



LIDAR360 SUITE

Point Cloud Post-Processing Software



GreenValley International

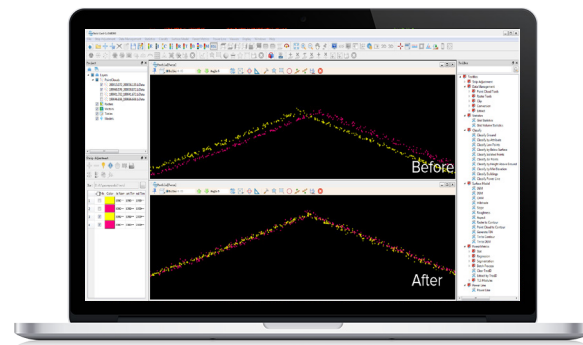
LiDAR360

Point Cloud Post-Processing Software

LiDAR360 is a comprehensive point cloud post-processing software which includes a variety of toolsets to efficiently visualize, manipulate and generate meaningful geospatial products from point cloud data.

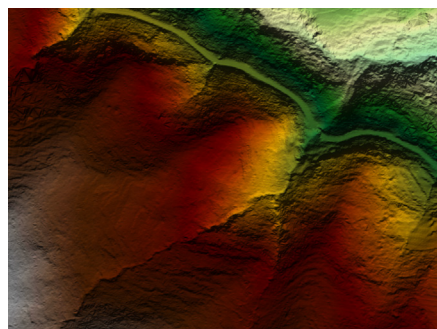
Framework

The LiDAR360 Framework lays the foundation for the entire software suite. With TB-level processing power, the Framework contains tools required for effectively interacting and manipulating LiDAR point cloud data. Functions include data management, automatic strip alignment and point cloud classification. It also allows users to upgrade to application specific modules such as terrain, ALS/TLS forestry and geological analysis.

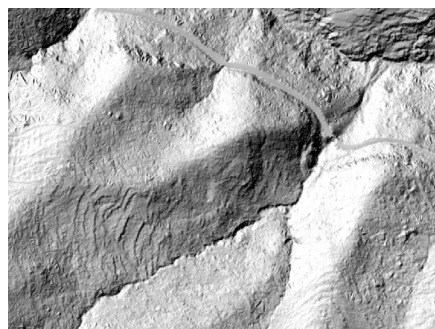


Terrain

The terrain model provides a series of automatic and manual-editing tools for classifying ground points from LiDAR point clouds. It also provides a set of GIS tools for interpolating surface models (e.g., digital elevation model/DEM, digital surface model/DSM), and visualizing and editing them in 3D. Additionally, it contains tools for repairing surface models from spikes and holes. Furthermore, It allows users to analyze the terrain model to generate derivatives from the surface models, e.g. slope, aspect, and roughness.



DEM



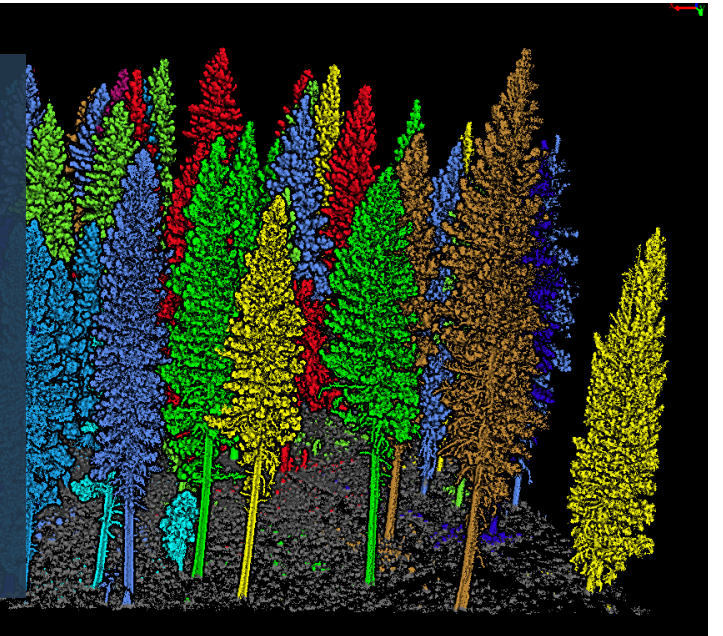
Hillshade



Contour Lines

ALS/TLS Forestry

The forestry module contains tools to process point cloud data acquired from aerial laser scanning (ALS) systems (e.g., LiAir, LiEagle), terrestrial laser scanning (TLS) systems (e.g., LiBackpack), and mobile laser scanning systems (e.g., LiMobile). This module provides effective individual tree segmentation and editing tools for all kinds of point cloud data.



