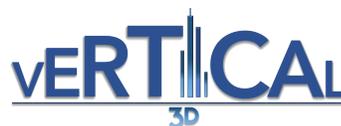


LiPowerline

Point Cloud Processing Software for Power Line Inspection & Analysis



www.vertical-3d.com
contact@vertical-3d.com

07 67 89 20 34

LiPowerline

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.

Software Features

Highly efficient and 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

Classification

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

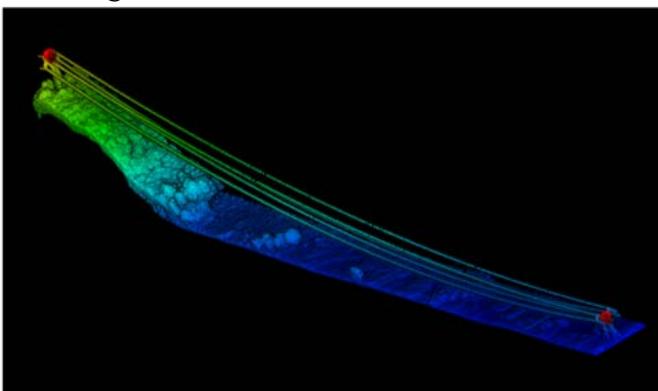
Real-Time Working Conditions Analysis

- Individual tree segmentation by sections
- Extract danger points along power lines
- Detect tree information such as location, location, height, crown size, etc.
- Generate tree height distribution and density map

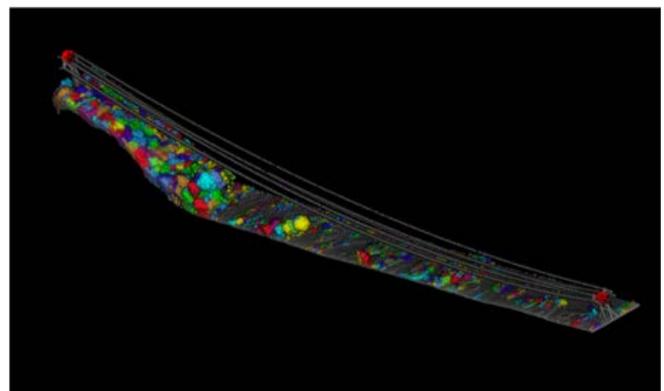
Simulate & Predict Environmental Variabilities

- 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 power line safety

Tree Segmentation



Display by Elevation

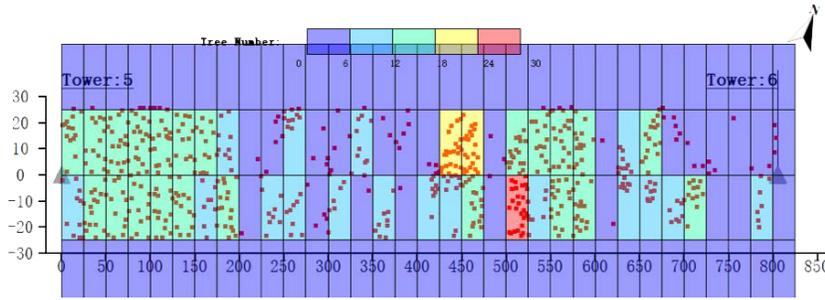
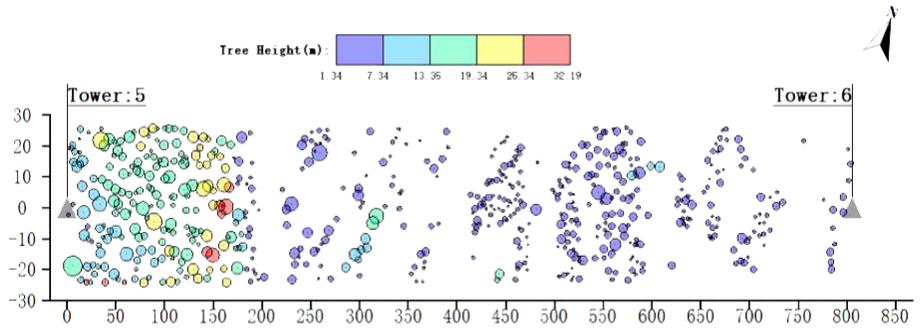


Display by individual tree segmentation result

Individual tree segmentations allows users to identify the location (treeID), height, crown area, crown diameter of overgrown trees. Above, is a visual comparison between a section of the corridor displayed by elevation and by the individual tree segmentation result, respectively.

