Point Cloud Feature Intelligent Extraction and Analysis Software

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LiDAR360 MLS

GreenValley International

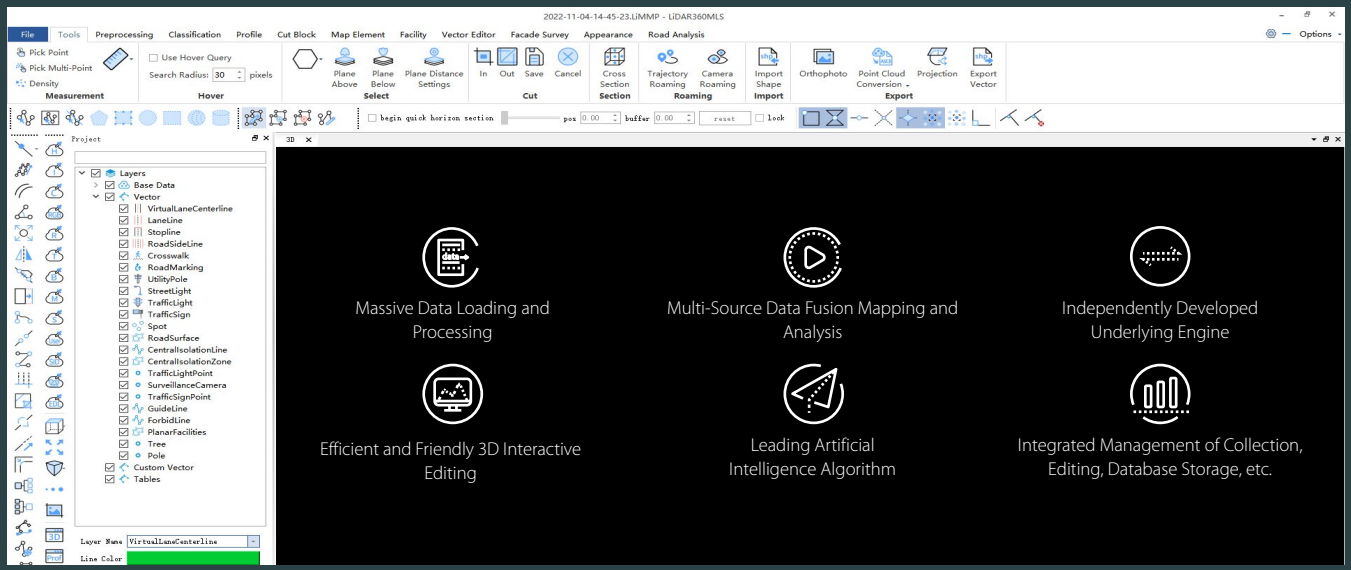
SOFTWARE

POINT CLOUD FEATURE INTELLIGENT EXTRACTION AND ANALYSIS SOFTWARE

LiDAR360 MLS iDAR360MLS is a terrestrial mobile laser scanning(MLS) point cloud feature intelligent extraction and analysis software independently developed by GreenValley International, which supports the processing and analysis of LiDAR point cloud and image data obtained by mainstream vehicle-mounted, backpack, or handled mobile mapping systems on the market.

Based on the leading artificial intelligence algorithm, the software performs massive point cloud data editing, 3D feature extraction and analysis, 3D vectorization of road elements, etc. It has the features of rich function, convenient operation, intelligent and efficient, friendly interaction, forming a complete processing chain of MLS point cloud data processing, high definition map and road asset survey.

The result data exported by the software can be directly imported into GIS, CAD, and simulation platforms, which can be widely used in high definition map production, facade survey, road asset survey and maintenance, etc. LiDAR360MLS accelerates information extraction with intelligence and depicts the real world with digitalization.



CONTENTS

01 Foundation Platform ---------- 04

02 Mobile Laser Scanning Point Cloud Preprocessing ---------- 08

03 Map Element ---------- 10

04 Vector Editor ---------- 12

05 Architectural Drawings ---------- 14

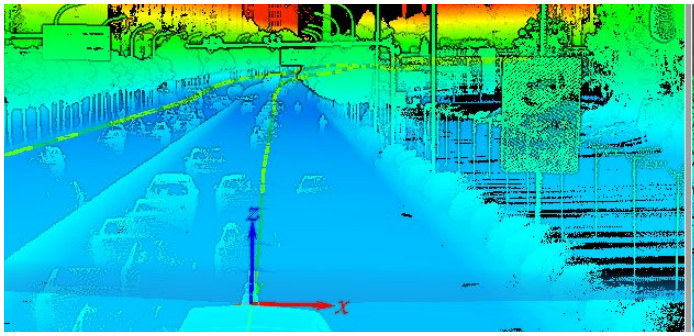
06 Road Analysis ---------- 16

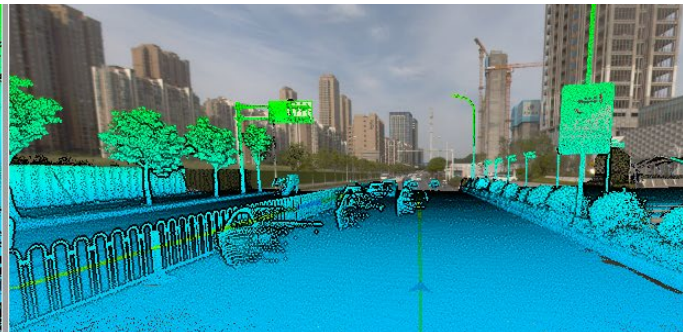
07 Urban Forestry ---------- 18

Main Modules

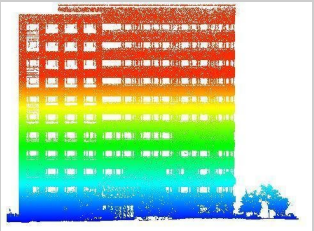
Foundation Platform

- Supports point cloud and panoramic data of mainstream mobile mapping systems on the market for processing and mapping.
- Support overlap display of multiple planar cameras, panoramic camera and point cloud data , measurement and boresight calibration ,assist data acquisition and editing.
- Combination display of multiple attributes, with additional attributes, to meet more application requirements.
- Rich point cloud snap tools, support automatic snap of feature points such as planes, ridges, and corners.
- Multiple block modes, work together to improve efficiency.
- AI-based point cloud semantic segmentation algorithm, which can quickly obtain high-precision results and accelerate the efficiency of subsequent production analysis.
- Added classification pre-training models for indoor and outdoor scene point cloud data obtained by SLAM device.
- New custom point cloud deep learning classification, users can train models suitable for their own data, and also added a few-sample learning model.
- Support vector result database storage for convenient management and format conversion.

