

LiDAR360 Suite

Point Cloud Post-Processing Software

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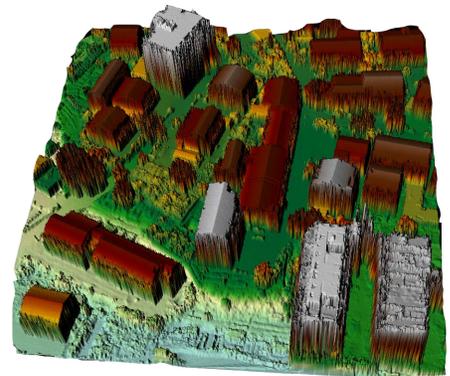
LiDAR360 is a comprehensive point cloud post-processing software which includes a variety of toolsets to efficiently visualize, manipulate and generate meaningful geospatial products from point cloud data.

Framework

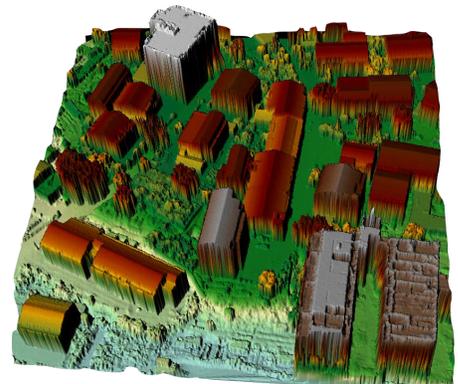
The LiDAR360 Framework lays the foundation for the entire software suite. With TB-level processing power, the Framework contains tools required for effectively interacting and manipulating LiDAR point cloud data. Functions include data management, automatic strip adjustment and classification. It also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

Terrain

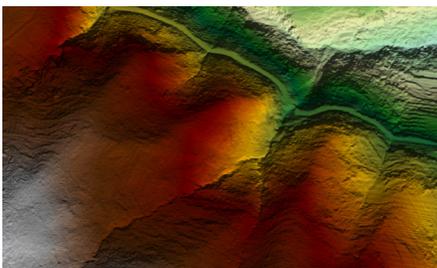
The Terrain module provides a suite of GIS tools for generating surface models and calculating slope, roughness, aspect & contour lines from surface models. Additionally, it contains tools for repairing surface models from spikes and holes.