TreeID	TreeLocationX	TreeLocationY	TreeHeight	CrownDiameter	CrownArea	TreeLocationZ
1			2.065	3.275	8.422	
2			1.978	4.7	17.352	
3			2.275	4.636	16.879	
4			2.312	9.359	68.797	
5			3.235	3.66	10.523	
6			1.696	3.136	7.723	
7			2.033	5.975	28.043	
8			2.294	6.861	36.977	
9			2.721	3.71	10.809	
10			2.075	4.726	17.539	
11			2.761	2.229	3.902	
12			2.536	2.571	5.191	

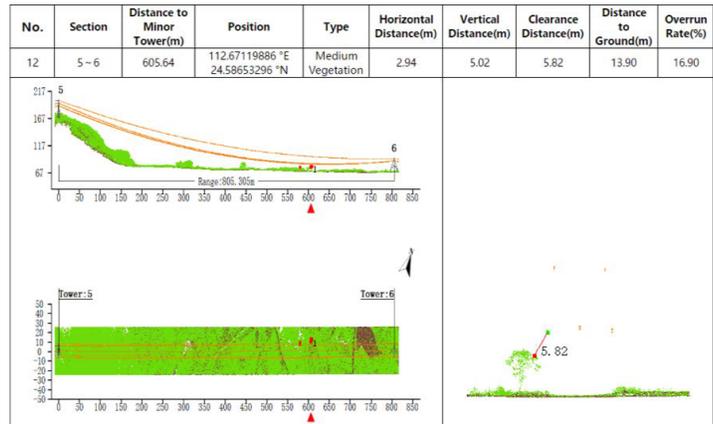
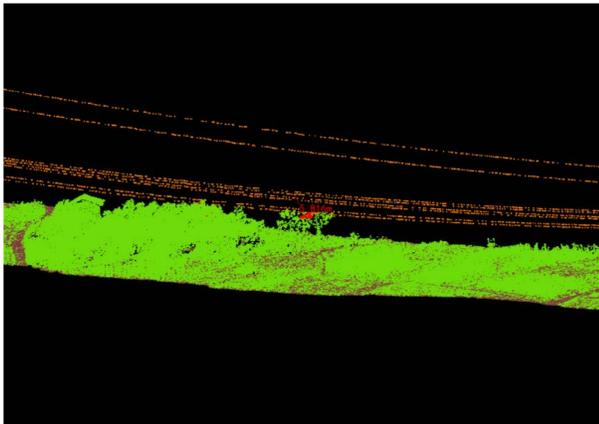
Trees along the power line corridor may be visualized and represented according to specific attributes. The center of each circle represents an individual tree. The radius of the circle represents the crown size of that tree and the color represents the tree height according to the color ramp.



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.

Real-Time Working Condition Analysis

Identify the position of danger points such as vegetation overgrowth and analyze the spatial attributes for each potential danger point.



Simulate & Predict Environmental Variabilities

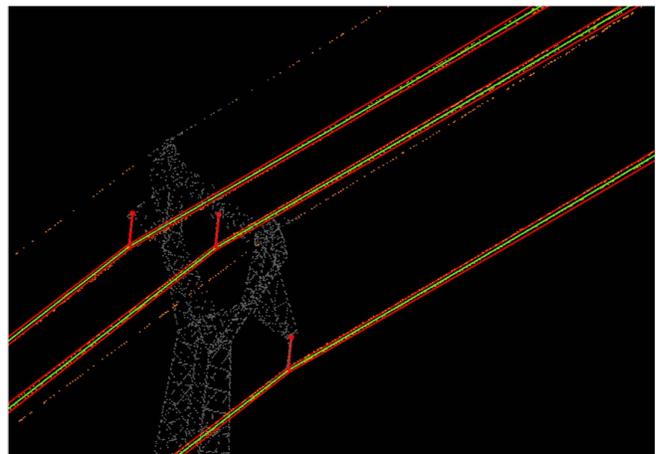
Vectorize the real-world working conditions & simulate the potential working conditions under the influence of different environmental scenarios (e.g., tree fall, future growth, strong wind, ice coverage & high temperatures).