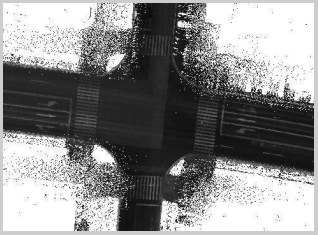




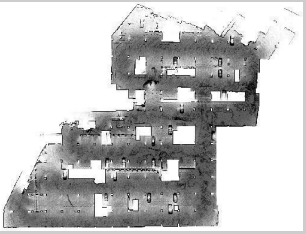
Height



Intensify

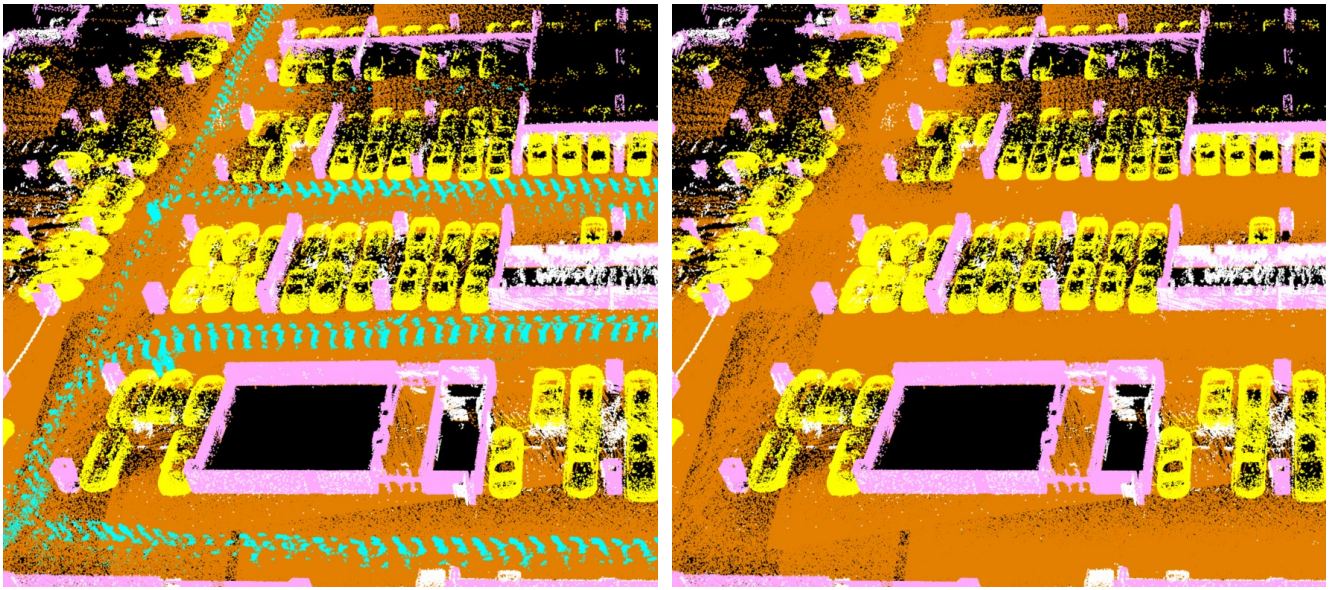


Density

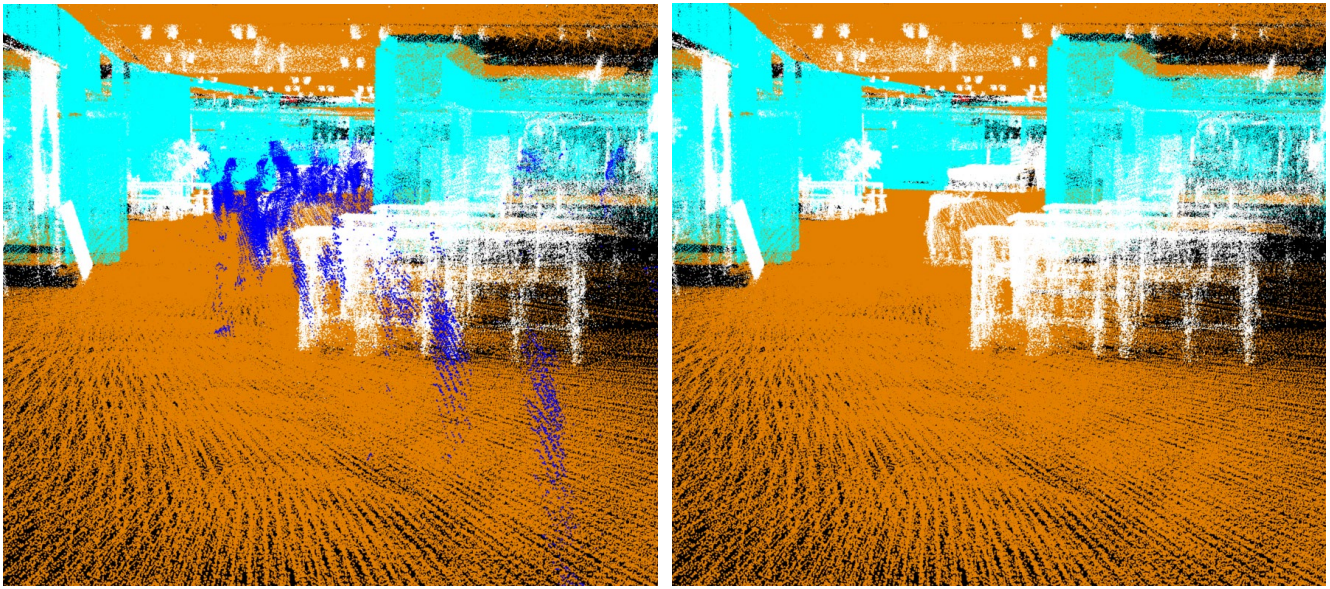


RGB

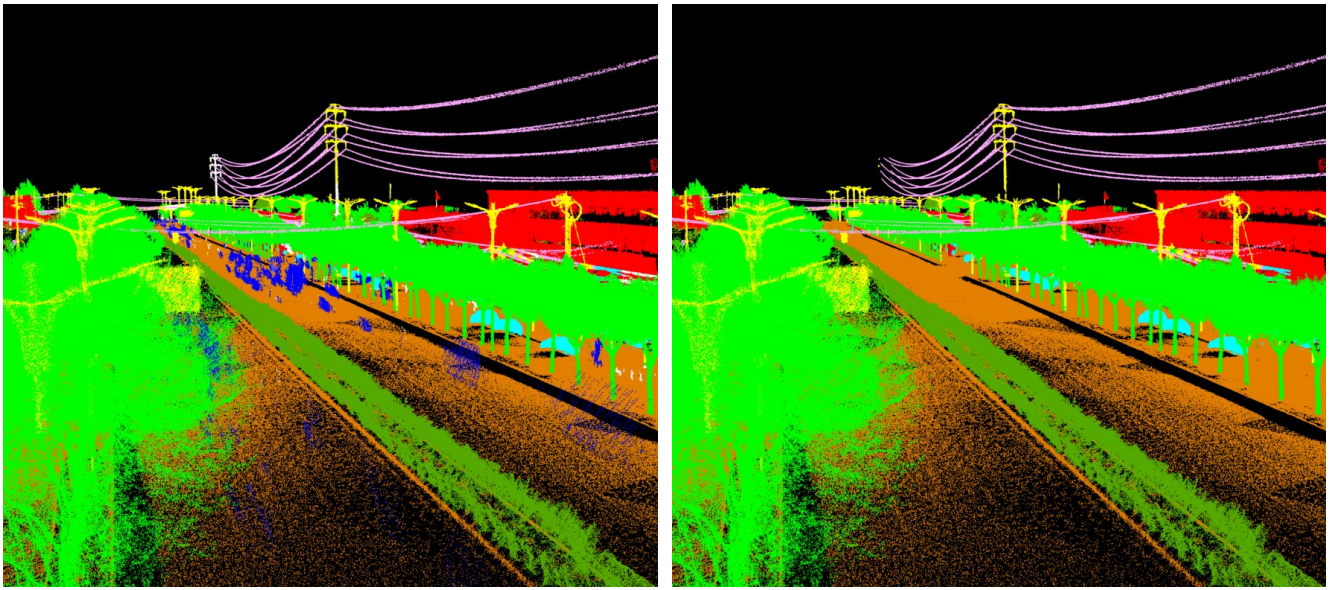
Underground Parking Garage



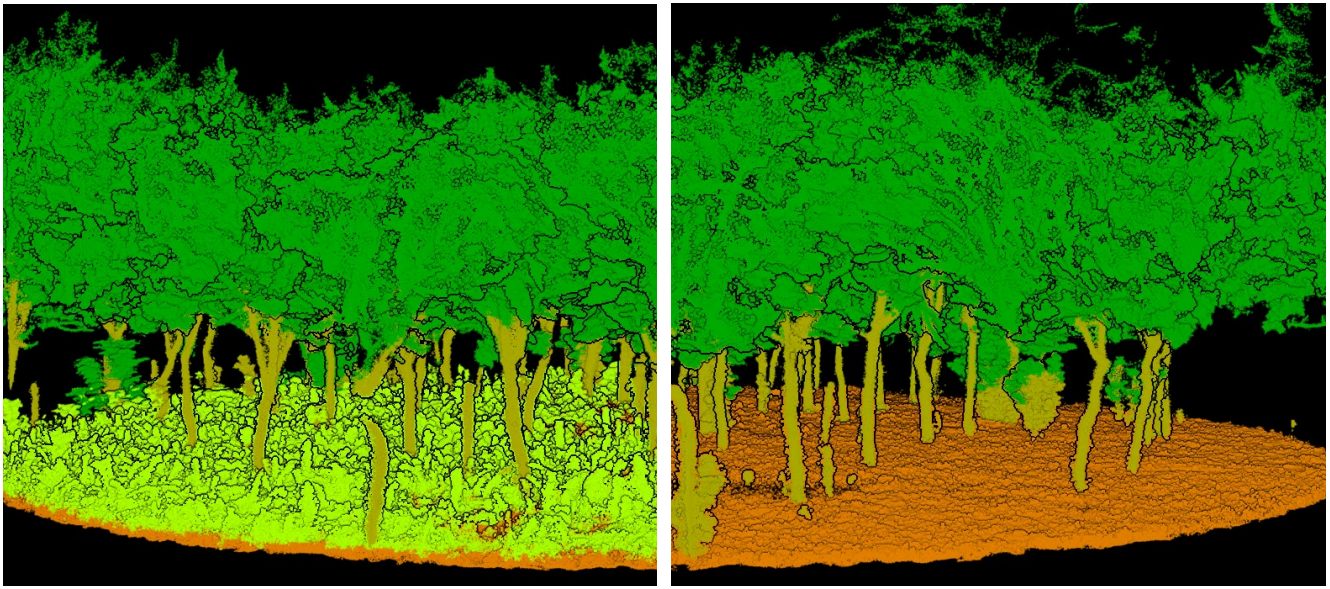
Shopping Mall



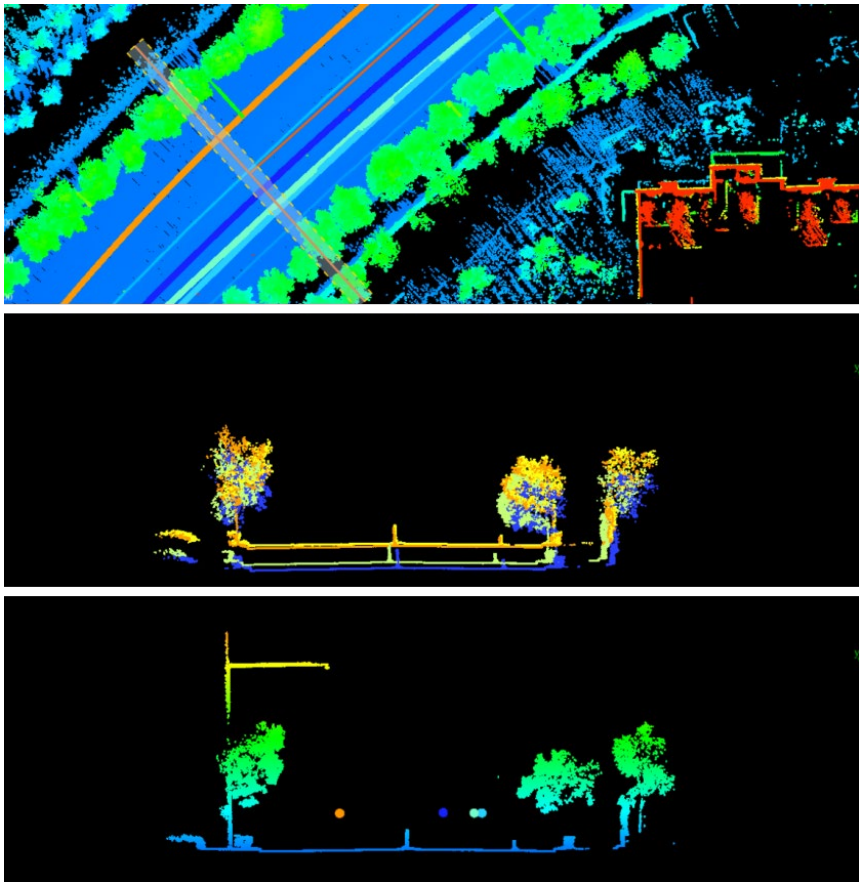
Urban Road

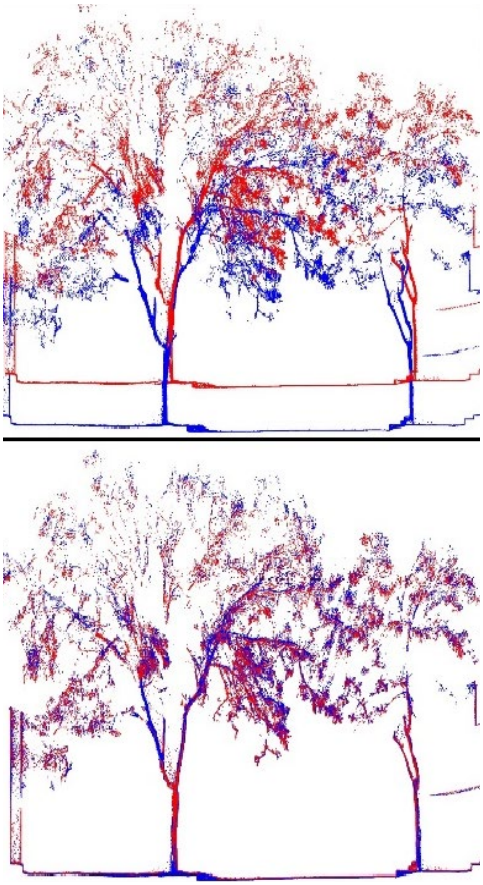


Forestry

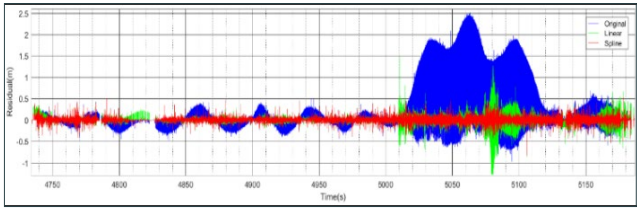


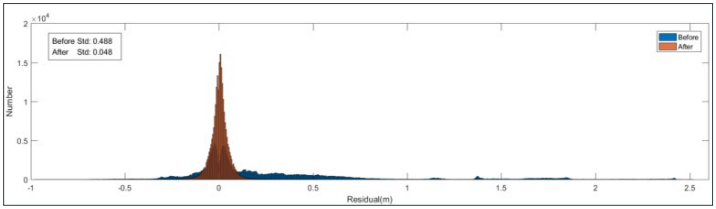
Mobile Laser Scanning Point Cloud Preprocessing

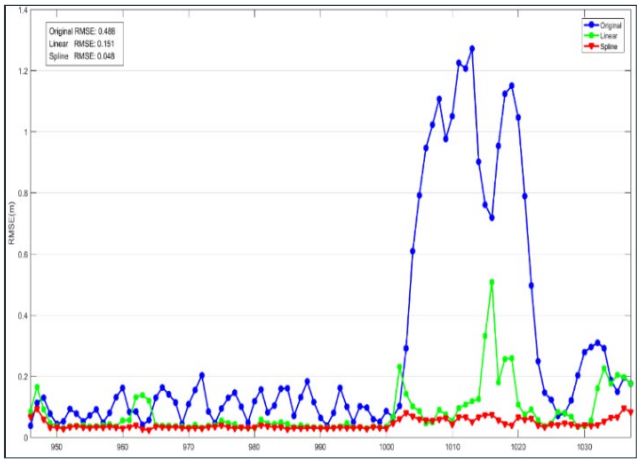