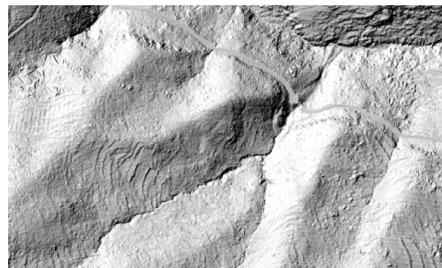
Normal DSM



Spike-free DSM



DEM



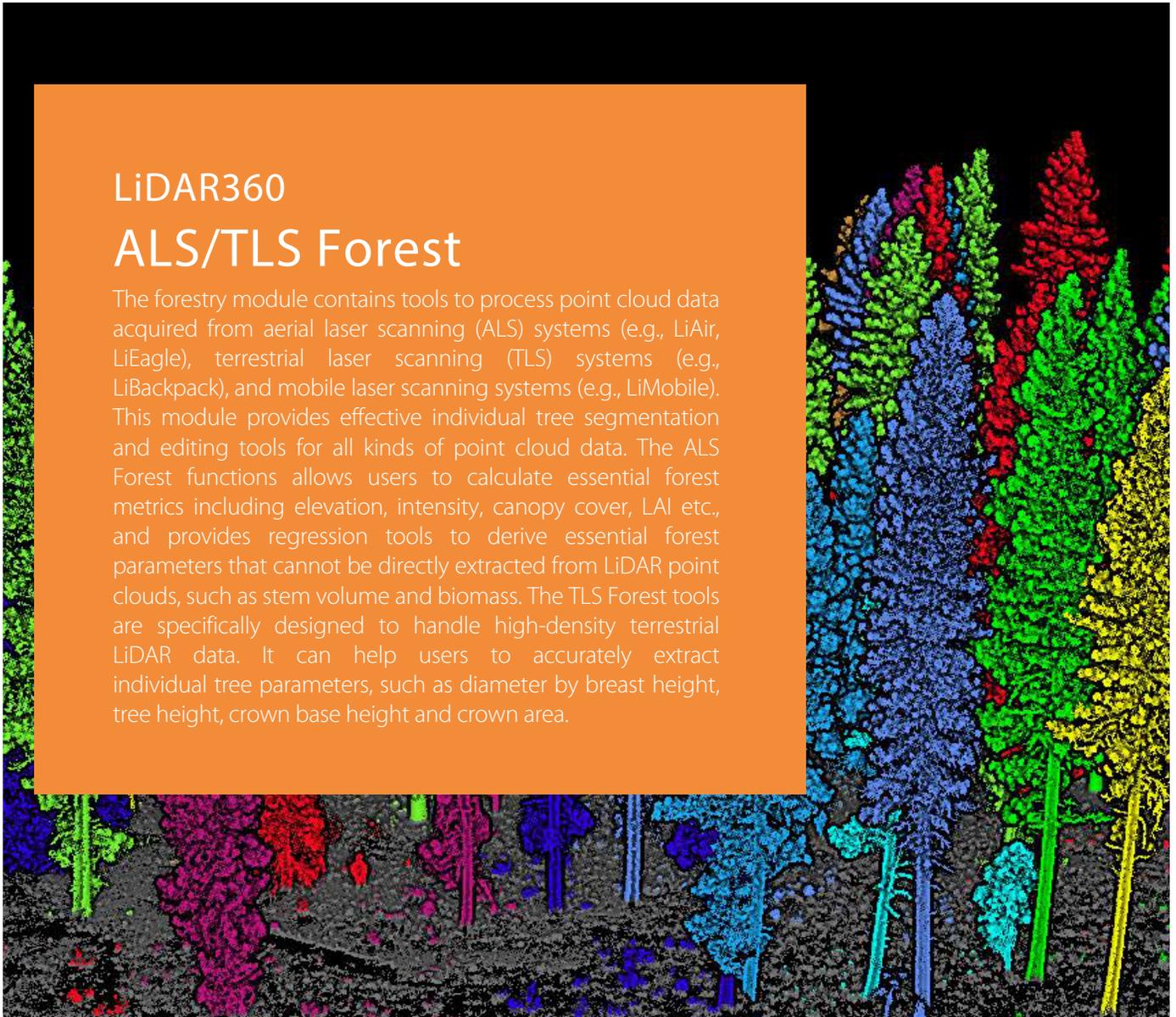
Hillshade



Contour Lines

LiDAR360 ALS/TLS Forest

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. The ALS Forest functions allows users to calculate essential forest metrics including elevation, intensity, canopy cover, LAI etc., and provides regression tools to derive essential forest parameters that cannot be directly extracted from LiDAR point clouds, such as stem volume and biomass. The TLS Forest tools are specifically designed to handle high-density terrestrial LiDAR data. It can help users to accurately extract individual tree parameters, such as diameter by breast height, tree height, crown base height and crown area.