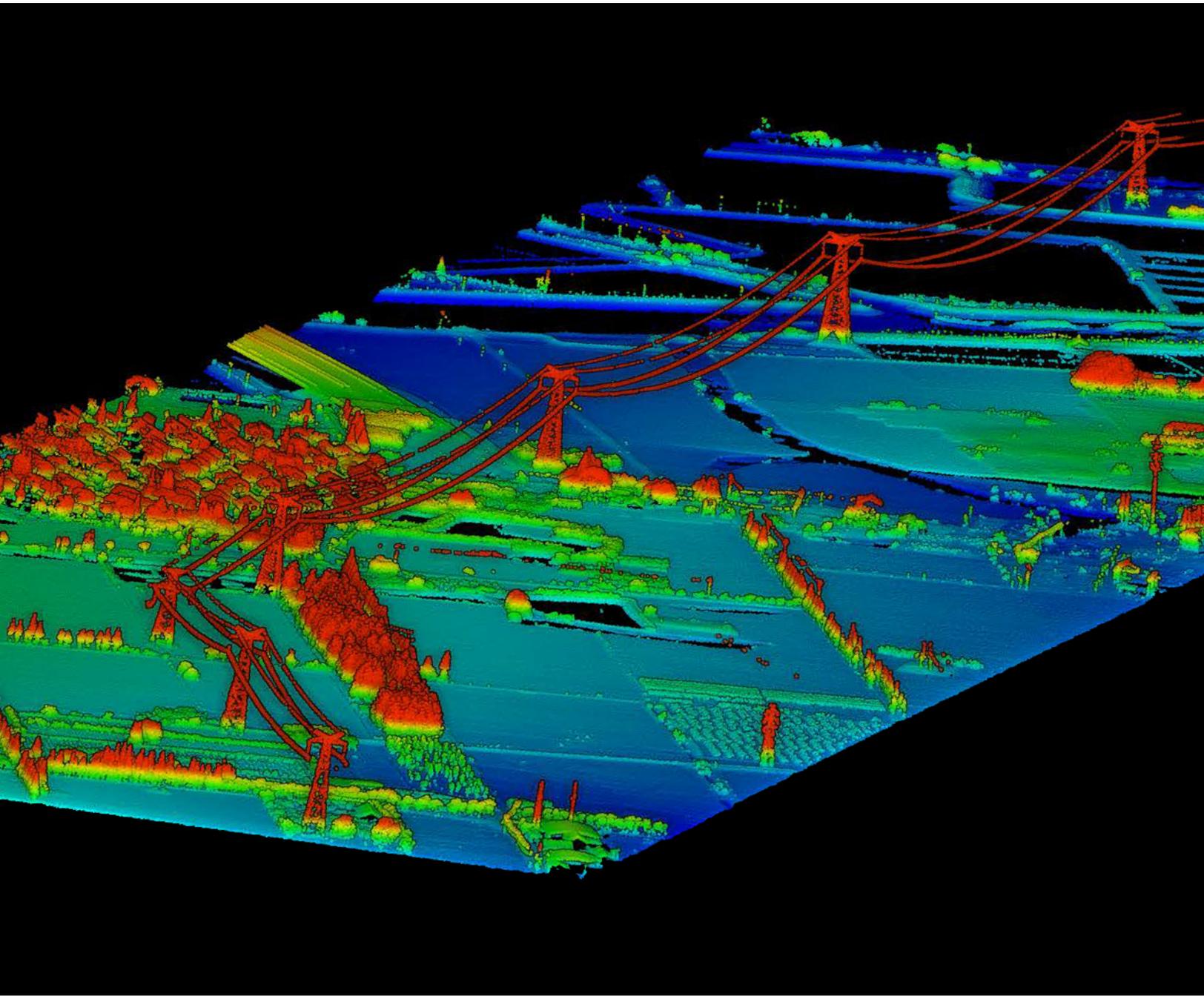
Vectorized real working conditions (green line):

Wire temperature: 15°C
Ice thickness: 0 mm
Wind speed: 0 m/s

Simulated working conditions (red line):

Wire temperature: 15°C
Ice thickness: 0 mm
Wind speed: 10 m/s





www.vertical-3d.com
contact@vertical-3d.com
07 67 89 20 34



2120 University Ave, Berkeley, CA, USA 94704
Web: greenvalleyintl.com
Email: info@greenvalleyintl.com
Phone: +1 (510) 345-2899