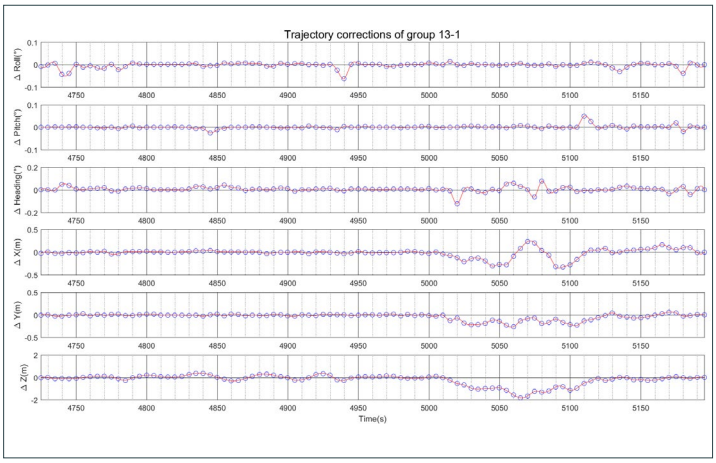


- **Support point cloud boresight calibration, panoramic or planar camera extrinsic calibration, the mapping system does not need to be returned to the factory for calibration.**
- **Support point cloud and trajectory accuracy analysis, automatically identify and repair abnormal conditions such as trajectory jumps.**
- **Support relative alignment of MLS point cloud data, global optimization of multiple projects with control points, and output detailed accuracy reports to provide high-precision data support for subsequent applications.**