Individual Tree Segmentation

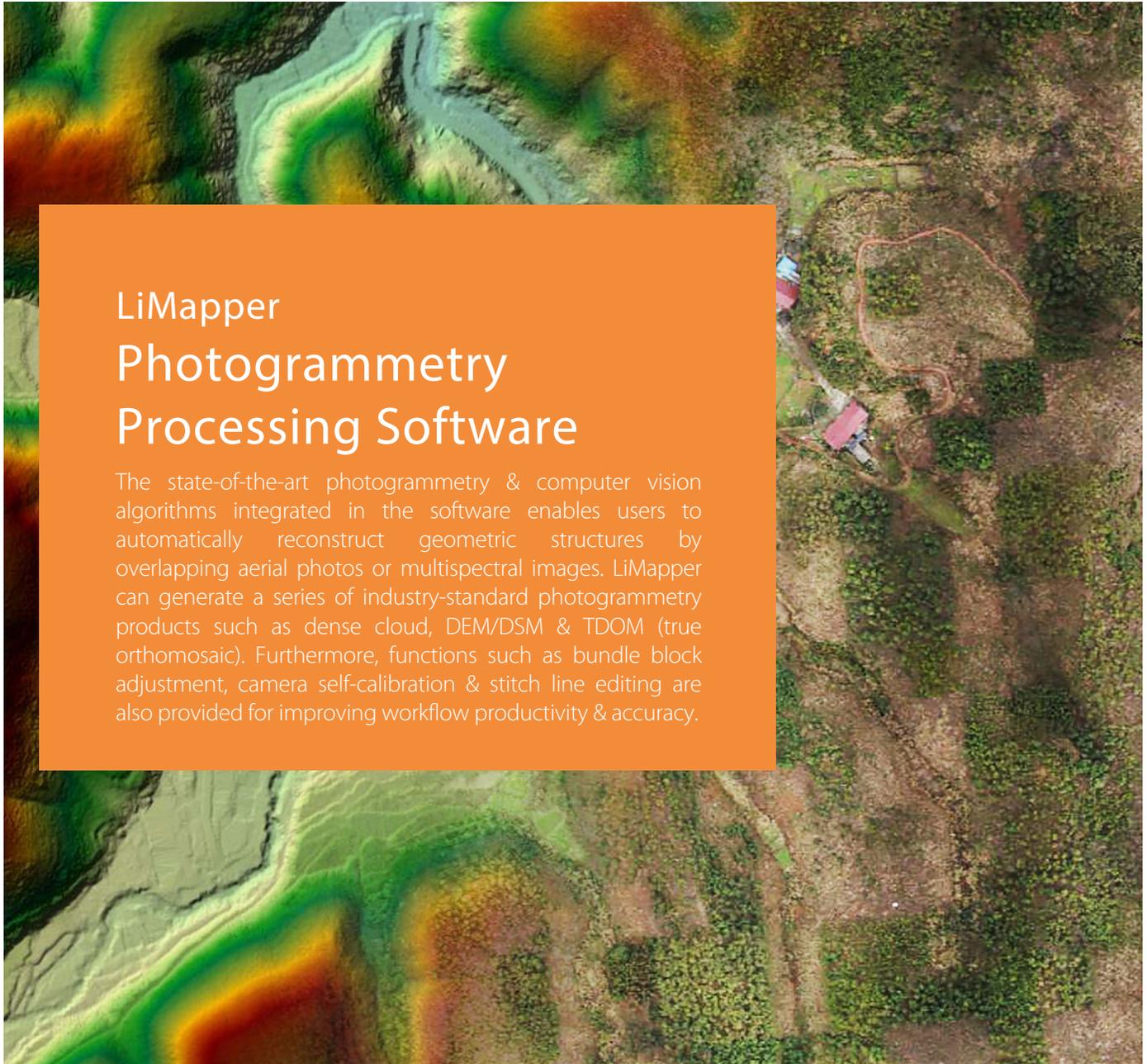
Segment individual trees based on point cloud from both aerial and terrestrial LiDAR systems. Supports both CHM-based and point cloud-based segmentation algorithms.

Batch Processing

Design, save and execute workflows that can be reused to automatically extract individual tree-level or forest stand-level inventory metrics from point cloud stacks.

