



3DF ZEPHYR

The Complete Photogrammetry Solution

ZEPHYR TECHNOLOGY

We have been developing our algorithms from scratch, improving them day after day
to provide you with the best 3D reconstruction experience

SAMANTHA

is our Structure from Motion technology to recover photos position and orientation automatically
without the need of any additional information. It is known in the scientific community as one of the most effective and advanced

STASIA

is our Multiview Stereo algorithm to extract very accurate dense point clouds from a set of 2D images by exploiting every single
pixel of the input images to generate the dense cloud

SASHA

is our technology for mesh extraction: given a dense point cloud it is important to preserve as much detail as possible when extracting the surface.
It allows to get sharp edges on a 3D model and that is why it is more suitable for those applications such as architecture, construction and reverse engineering.
The Out of Core algorithm allows to process huge datasets at a much lower memory footprint while granting a high level of detail for the mesh generation

TESSA

Our texture generation algorithm allows to automatically select and set the most suitable color for each pixel. Among the highlights:

- Color Balance optimization for each input pixel
- Multi-texture generation
- 16/32 bit texture generation
- Quad support for OBJ and FBX formats when re-importing a mesh for re-texturing

INPUT DATA

IMAGERY	automatically process any picture format (compressed and raw data) acquired by any terrestrial and aerial sensor
VIDEO	automatically extract video frames (avi - mp4 - mov - mpg - wmv formats) using the smart blurriness and similarity detection
PICTURE ACQUISITION	take pictures with different lenses and cameras and process them simultaneously thanks to the automatic camera calibration
MULTI-GPU SUPPORT	3DF Zephyr exploits more Nvidia graphic cards when available to speed up the computation time
POSITIONING DATA	import 2D coordinates of control points or GPS camera position constraints and assign your geographic coordinate system
CAMERA STATS	check the accuracy of the camera orientation phase and discard the pictures with high reprojection error values
CAMERA OPTIMIZATION	use the Bundle Adjustment to improve the accuracy of the camera orientation phase
PICTURES RE-ORIENTATION	run an additional orientation step including all the pictures previously discarded
ADD PHOTOS TOOL	integrate your work by adding pictures to an existing 3DF Zephyr project
CODED TARGETS	automatically detect coded targets placed on site and converted into control points after the Structure from Motion phase
PROJECTS MERGING	split large datasets and merge different 3DF Zephyr projects using control points, nearest cameras or reference system
CHANGE WORKSPACE IMAGES	create a 3D mesh using standard RGB images and then swap the corresponding NIR/thermal pictures before texturization
SHAPE FROM SILHOUETTE	a specific algorithm to reconstruct extremely reflective, semi-transparent or translucent surfaces
MODIFY CALIBRATION	working with known parameters? Import your own calibration settings (xml file)
IMPORT MENU	import any point cloud, mesh with custom UVs or drawing element (dxf, xml formats) from an external source

UTILITIES

3DF MASQUERADE	the standalone tool (included in all 3DF Zephyr versions) to create masks to pair with the images to be processed in 3DF Zephyr
MULTISPECTRAL IMAGERY	automatically detect multiband layers and choose the output band you desire (R, G, B, NIR, RE, NDVI) to generate an orthophoto
SPHERICAL PICTURES	deal with any 360° images by decomposing each panorama into 6 pinhole-like cameras
IMAGE QUALITY INDEX	sort your pictures according to their blurriness value, before or after initializing the processing
MANUAL CALIBRATION	generate your calibration file by taking at least ten pictures of a random on-screen pattern
CALIBRATION MANAGER	often on the go? Use this handy tool to store and retrieve camera calibrations from 3Dflow server
PRESET MANAGER	easily share and download 3DF Zephyr's presets from 3Dflow server
DSLR REMOTE SHOOTING	turn on your cameras, connect them to your pc and launch this utility to manage more cameras and shoots at a time
EXTRACT MPO FILES	using digital cameras with multiple stereoscopic lenses? Extract the Multi Picture Object format directly from 3DF Zephyr
IMAGE CONVERSION	convert input images to jpeg, tiff, and png formats, define the color space of your images or apply Gamma correction to them
BENCHMARK	measure the performance of your machine to figure out if it is suitable for running 3DF Zephyr
BIM MANAGER	synchronize laser scans and CAD drawings between 3DF Zephyr and Autodesk Revit
BATCH PROCESSING	run all the 3D reconstruction steps at once by setting up every single phase and related presets of Zephyr's workflow
DEM VIEWER	explore your DTMs and DSMs directly inside 3DF Zephyr and set your colormap to export them in picture formats (png, jpg, bmp)
HARDWARE SUPPORT	take advantage of the stereo monitor and the 3D mouse support in 3DF Zephyr to enhance your photogrammetry experience