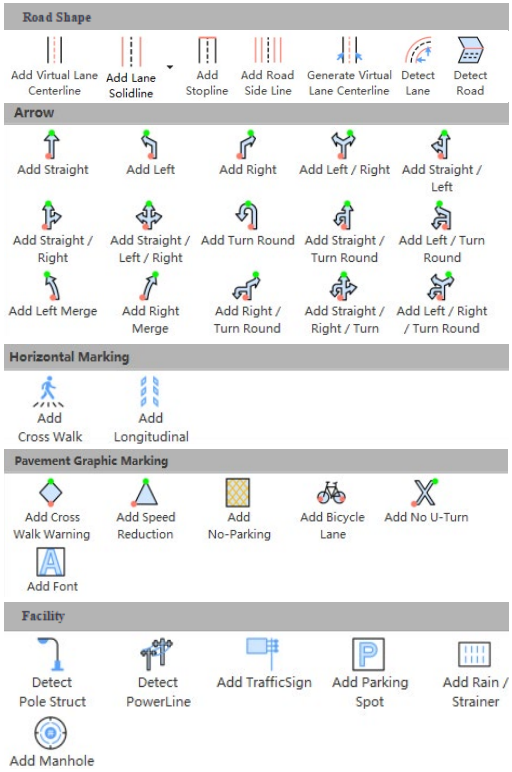


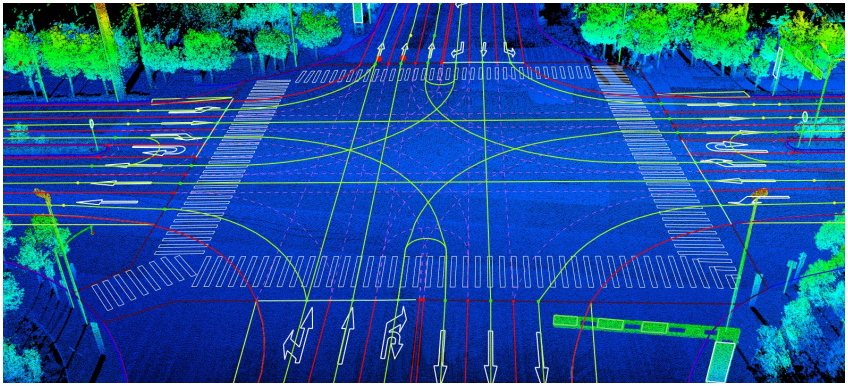


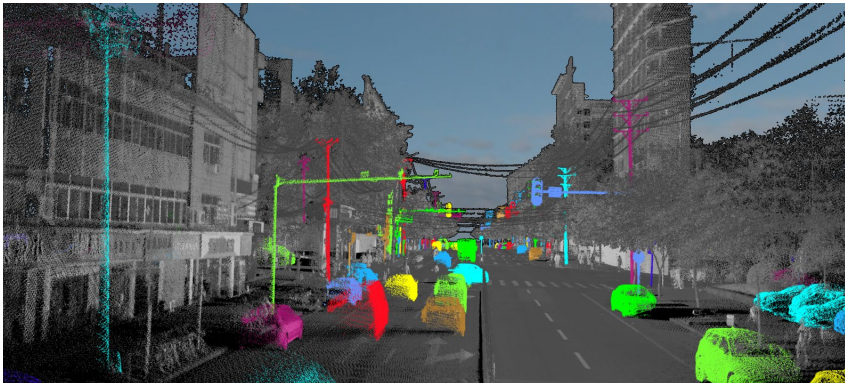
Map Element

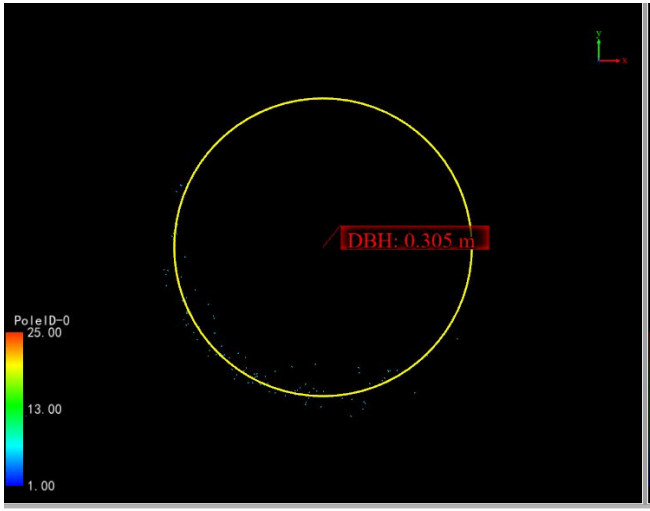
Feature Extraction

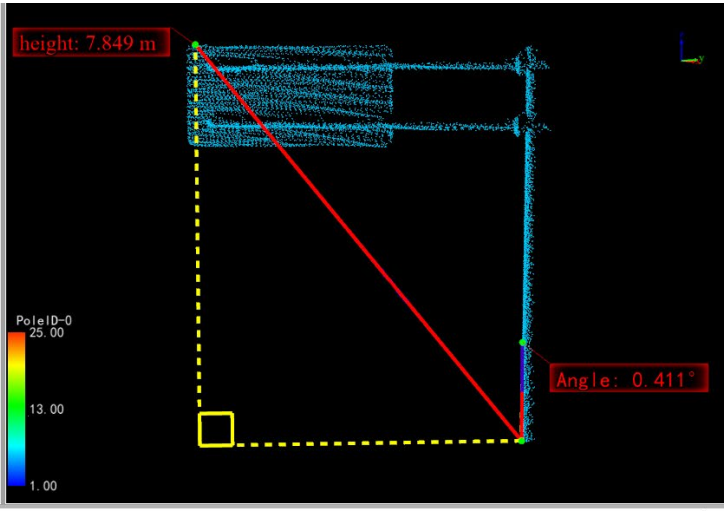
- Automatic extraction of road elements and road facilities based on AI, which greatly improves efficiency and can quickly expand categories.
- Customizable road element symbol library, the drawing effect is 100% fit.
- Support the drawing of special symbols such as Chinese characters and letters, and enrich the achievement database.
- Interactive semi-automatic multi-element detection, improvement of mapping efficiency.
- Rich road element templates, one-click drag and drop.
- Support linear facility template customization to achieve batch extraction of line elements.
- Support individual segmentation and parameter extraction of road facilities such as poles and cars.