Tree Parameters Extraction

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



LiMapper Photogrammetry Processing Software

The state-of-the-art photogrammetry & computer vision algorithms integrated in the software enables users to automatically reconstruct geometric structures by overlapping aerial photos or multispectral images. LiMapper can generate a series of industry-standard photogrammetry products such as dense cloud, DEM/DSM & TDOM (true orthomosaic). Furthermore, functions such as bundle block adjustment, camera self-calibration & stitch line editing are also provided for improving workflow productivity & accuracy.



Dense 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.

Classification

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

Real-Time Working Conditions Analysis

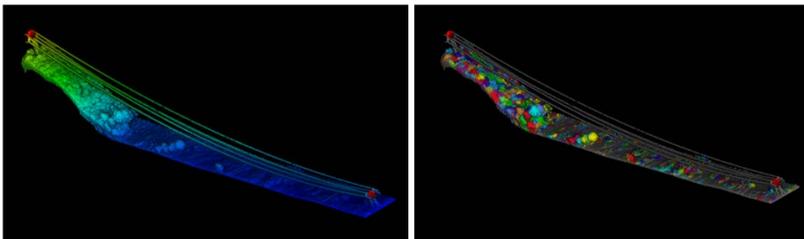
Use individual tree segmentation by section to extract danger points along power lines. Detect tree information such as location, height, crown size, etc. Generate tree height distribution and density maps.

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.

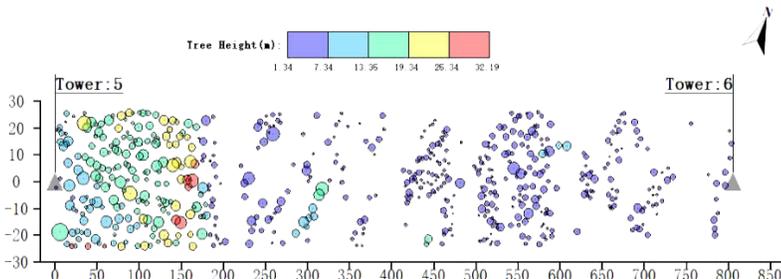
Simulate and Predict Environmental Variabilities

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).