— Individual Tree Segmentation

Segment individual trees based on point cloud from both aerial and terrestrial LiDAR systems. Supports both CHM-based and point cloud based segmentation algorithms.

— Forest Metrics

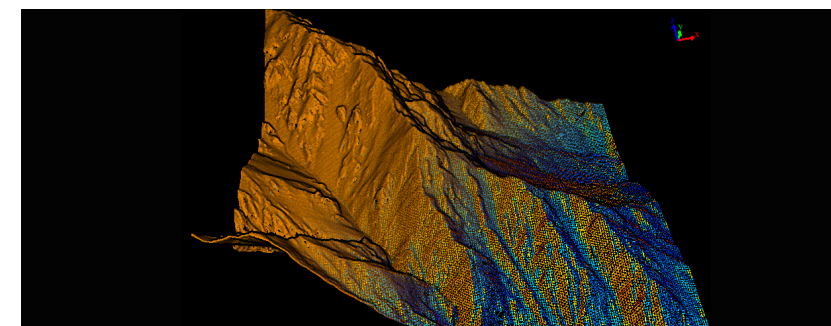
Automatically calculate forest metrics including elevation, intensity, canopy cover, LAI, etc., and provide regression tools to derive parameters of forests that cannot be directly extracted from LiDAR point clouds, such as biomass and stem volume.

— Tree Parameters Extraction

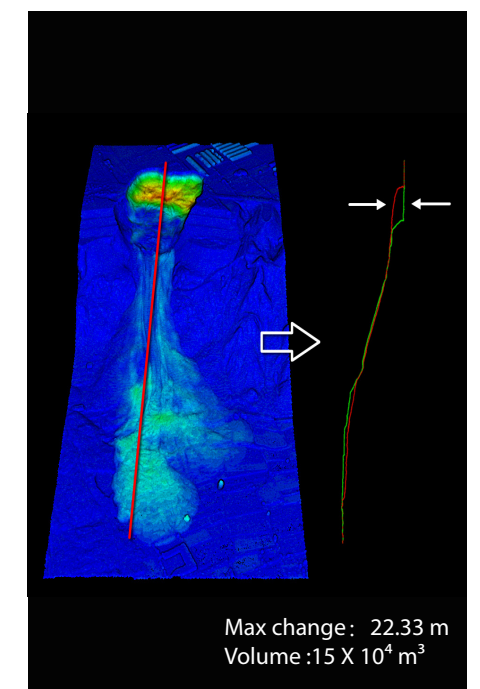
Automatically calculate individual tree parameters based on the segmented point cloud including tree location, tree height, diameter at breast height (DBH), crown area, crown diameter, crown area and so on.

