TOPCON

AGISOFT
PHOTOGRAMMETRIC KIT FOR TOPCON
POST-PROCESSING FOR UAS IMAGERY

Agisoft Photogrammetric Kit for Topcon Professional Edition

- Photogrammetric triangulation
- Dense point cloud editing and classification
- 3D model generation and texturing
- Digital terrain or surface model export
- Georeferenced orthomosaic export
- Multi-spectral imagery processing

Surveying and Mapping

Mapping and surveying has never been so easy: the AgiSoft Photogrammetric Kit for Topcon provides a simple, integrated workflow for Topcon Falcon 8 and Sirius Unmanned Aerial Systems. The software generates dense point clouds, textured polygonal models, georeferenced true orthomosaics and DSMs / DTMs from images taken during flights with the Topcon UAS.

Accurate, Detailed Results

The software is the ultimate companion for Topcon Sirius Pro: the combination of both delivers absolute accuracies down to 2-5 cm (depending on GSD) without the need for ground control points. Topcon Sirius Basic and Falcon 8 data can be optimized for high-accuracy using ground control points. Professional photogrammetrists have complete control over the results, with detailed accuracy reports being generated at the end of processing.

Mining and Quarrying

Highly accurate DEMs lay the grounds for precise area and volume measurements, both for excavations and piles. Multiple flights, performed at different moments, allow for volume-change tracking, soil erosion and glacier studies.

Precision Agriculture

Assessing crop health and stress levels are possible at a detail not available before. The software processes color infrared or multi-spectral imagery collected by a Topcon UAS into orthomosaics showing NDVI, related or even user-defined indices. Areas with different crop stress levels can be automatically indicated using contour lines; the ultimate input for variable rate farming equipment.

Open

The software delivers results in a multitude of formats. A Python API allows deep integration in specific workflows.

Advantages

- Highly accurate and detailed results
- Fully automated and intuitive workflow
- GPU acceleration for faster processing
- Network processing for large projects

Compatibility

- Optimal results for Falcon 8 and Sirius Pro/Basic
- Processes images from frame / fisheye / spherical cameras
- Exports results in widely supported formats
- Supports most EPSG coordinate systems
- Runs on Windows, Mac OS X, Linux

Capabilities

- Aerial and close-range triangulation
- Dense point cloud generation and classification
- True orthomosaic and DSM / DTM generation
- Orthomosaic seamline editing
- Elevation contour lines generation
- Georeferencing using flight log and / or GCPs
- Coded and non-coded targets auto detection
- Coordinate / distance / area / volume measurements
- Multispectral imagery processing and vegetation index calculation
- Polygonal model reconstruction and texturing
- Hierarchical tiled model generation and visualization
- 4D reconstruction for dynamic scenes
- Spherical panorama stitching
- Built-in Python scripting for job automation

Sparse and Dense Point Clouds
Wavefront OBJ (*.obj)
Stanford PLY (*.ply)
XYZ Point Cloud (*.txt)
Import not available ASPRS LAS (*.las)
ASTM E57 (*.e57)
Universal 3D (*.u3d)
potree (*.zip)
PhotoScan OC3 (*.oc3)
Adobe PDF (*.pdf)

Meshes
Wavefront OBJ (*.obj)
3DS models (*.3ds)
COLLADA (*.dae)
Stanford PLY (*.ply)
STL models (*.stl)
Autodesk DXF (*.dxf)
Autodesk FBX (*.fbx)
Universal 3D models (*.u3d)
VRML models (*.wrl)
Adobe PDF (*.pdf)

Textures
JPG
TIFF
PNG
BMP
OpenEXR
PGM
PPM

Selecting a PC

The following guidelines and proposed configurations will help to get an optimal user experience from Agisoft Photogrammetric Kit for Topcon.

RAM: In most cases the maximum project size that can be processed is limited by the amount of RAM available. Therefore it is important to select a platform that allows to install the required amount of RAM.

CPU: Complex geometry reconstruction algorithms need a lot of computational resources for processing. A high speed multi core CPU (3GHz+) is recommended.

GPU: The software supports OpenCL acceleration for dense cloud generation step (most time consuming one), so high-end OpenCL-compatible graphics card can speed up the processing.

Recommended Configurations

Basic – Single Falcon 8 and Sirius flights, medium quality mesh
- CPU: Quad-core Intel Core i7 CPU
- RAM: DDR3 or DDR4, 16-32GB
- GPU: NVIDIA GeForce GTX 780 or GeForce GTX 980 Ti

Advanced – Single Falcon 8 and Sirius flights, high quality mesh
- CPU: Six-core Intel Core i7 CPU
- RAM: DDR4-2133 or DDR3-1600, 32 – 128 GB
- GPU: NVIDIA GeForce GTX 780 Ti, GeForce GTX 980 Ti or GeForce GTX TITAN X

Professional – Sirius and Falcon 8 projects consisting of multiple flights, ultra-high quality mesh
- CPU: dual socket Intel Xeon Workstation
- RAM: DDR4-2133 or DDR3-1600, 128 – 256 GB
- GPU: Multiple NVIDIA GeForce GTX 980 Ti or GeForce GTX TITAN X

TOPCON