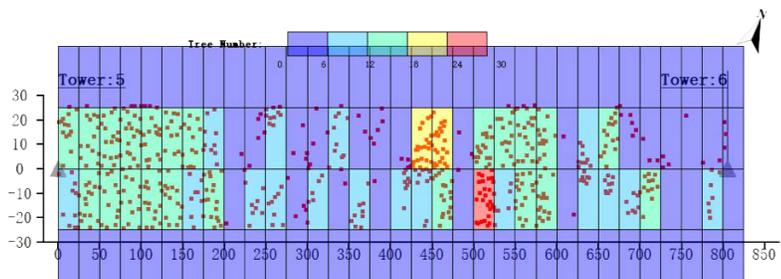


Display by elevation

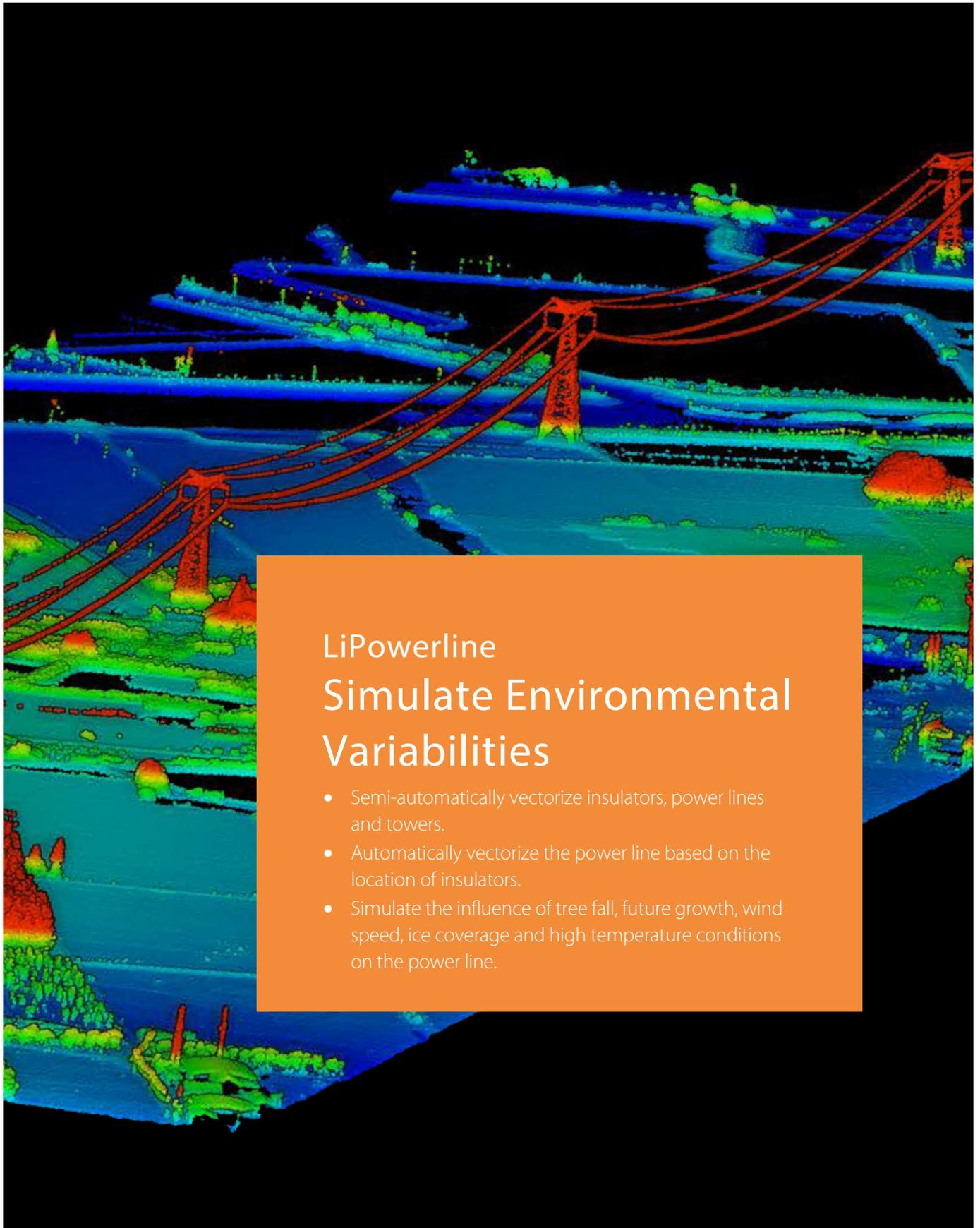
Display by individual tree segmentation result



Trees along the power line corridor may 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.