Geological Analysis

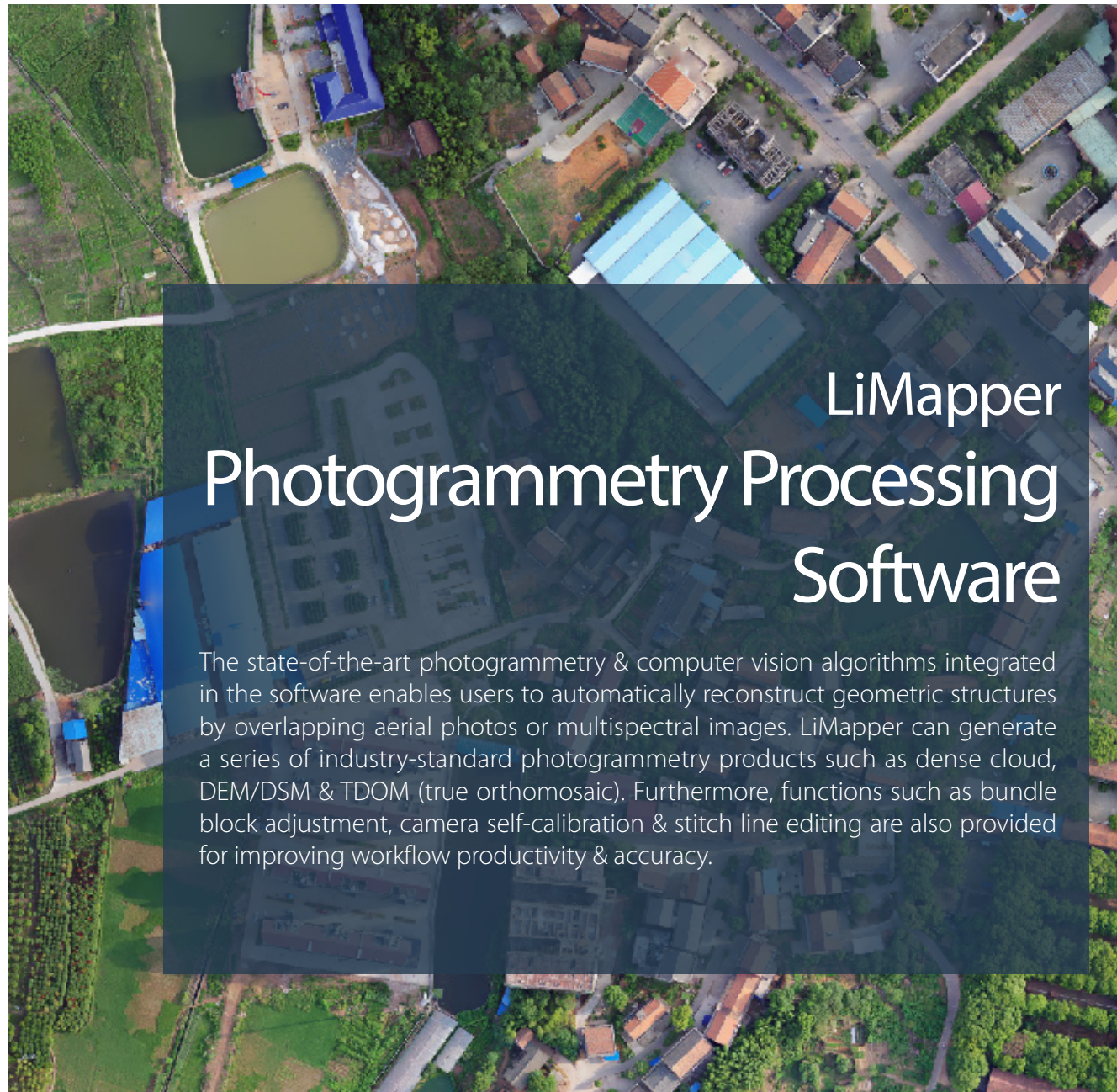
Based on the results from terrain module, the geological analysis module provides the toolsets with the function of structural plane analysis, section analysis, and landslide analysis for the geological industry. Moreover, the software can automatically generate the analysis report.



