Pix4Dbim
Desktop + Cloud processing / FEATURE LIST

	Features	Platform	Advantages
INPUTS	Aerial (nadir and oblique) and terrestrial imagery	Cloud, Desktop	Process images taken from any angle with from aerial or terrestrial, manned or unmanned platform
	Video (mp4 or avi format)	Desktop	Automatically extracts still frames from video files to create a project
	Any camera (compact, SLR, thermal, multispectral, GoPro, 360°, Tetracam, large-frame,etc.) images in .jpg or .tiff	Cloud, Desktop	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	Cloud, Desktop	Create a project using images from different cameras and process them together
	Camera rig support	Desktop	Process images using known rig relatives from multiple synchronized cameras
	Ground control point edit and import (.csv, .txt)	Desktop	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	Desktop	Select EPSG code from known coordinate systems or define your own local system
	Camera exterior orientation support	Cloud, Desktop	Optimize camera exterior orientation parameters starting from GPS and IMU input parameters
	External point cloud import	Desktop	Import a point cloud from different sources, such as LiDAR, and use it to create a DSM and orthomosaic
PROCESSING	Processing templates	Desktop	Automate processing and generation of outputs by using standard or customized templates
	Rapid Check with Quality Report	Desktop	Rapid processing template for a dataset quick check while still on site
	Camera self-calibration	Cloud, Desktop	Optimize internal camera parameters, such as focal length, principal point of autocollimation and lens distortions
	Rolling shutter effect correction	Desktop	Correct the warp of images taken with rolling shutter cameras (like GoPro, DJI Phantoms, etc.) to maintain accuracy, even when flying fast and low
	Automatic Aerial Triangulation (AAT) and Bundle Block Adjustment (BBA)	Cloud, Desktop	Process automatically with or without known camera exterior orientations: (x, y, z, w, f, k)
	Automatic point cloud densification	Cloud, Desktop	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	Cloud, Desktop	Use presets for point cloud filtering and smoothing options
	Machine-learning point cloud classification	Desktop	Automatically classify the RGB dense point cloud into five groups: ground, road surfaces, high vegetation, buildings and human-made objects
	Automatic DTM/DEM extraction	Desktop	Remove above-ground objects from DSM and create a bare-Earth model
	Automatic brightness and color correction	Cloud, Desktop	Compensate automatically for change of brightness, luminosity and color balancing of images
	Automatic outlier detection	Desktop	Detect and visualize incorrectly-clicked MTPs (Manual Tie Points)/GCPs (Ground Control Points)
	Quality Report	Cloud, Desktop	Assess the accuracy and quality of projects
	Project merging and splitting	Desktop	Combine multiple projects into one or split large projects into several for more efficient processing
	Project area definition	Desktop	Import (.shp) or draw specific areas to faster generate results inside specific boundaries
	Custom number of keypoints	Desktop	Set the number of keypoints to filter noise or speed up processing
	Multiprocessor CPU + GPU support	Desktop	Increase the processing speed by leveraging the power of CPU cores and threads, as well as GPUs
	Radiometric processing and calibration	Desktop	Calibrate and correct the image reflectance, taking the illumination and sensor influence into consideration
RAYCLOUD EDITOR	Project visualization	Desktop	Assess quality of optimized camera positions, 3D point cloud and mesh
	Navigation modes	Desktop	View 3D point cloud and mesh in standard, trackball, or first person viewing modes
	Scale Constraint	Desktop	Accurately scale projects with no or imprecise geolocation by defining one/multiple distances
	Orientation Constraint	Desktop	Orientate projects with no or imprecise geolocation by defining directions of one/multiple axes
	Ground control point (GCP) / Manual tie point (MTP) editing	Desktop	Annotate and edit 2D and 3D GCPs, check points, and MTPs with the highest accuracy, using both original images and 3D information at the same time
	Ellipsoid error visualization	Desktop	Visually assess the size of the error of the computed position of a GCP or MTP
	Project reoptimization	Desktop	Reoptimize camera positions and/or rematch images based on GCPs & MTPs to improve reconstruction
	Image masking	Desktop	Carve: Remove points from 3D point cloud and create filters based on image content
		Desktop	Mask: Clear the unwanted background in orthoplane results
		Desktop	Global Mask: Disregard objects that appear in all images, such as a drone leg or a tripod
	Point cloud editing	Desktop	Select, classify or delete points from the point cloud using various selection tools
	Orthoplane creation	Desktop	Define a plane to generate a DSM and orthomosaic from building facades, bridge piles, etc
	Polyline and surface object creation	Desktop	Annotate and measure polylines and surfaces in the point cloud
		Desktop	Accurately refine vertexes in multiple original images
	3D mesh and DSM editing	Desktop	Annotate & create surfaces in the point cloud to flatten an area or fill up holes in the mesh and DSM
	Fly-through animation	Desktop	Create a virtual camera trajectory, play the animation in real-time and export it

Desktop platform 　　 Cloud platform

Category	Feature	Platform	Description
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	Radiometric adjustment interface	🖥	Make the indices more reliable and accurate by correcting illumination effects using a radiometric target
	Reflectance map	🖥	Generate an accurate reflectance map at the preferred resolution as a basis of index maps
	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
	2.5D output results:	☁ 🖥	• Nadir DSMs and DTMs in GeoTIFF format
		🖥	• DSMs from user-defined orthoplane in GeoTIFF output 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 • Georeferenced annotations in .csv, GEOjson, and .shp format
	Fly-through animation and flighpaths	🖥	Export the animation in .mp4 and .avi formats and the 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)
MULTI-LINGUAL	Language Options	🖥	English, Spanish, Mandarin (zh-CH, zh-TW), Russian, German, French, Japanese, Italian and Korean
		☁	Create a virtual camera trajectory, play the animation in real-time and export it

🖥 Desktop platform   ☁ Cloud platform

Features	Advantages
PIX4D CLOUD PLATFORM **Result visualization** **Result analysis** **Project documentation** **Result sharing**	☁ View 2D maps and 3D models using any web browser
	☁ Visualize current and previous days data on an intuitive timeline
	☁ Measure distances and areas on 2D maps and 3D models
	☁ Annotate 2D maps and 3D models with polygons and location markers
	☁ Export annotations in .cvs, GeoJSON and Shapefile
	☁ Upload and overlay CAD drawings to compare as-built vs. as-design
	☁ Download and import data into CAD/BIM software
	☁ Share projects via a simple link
	☁ Embed project output in a webpage

🖥 **Desktop platform**   ☁ **Cloud platform**

HARDWARE SPECS

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

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

HD: SSD recommended

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

RAM: DDR4-2400 64 GB recommended

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