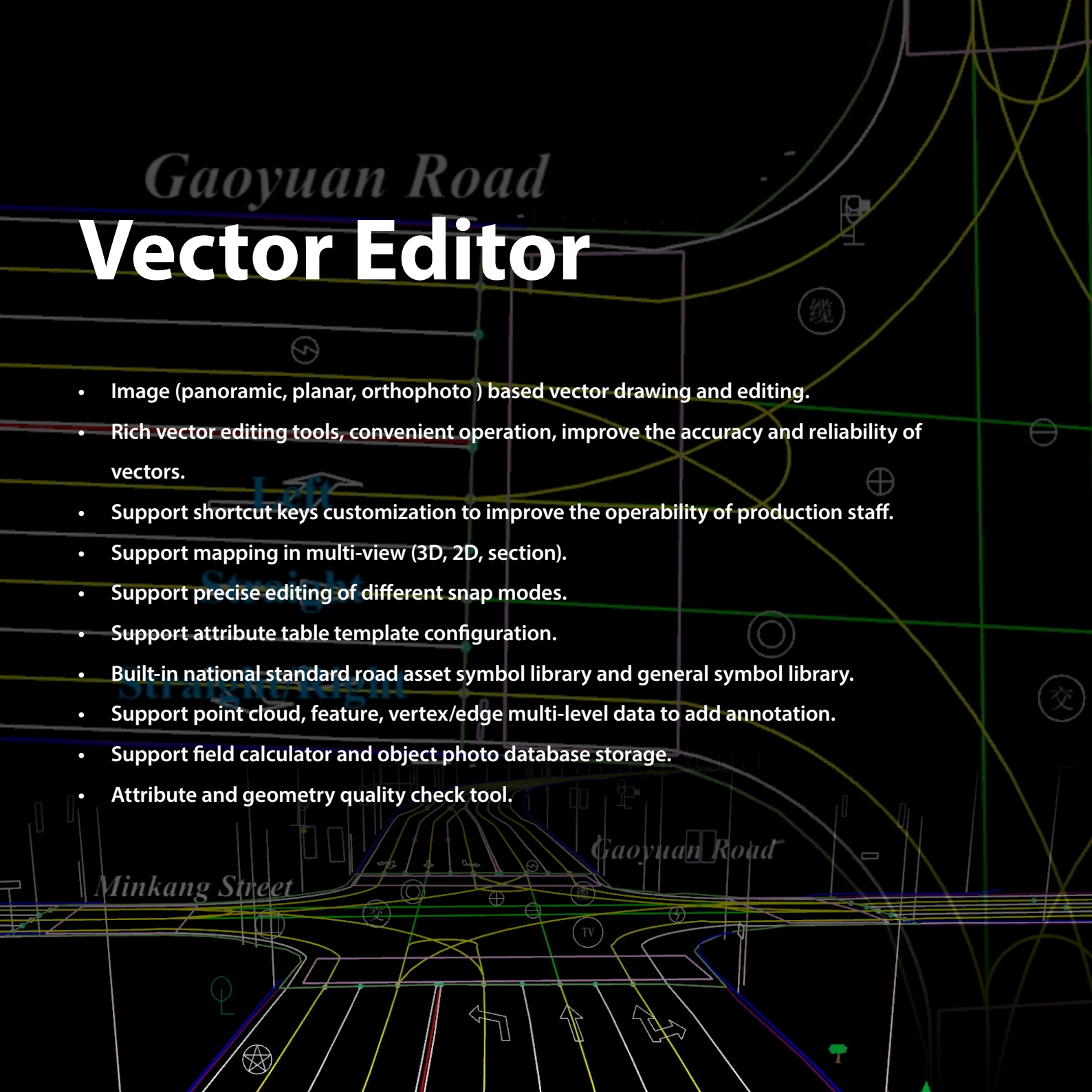
Feature Objects Table

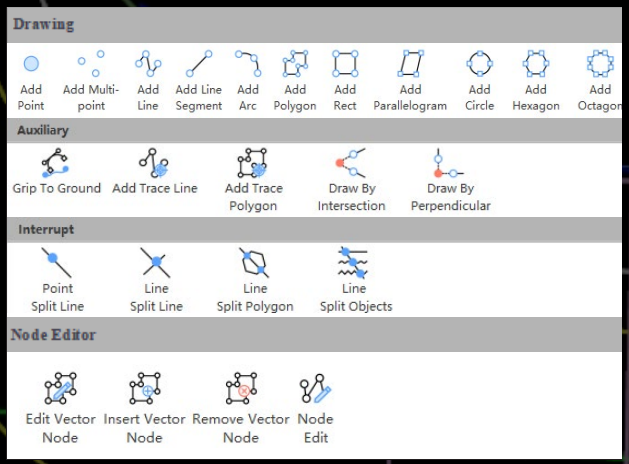
Type: Pole Calculation

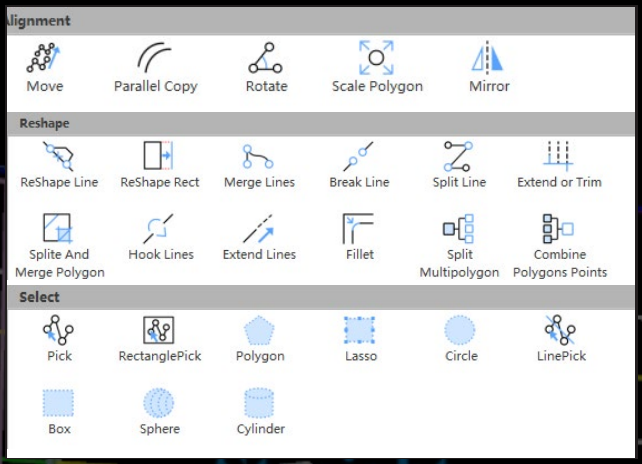
	Object ID	DBH(m)	Height(m)	Angle(°)	CrownWidth(m)
6	6	0.305	7.849	0.411	0.000

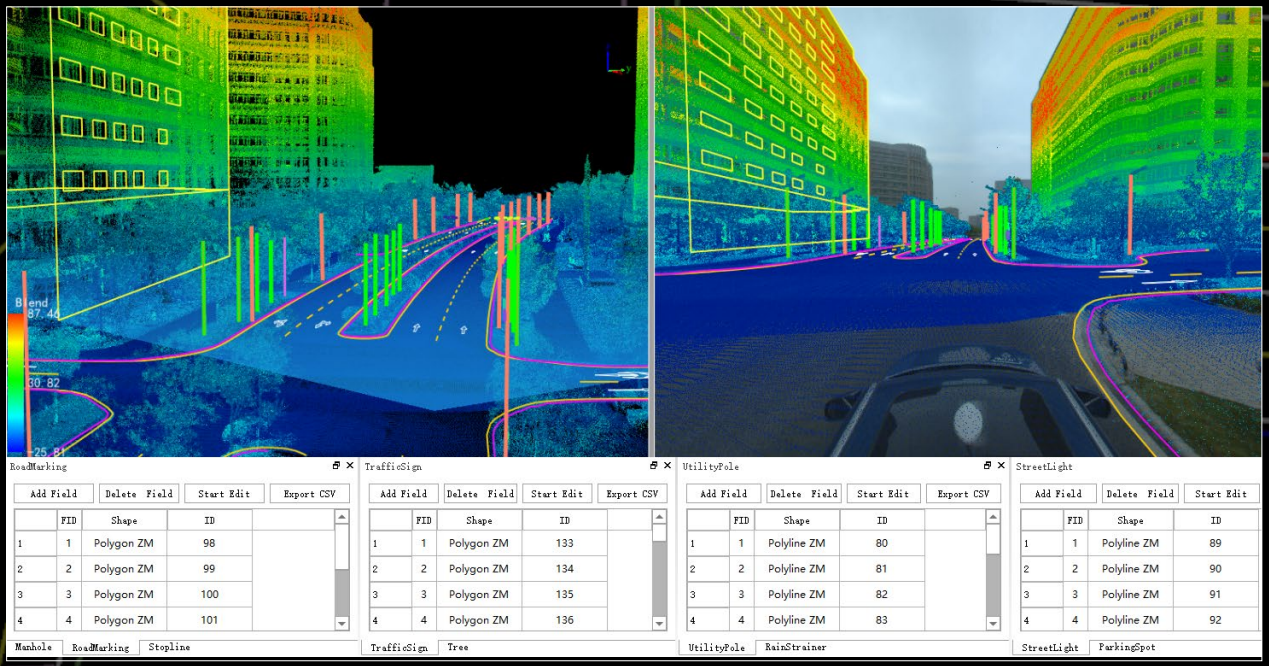
Vector Editor

- Image (panoramic, planar, orthophoto) based vector drawing and editing.
- Rich vector editing tools, convenient operation, improve the accuracy and reliability of vectors.
- Support shortcut keys customization to improve the operability of production staff.
- Support mapping in multi-view (3D, 2D, section).
- Support precise editing of different snap modes.
- Support attribute table template configuration.
- Built-in national standard road asset symbol library and general symbol library.
- Support point cloud, feature, vertex/edge multi-level data to add annotation.
- Support field calculator and object photo database storage.
- Attribute and geometry quality check tool.