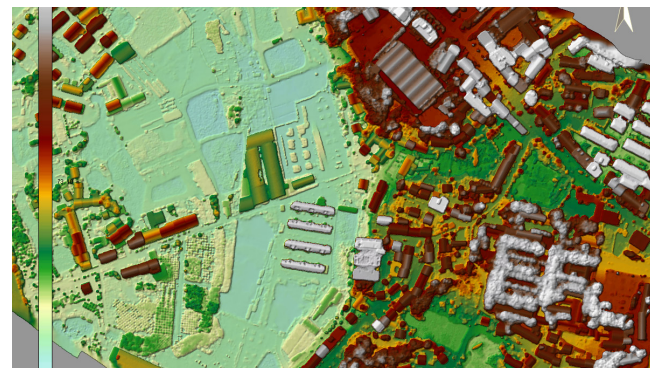
Rock Discontinuity Structural Plane



Landslide Hazard Analysis



Dense Point Cloud

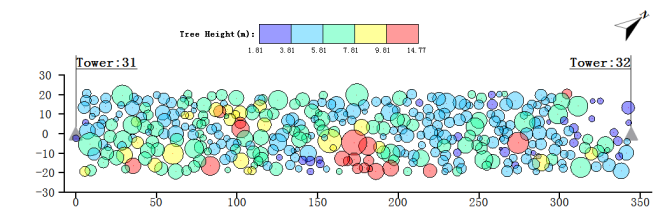
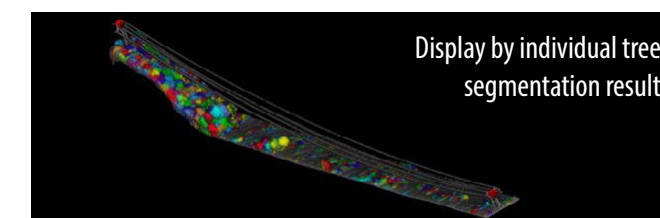
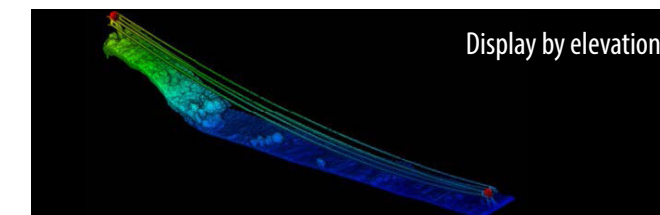


Stitching Line

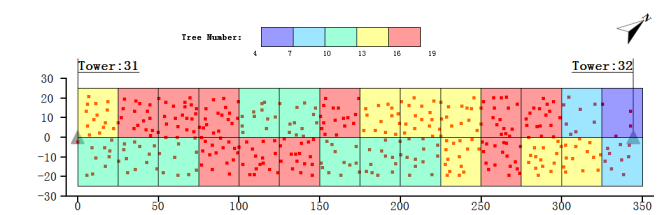
LiPowerline

Point Cloud Processing Software for Power Line Surveying & Analysis

LiPowerline offers a complete and intuitive solution for power line inspection from LiDAR point clouds. It includes a powerful toolset for automatically classifying power lines, towers and vegetation, manually augmenting the classification results, and effectively detecting a range of user-defined danger points (e.g., vegetation overgrowth and tree fall). It's built-in reporting function allows users to quickly generate detailed project reports and export inspection results to KML file format.



Trees along the power line corridor can be visualized and represented according to specific attributes. The center of each circle represents an individual tree. The radius of the circle represents the crown size of that tree and the color represents the tree height according to the color ramp.



Each cell within the density distribution map is colored according to tree density. Through the tree density map and tree height map, users can clearly understand the growth distribution of all trees and the suspected danger points can be quickly determined.

— Classification

Automatically classify towers, power lines & vegetation using self-developed machine learning algorithms. Provides 2D & 3D profile editing tools to assist point cloud classification.