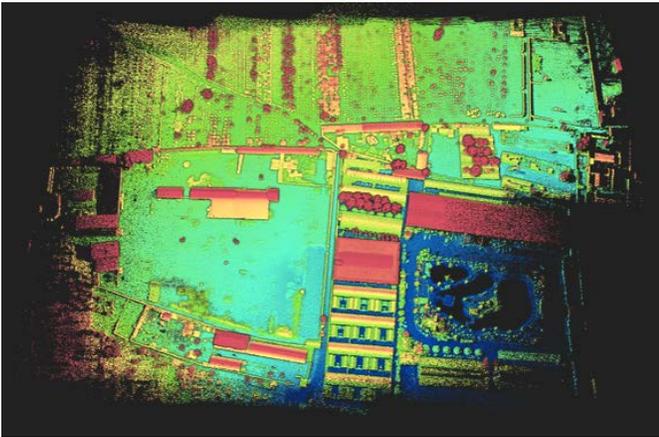


LiPowerline Simulate Environmental Variabilities

- 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

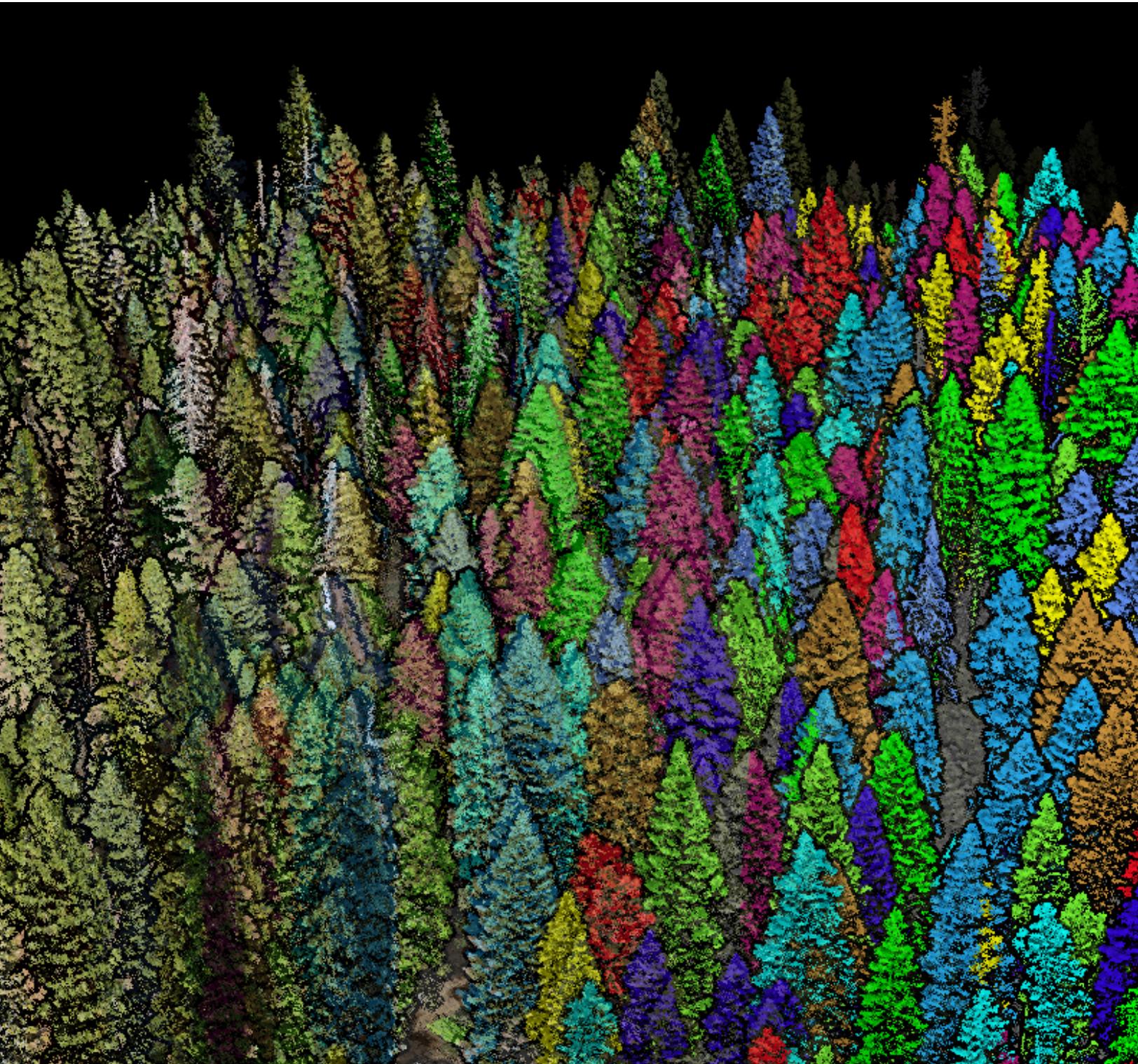
Automatically calculate georeferenced coordinates of LiDAR point cloud from mobile, UAV or airborne laser scanning systems.

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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