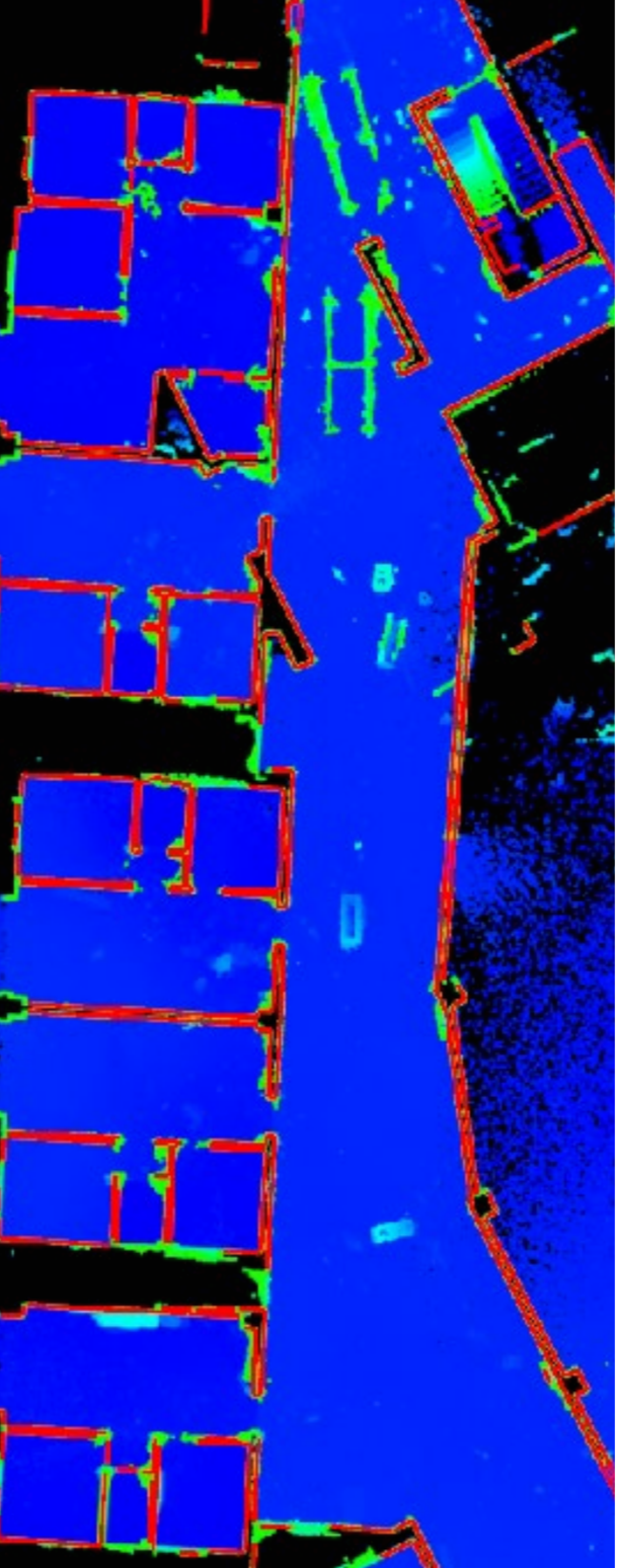



Drawing
Add Point
Add Multi-point
Add Line
Add Line Segment
Add Arc
Add Polygon
Add Rect
Add Parallelogram
Add Circle
Add Hexagon
Add Octagon
Auxiliary
Grip To Ground
Add Trace Line
Add Trace Polygon
Draw By Intersection
Draw By Perpendicular
Interrupt
Point Split Line
Line Split Line
Line Split Polygon
Line Split Objects
Node Editor
Edit Vector Node
Insert Vector Node
Remove Vector Node
Node Edit


Alignment
Move
Parallel Copy
Rotate
Scale Polygon
Mirror
Reshape
ReShape Line
ReShape Rect
Merge Lines
Break Line
Split Line
Extend or Trim
Splite And Merge Polygon
Hook Lines
Extend Lines
Fillet
Split Multipolygon
Combine Polygons Points
Select
Pick
RectanglePick
Polygon
Lasso
Circle
LinePick
Box
Sphere
Cylinder

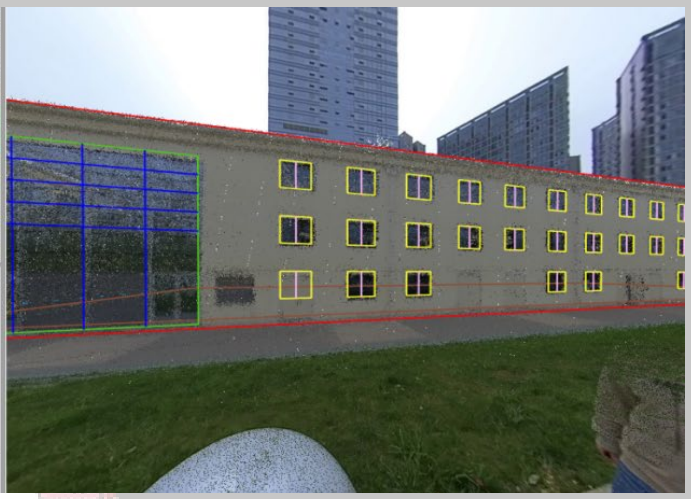

RoadMarking
Add Field
Delete Field
Start Edit
Export CSV
FID
Shape
ID
1 1 Polygon ZM 98
2 2 Polygon ZM 99
3 3 Polygon ZM 100
4 4 Polygon ZM 101
Manhole
RoadMarking
Stopline
TrafficSign
1 1 Polygon ZM 133
2 2 Polygon ZM 134
3 3 Polygon ZM 135
4 4 Polygon ZM 136
Tree
UtilityPole
1 1 Polyline ZM 80
2 2 Polyline ZM 81
3 3 Polyline ZM 82
4 4 Polyline ZM 83
RainStrainer
StreetLight
1 1 Polyline ZM 89
2 2 Polyline ZM 90
3 3 Polyline ZM 91
4 4 Polyline ZM 92
ParkingSpot