EDITING

BOUNDING BOX	define the volume of what you want to be reconstructed and filter out your points and polygons to streamline the computation
SELECTION TOOLS	rectangular, polygonal, elliptic and lasso selection, add/remove invert selection
SELECTION BY PLANE	select points or polygons by setting a plane position and virtually slicing the point cloud/mesh
SELECTION BY COLOR	select on dense point clouds all points of a given RGB value
FILTER SELECTED ITEMS	apply either smoothing or retopology filters to a selected portion of a mesh
SELECTION BY POINTS	select all the points that meet certain criteria such as the reprojection error or the number of viewing cameras
VERTICAL AXIS DEFINITION	set the Z axis by choosing among three different ways (two vertical points, horizontal plane, two axes of the reference system)
NEW LAYER VIA CUT/COPY	create a new object in the workspace by making a cut or copy of the current selection
CONFIDENCE ANALYSIS	detect dense cloud areas covered by more (red points) or fewer pictures (blue points). Then apply your selection
DECIMATION	simplify your 3D model geometry choosing between six different algorithms
SMOOTHING FILTERS	keep sharper edges and reduce noise at the same time when smoothing your 3D models
HOLES FILLING	Watertight and Selective options. The first one fulfills more complex cases whereas the Selective filter provides a blazing fast result
MESH RETOPOLGY	simplify and generate a tidy mesh with more uniform triangles where possible
MESH SLICING	slice your meshes with a plane or with the bounding box
PHOTOCONSISTENCY	this mesh optimization algorithm increases and highlights every single detail of a 3D surface

LASER SCANNING

NATIVE FORMAT SUPPORT	manage native laser scanning file formats (Faro, Riegl, Zoller + Fröhlich, Stonex, Dot Product)
STANDARD INPUT	directly import and process any point cloud format (ply, pts, ptx, las, E57, xyz, txt)
3DF SCARLET	register laser scans picking among different tools: control points, gizmo 3D, automatic registration and ICP algorithm
MULTI-ICP OPTIMIZATION	import huge data quickly and accurately register more laser scans
PHOTO INTEGRATION	combine laser scan data with photos to get high quality textured meshes
BUBBLE VIEW SUPPORT	enable bubble view visualization to draw CAD elements and measure directly on them
SCAN COLORING	take advantage of the information provided by either the bubble views or the workspace cameras to colorize your laser scans
SCAN-TO-MESH	make your laser scans structured to run the mesh generation step and the texturization as well
MEASURING TOOLS	perform precise measurements of distances, volumes, angles, and surface areas
EDITING TOOLS	select and edit laser scan points using various selection tools and cleanup filters
SCAN-TO-ORTHOPHOTO	generate orthophotos starting from your laser scan data, by defining a plane (control points) or setting a reference axis
SCAN-TO-CAD	extract drawing elements from laser scan bubble views and export them in dxf, shp, and txt formats
ANALYSIS REPORT	assess the registration accuracy among laser scans by using the point cloud comparison tool
SCAN-TO-BLUEPRINT	extract CAD plans from laser scans through the automatic plane recognition algorithm
SCANS COMPARISON	assess the precision of the laser scan registration

MEASURING TOOLS

CONTROL POINTS	place control points on the 3D model or add them from images to scale your project
2D COORDINATES	import control points 2D positions before or after data processing to add more control points at once and save time
3D COORDINATES	import camera position constraints in the Exif data to get an accurately-scaled result right after the Structure from Motion phase
CONTROL POINT EDITING	rename, modify or refine your control points placement by adjusting their own global and local reprojection error
GPS/RTK DATA	load your GPS/RTK information from the Exif data before processing or link them to the control points you have already placed
SCALE WITH DISTANCES	scale your 3D model by applying at least two control points and setting at least one control distance
CONSTRAINT vs CONTROL	constraints are the coordinates you are confident (of their accuracy) the most. Control points are meant to be an additional reference to keep the scaling process monitored rather than directly affecting it in terms of accuracy
BUNDLE ADJUSTMENT OPTIMIZATION	assign a confidence weight to your constraints and optimize the accuracy of the camera orientation phase. It is highly recommended while dealing with low-quality datasets
3D MODEL DATA	place your control points, calculate any distances and define different angles and areas on your 3D model
VOLUME CALCULATION	perform volume measurements of your 3D model and compare volume differences across the time of the same scene/object
VOLUME AFTER PROJECTION	a suitable tool for stockpile calculation in mining, mapping, and agriculture scenarios
HOLLOW VOLUME	this calculation is meant to be applied in the industrial survey when data are acquired from the inside of a certain object/scene
GEOREFERENCING PROCESS	set and change a coordinate reference system of your project whenever you need it to be georeferenced, or let 3DF Zephyr to automatically detect the right projection for your input data. Support for custom geoids is included
GROUND EXTRACTION	automatically extract the ground terrain from a mesh using this cloth simulation filtering (CSF) algorithm