— Highly Efficient & Stable

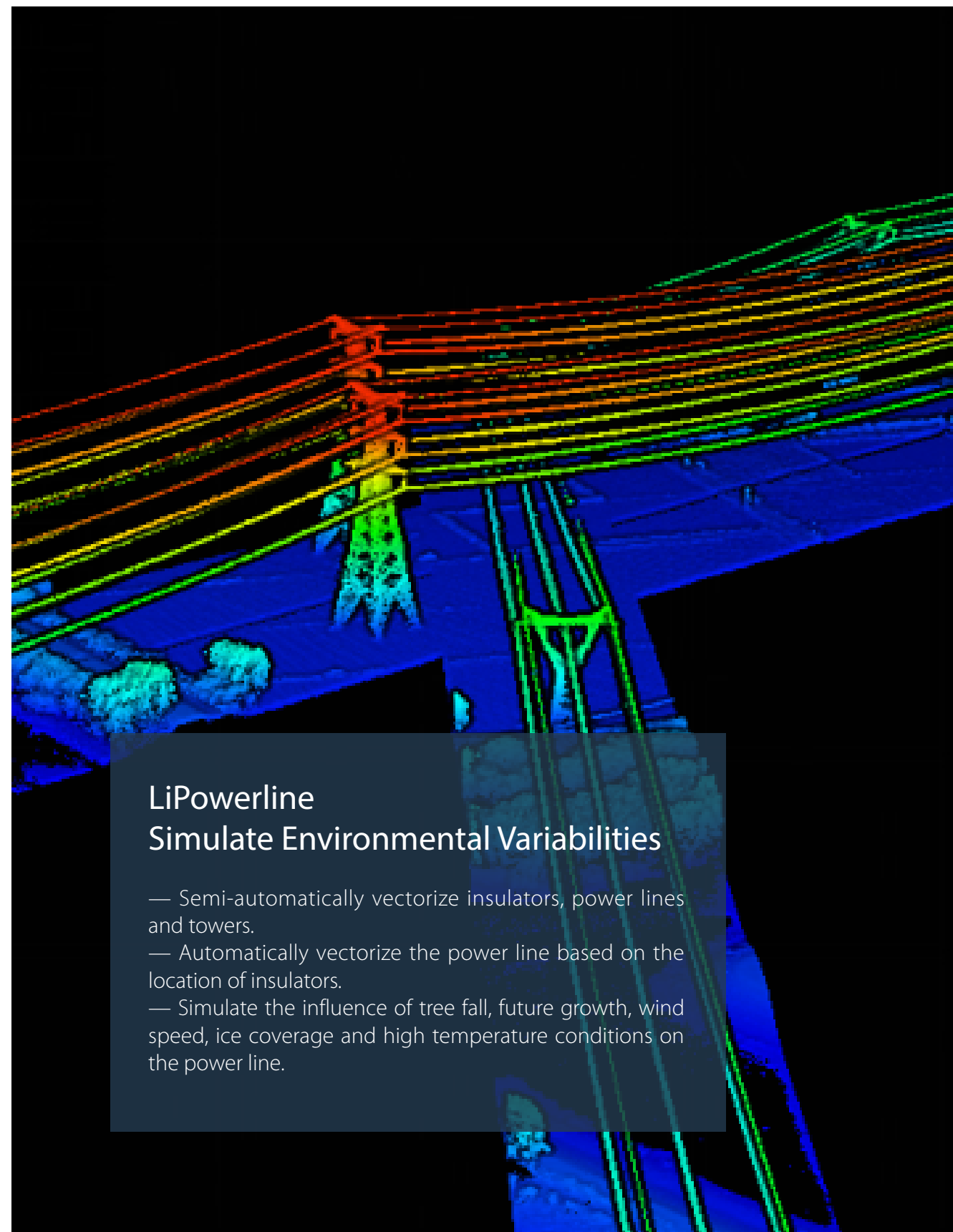
Has been used to process the LiDAR data for over 10,000 km power lines in total. Can process the LiDAR data of 150 km power lines per day.

— Real-Time Working Conditions Analysis

Use individual tree segmentation by section to extract danger points along power lines. Detect tree information such as location, height, crown size, etc. Generate tree height distribution and density maps.

— Simulate and Predict Environmental Variabilities

Vectorize the real-world working conditions & simulate the potential working conditions under the influence of different environmental scenarios (e.g., tree fall, future growth, strong wind, ice coverage & high temperatures).



LiPowerline Simulate Environmental Variabilities

- Semi-automatically vectorize insulators, power lines and towers.
- Automatically vectorize the power line based on the location of insulators.
- Simulate the influence of tree fall, future growth, wind speed, ice coverage and high temperature conditions on the power line.

LiGeoreference Georefencing Software

LiGeoreference is a proprietary software which allows users to convert range measurements and POS information from mobile, UAV or airborne laser scanning systems to georeferenced coordinates. The software provides flexible solutions for generating 3D point clouds in LAS or LiData formats with LiDAR returns mapped to a user-specified datum (e.g., WGS 1984) and/or projection system (e.g. UTM). LiGeoreference also provides data fusion tools to assign LiDAR points with color information based on the color imagery integrated on the laser scanning system. Laser scanners from multiple providers, such as Riegl and Velodyne, are supported.



— Operational Versatility

Automatically calculate georeferenced coordinates of LiDAR point cloud from mobile, UAV or airborne laser scanning systems.

— Outputs

Supports the output of both geographic coordinates and projected coordinates.

— Fuse LiDAR & Imagery Data

Fuse LiDAR point clouds with RGB imagery to assigned color information to each LiDAR point.

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