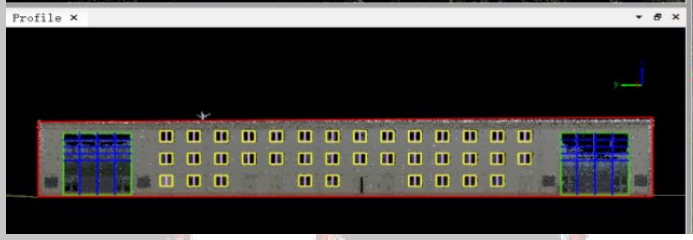
Straight
Minkang Street

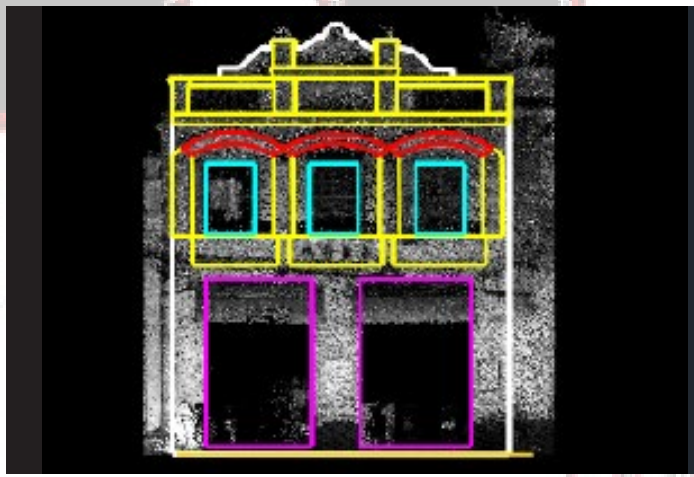


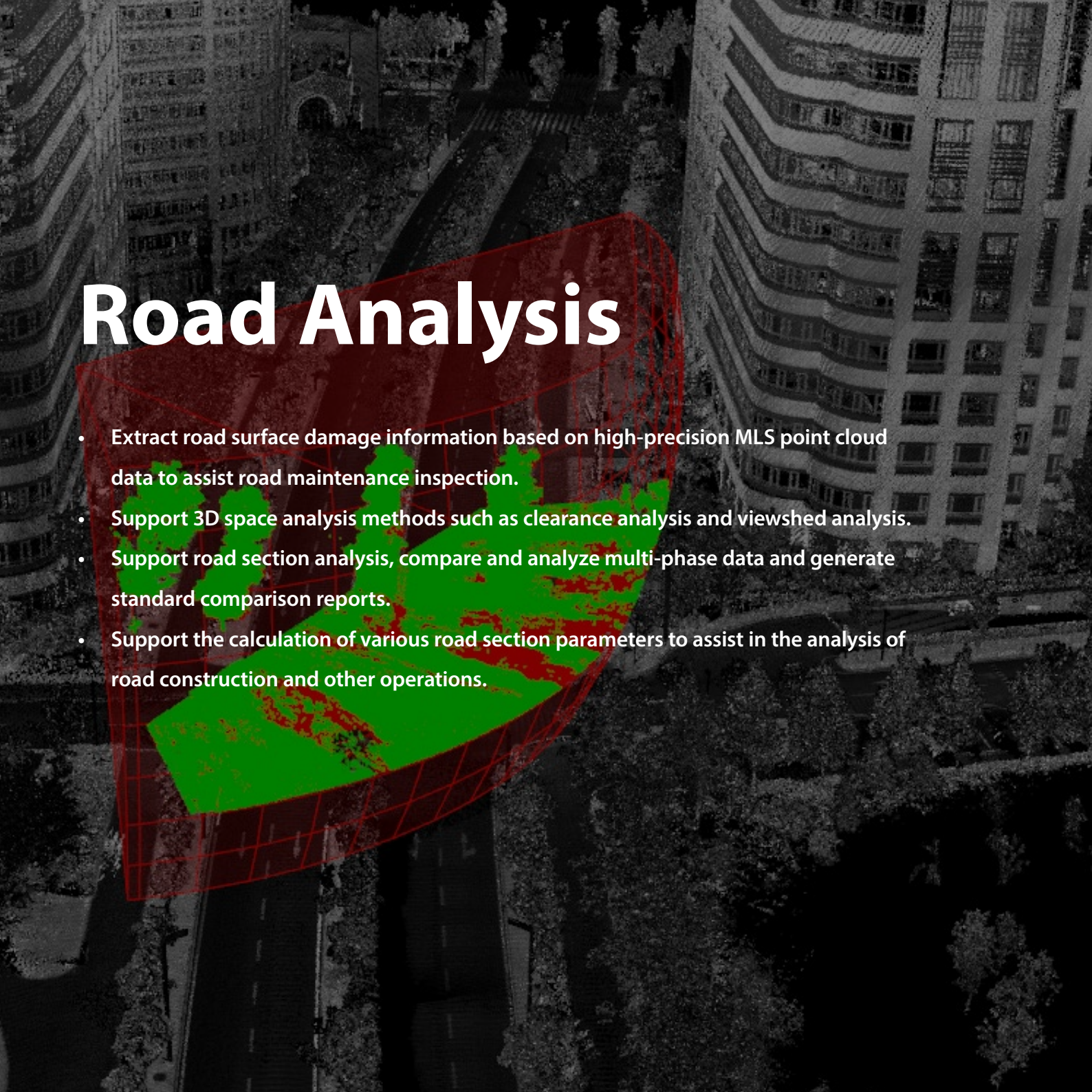
Architectural Drawings

- Seamlessly import LiGrip/LiBackpack/LiMobile point cloud and image data without format conversion and coordinate system definition
- Provide automatic vectorization function for floor plan.
- Provide multi-mode baseline collection method, adapt to multiple types of facade structures, and accurately locate side facade information
- Provide point cloud polygonal/curved/cylindrical section unrolling function.
- Provide convenient drawing tools such as construction lines, grouping arrays, line Intersection,etc to speed up production efficiency
- Using panoramic images to assist architectural drawings, making the drawing of elements more complete and accurate
- Provide accurate length and area calculation functions, and support exporting tables in other formats
- Support exporting DXF, Orthophoto, BluePrint result data,etc.



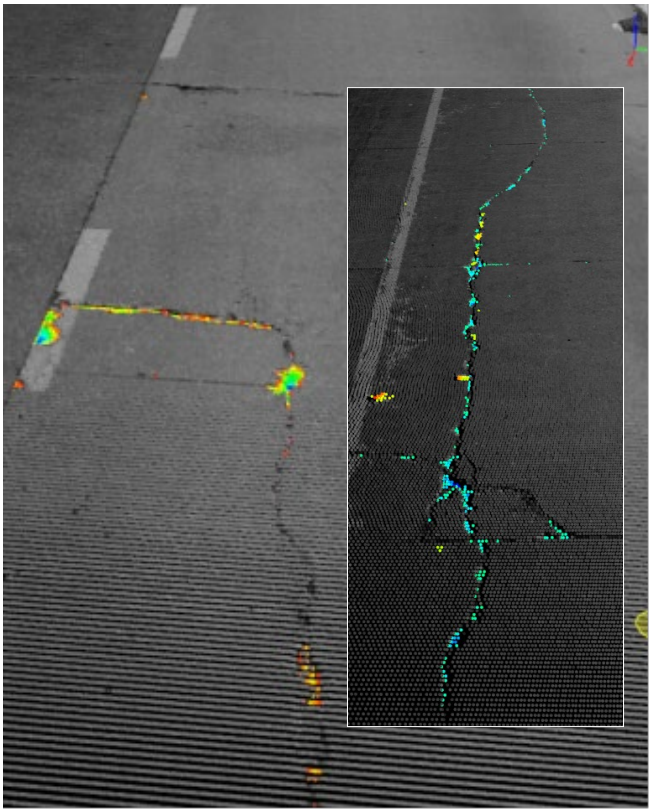

Profile





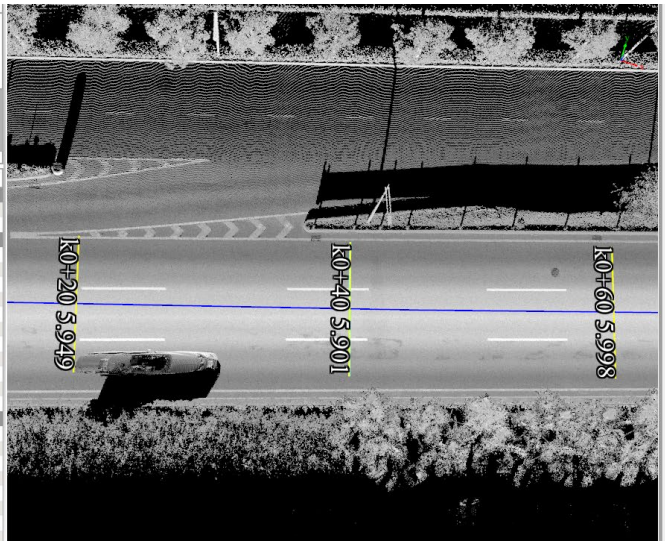
Road Analysis

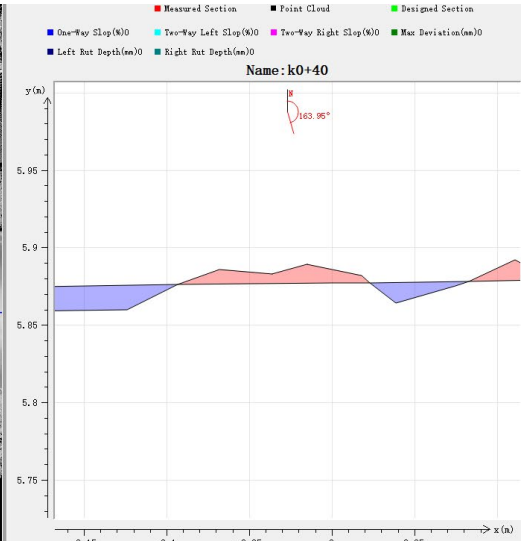
- Extract road surface damage information based on high-precision MLS point cloud data to assist road maintenance inspection.
- Support 3D space analysis methods such as clearance analysis and viewshed analysis.
- Support road section analysis, compare and analyze multi-phase data and generate standard comparison reports.
- Support the calculation of various road section parameters to assist in the analysis of road construction and other operations.