OUTPUT

ORTHOPHOTO	- generate your orthophotos from sparse points, dense cloud/scan or mesh (true orthophoto) - define at least three control points to identify a plane, set a reference system axis or pick the current view of the rendering window - Autocad script file option to export scaled orthophoto - tiles generation when dealing with huge datasets - export formats available: GeoTIFF, png, jpg, bmp, KML
DSM & DTM	generate DSMs and DTMs with 3DF Zephyr and open or modify them directly inside the software thanks to the DEM viewer
ELEVATION PROFILE	draw your elevation profiles directly on DSM and export them in dxf, svg, and pdf format
VIDEO ANIMATION	create video animations of your own 3D models directly from the 3DF Zephyr interface and export them to .avi and .mp4 format
SECTIONS & CONTOUR LINES	create single, multiple sections, contour lines or define track section along control points. Edit them using the CAD toolkit in 3DF Zephyr and export them in dxf, shp, and txt format
MULTISPECTRAL OUTPUT	generate your index map (NDVI, DVI, SAVI, R, G, B, NIR, RE) and export them in GeoTIFF format
FREE-HAND DRAWING	perform free-hand drawing on your 3D models and export your drawings as vector polylines and splines
POLYLINES EXTRACTION	run the polylines extraction by manually or automatically drawing polylines on pictures to get a 3D wireframe
SURFACES EXTRACTION	generate CAD plans automatically or create surfaces from control points or drawing elements
CAMERA & POINT EXPORT	export internal and external camera parameters, projection matrices, undistorted images, and your sparse point cloud
DENSE CLOUD EXPORT	export your dense point clouds in ply - xyz - txt - las - pts - ptx and e57 format
MESH EXPORT	obj, stl, fbx, ply, pdf 3D, u3D, dae (Collada) file formats, and LOD meshes (kmz, osgb, ive) plus the direct upload to Sketchfab
STATS AND REPORT	generate and export your 3DF Zephyr project report in pdf format, including every single detail of your 3D reconstruction

SUPPORTED INPUT DATA



Lidar - UAV



TIS



Cameras



Videos



Multiband



Spherical

HARDWARE SPECS



CPU: Quad-core Intel or AMD



OS: Windows 10/8.1/8/7/Vista 64 bit



GPU: NVIDIA card with 2GB of RAM
and Cuda Capabilities > 2.0



RAM: 16GB
HD: 20GB free HDD Space – SSD drive

LANGUAGE OPTIONS

English, Italian, German, Spanish, Chinese, Japanese, Korean, French, Turkish

INDUSTRIES

Mapping, Mining, Construction, Agriculture, Architecture, Archaeology, Gaming, Health & Care

ZEPHYR VERSIONS

3DF Zephyr Free, 3DF Zephyr Lite, 3DF Zephyr, 3DF Zephyr Education, FlowEngine (SDK)

3DF ZEPHYR EDUCATION

3DF Zephyr Education is a specific edition for teachers and students: same features, different license

With 3DF Zephyr Education commercial purposes are not allowed, while teaching, students project or thesis are strongly encouraged

Universities, schools and private schools can get a free license as well for the teacher when the course focuses on Zephyr usage.

Universities laboratories, schools laboratories and researchers can get a substantial discount to purchase 3DF Zephyr when not used in a teaching course: 3DF Zephyr Education can be purchased as low as 1200€ + VAT

Students and teachers can get time-limited licenses completely for free

Temporary licenses can last up to three months and are constrained to a specific class

Time extension can be discussed on a case by case scenario

Temporary licenses for students and teachers are provided with active Education keys only

Do you need 3DF Zephyr to be installed on multiple computers at the same time (e.g. laboratory scenario)?

Contact us at support@3dflow.net to get our best offer!

PRICING PLANS

FREE

Free

Full 3D reconstruction

50 photos limit

Single NVIDIA GPU support

Basic exporting capabilities

Basic editing tools

LITE

€149.00 + vat

Full 3D reconstruction

500 photos limit

Dual NVIDIA GPU support

Basic exporting capabilities

Basic editing tools

SUBSCRIPTION

€250.00 + vat / month

Full 3D reconstruction

Unlimited images

Full NVIDIA GPU support

Full exporting capabilities

Advanced editing tools

Control points & measurements

Laser Scan support

GIS, CAD & Survey Tools

PERPETUAL

€3900.00 + vat

Full 3D reconstruction

Unlimited images

Full NVIDIA GPU support

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