOSAIC EDITOR	Region editing	Create and edit regions on the orthomosaic, choose the best content from multiple underlying images and projection type to remove moving objects or artifacts
	Local blending	Edit only the desired portion of the orthomosaic, blend it in real-time and get the improved orthomosaic within minutes
	Planar or ortho projection selection	Select planar or ortho projection for each created region to remove artifacts

INDEX CALCULATOR	Reflectance map	Generate an accurate Reflectance map at the preferred resolution as a basis of index maps target
	Radiometric adjustment interface	Make the reflectance maps more reliable and accurate by correcting illumination effects using a radiometric
	Multiple region management	Improve your analysis by managing and visualizing index values per region
	Automatic NDVI map	Generate singleband and NDVI maps based on pre-defined formulas without user intervention
	Index formula editing	Create and save your own formulas choosing among each available input band and generate custom index maps
	Class management	Create a basis of your annotated vector map by segmenting the data into classes using statistical algorithms (equal spacing, equal area, Jenks)
	Prescription annotation	Match on-site scouts and observations by assigning annotations based on your decisions
	Prescription map export	Put your data into action and export the prescription map in .shp format

OUTPUT RESULTS	2D output results:	• Nadir orthomosaics in GeoTIFF output format • Orthomosaics from user-defined orthoplane in GeoTIFF output format • Google tiles export in .kml and .html output formats • Index maps (Thermal, DVI, NDVI, SAVI, etc.) in GeoTIFF and GeoJPG format • Prescription maps in .shp format
		• Nadir orthomosaics in GeoTIFF output format
	2.5D output results:	• Nadir DSMs and DTMs in GeoTIFF format • DSMs from user-defined orthoplane in GeoTIFF output format
		• Nadir DSMs in GeoTIFF format
	3D output results:	• 3D PDF for easy sharing of 3D mesh • Full 3D textured mesh in .obj, .ply, .dxf, and .fbx format • Tiled Level-of-detail (LoD) mesh in osgb and slpk (Esri) format • Point cloud in .las, .laz, .xyz and .ply output format • Contour lines in .shp, .dxf, .pdf format • User-defined vector objects in .dxf, .shp, .dgn and .kml format
		• Full 3D textured mesh in .obj and .fbx format • Point cloud in .las output format
	Generate fly-through animations and flightpaths	rayCloud view fly-through animation in .mp4 and .avi formats Fly-through waypoints and path in .csv format
	Optimized camera position, external orientation and internal parameters, undistorted images	Export Aerial Triangulation results into traditional photogrammetry software solutions (e.g. INPHO, Leica LPS, DAT/EM Summit Evolution)

COLLABORATION	Web share and visualization	Visualize 2D maps and 3D models using any web browser
		Instant measurement of distances and surfaces
		Share Projects with annotations via a simple link
		Embed project output in a webpage
		Real-time shading for digital surface model (DSM) visualization

MULTI-LINGUAL	Language Options	English, Spanish, Mandarin (zh-CH, zh-TW), Russian, German, French, Japanese, Italian and Korean

HARDWARE SPECS

CPU: (quad-core or hexa-core Intel i7/ Xeon recommended)

GPU: Compatible with OpenGL 3.2 (Ge-Force 2 GB RAM recommended)

HD: (SSD recommended)

OS: Windows 7, 8, 10 64 bits, Mac OS (Beta), Linux (Enterprise only)