Name	Real Mileage
CentralAxis0	-1
k0+0	0
k0+20	20
k0+40	40
k0+60	60
k0+80	80
k0+100	100
k0+120	120
k0+140	140
k0+160	160

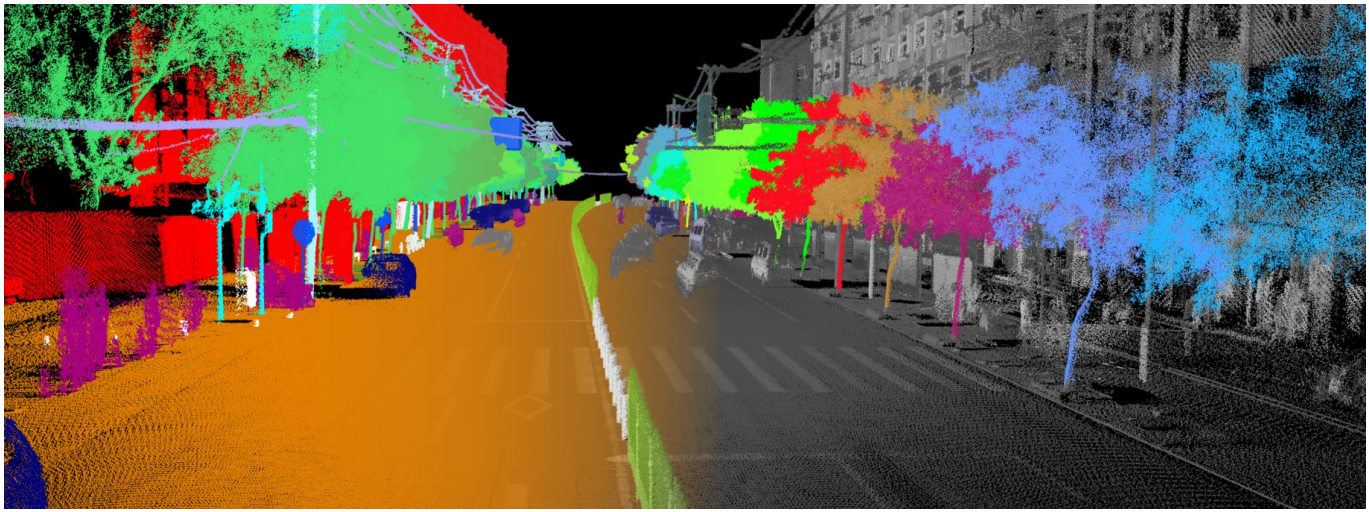
Attribute	Value
Section Base Info	
Section Name	k0+40
Mileage(m)	k0+40
Measured Secion	
Width(m)	9.999
Height(m)	0.159
Central Pile Height...	5.887
Lenth(m)	10.033
Cut/Fill	☑ Visible
Cut Area(㎡)	0.038
Fill Area(㎡)	0.002
Fill-Cut Area(㎡)	0.036
Cut Volume(Cubic ...	1.533
Fill Volume(Cubic ...	0.099
Fill-Cut Volume(Cu...	1.434
RoadSectionAnaly...	
One-Way Slop(%)	1.639
Two-Way Left Slop...	1.840
Two-Way Right Sl...	1.439
Cross Section rou...	9.122
Max Deviation(mm)	23.357
Left Rut Depth(mm)	11.332
Right Rut Depth(m...	11.583
Rut Depth Index	76.834

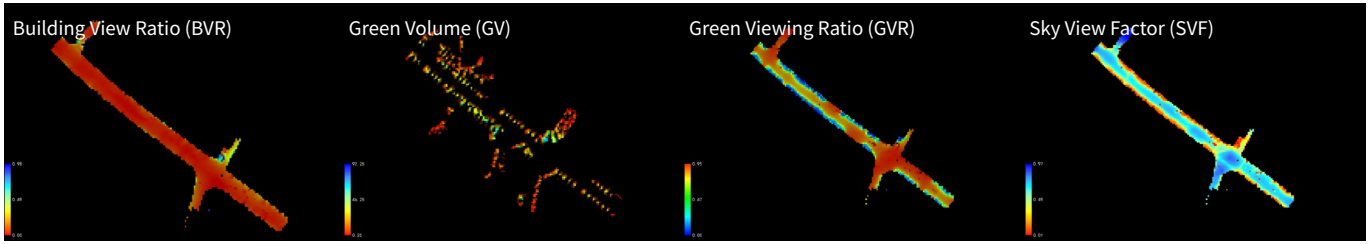


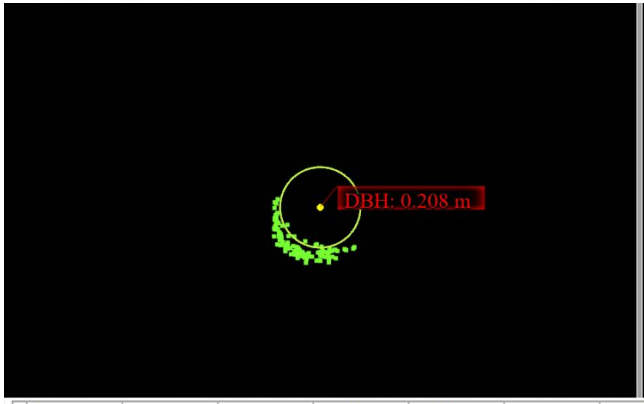


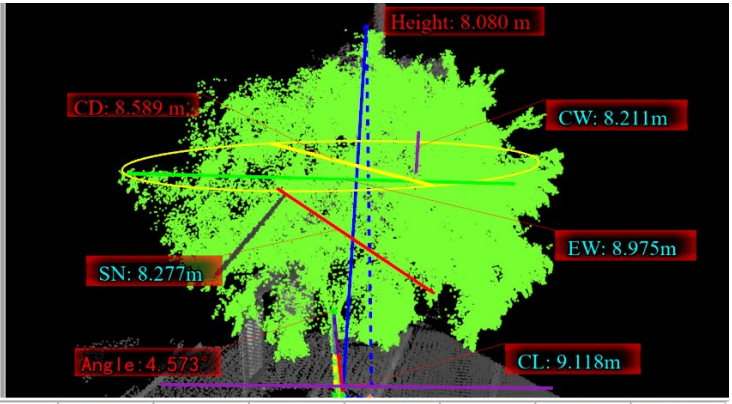
Urban Forestry

- AI-based point cloud classification.
- Single tree segmentation and parameter extraction.
- Single tree parameter measurement.
- Supports measurement of parameters including DBH, Height, Crown Width, Crown Length, Crown Diameter, Crown Diameter SN, Crown Diameter EW ,CBH, Angle, Area, etc.
- Ecological landscape thematic map.
- Simulation analysis of Green Viewing Ratio(GVR), Green Volume, Sky View Factor(SVF), etc.









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4	NULL	NULL	70	0.208	8.080	4.573	8.589	8.246	8.932	9.118	8.211	0.000	0.000	54.508
5	NULL	NULL	71	0.151	6.769	8.718	7.280	7.145	7.415	8.057	6.787	0.000	0.000	38.711
6	NULL	NULL	72	0.137	7.158	7.356	6.749	6.242	7.256	7.446	6.387	0.000	0.000	29.172

www.greenvalleyintl.com info@greenvalleyintl.com
729 Heinz Avenue, Suite 9, Berkeley, CA 94710, USA