



*Point Cloud Feature Intelligent
Extraction and Analysis Software*

www.greenvalleyintl.com

LIDAR360 MLS





SOFTWARE

POINT CLOUD FEATURE INTELLIGENT EXTRACTION AND ANALYSIS SOFTWARE

LiDAR360MLS is a 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 handheld mobile mapping systems on the market. It has a complete processing chain from point cloud data processing to GIS asset survey, architectural drawings, 3D vector mapping, road condition assessment, railway inspection, urban forestry inventory, digital twin, high definition map and other industry results delivery.



Massive Data Loading and Processing



Multi-Source Data Fusion Processing, Mapping, Analysis, Modeling



Independently Developed Underlying Engine



Efficient and Friendly 3D Interactive Editing



Leading Artificial Intelligence Algorithm



Integrated Management of Collection, Editing, Database Storage, etc.



Collect

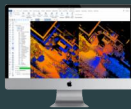
Point cloud Generation

Quality Assessment & Optimization

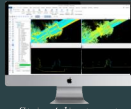
Manage & Extract & Analysis & Modeling

Publish

Industry Applications



Registration



Strip Adjustment



Colorization



Rapid Visualization and Processing



Intelligent Extraction



Road Analysis



3D Real Scene

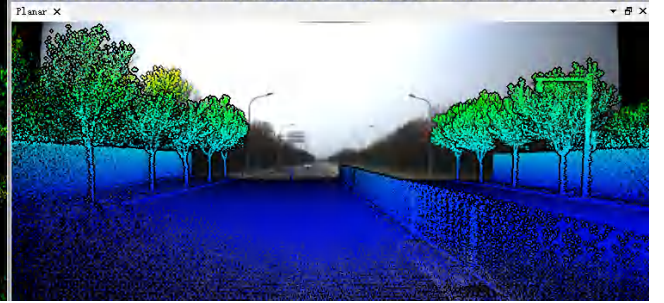
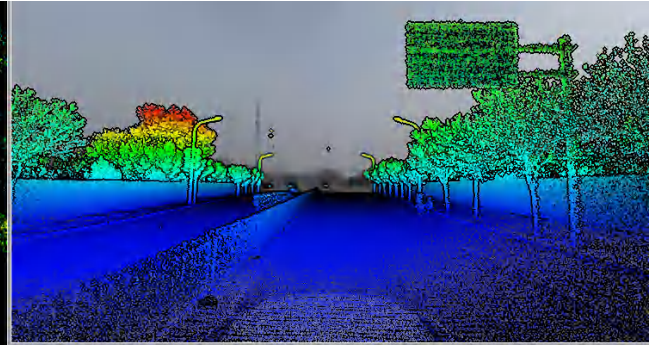
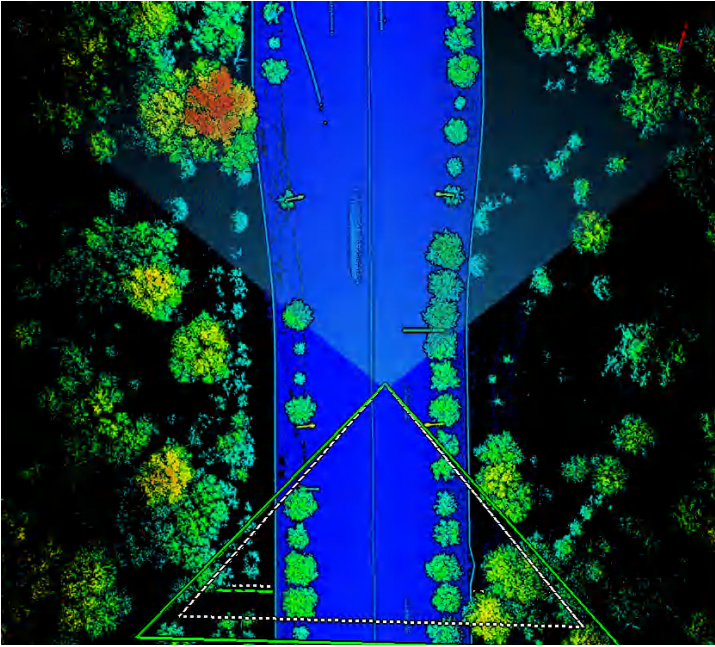


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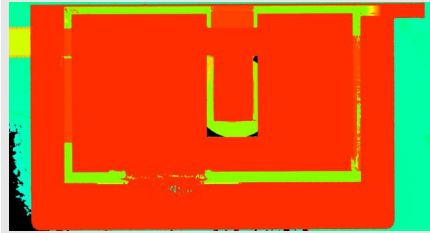
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Framework

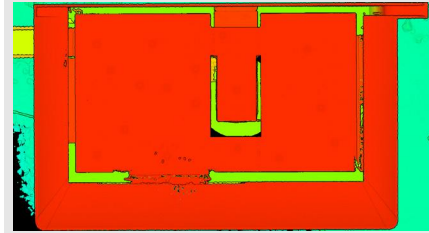
- Support point cloud and image data from various mobile mapping systems.
- All functions support units such as feet.
- Support overlap display of multiple planar cameras, panoramic camera and point cloud data, measurement and boresight calibration, assist data acquisition and editing.
- Combination 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, collaborative operation to improve efficiency.
- AI-based point cloud classification algorithm, which can quickly obtain high-precision results and accelerate the efficiency of subsequent production analysis.
- Support classification pre-training models for indoor and outdoor scene point cloud data obtained by SLAM device.
- Support customized point cloud deep learning classification, users can train models suitable for their own data, and also support a few-sample learning model.
- A complete AI pipeline for point cloud and image data from annotation, training to inference.
- Image labeling assisted by the SAM model.
- AI-based Plates and Faces blurring.
- Over 500 point cloud, vector, and raster processing tools covering extraction, registration, export, classification, coordinate projection transformation, selection and clipping, measurement, mapping, editing, type conversion, extraction analysis, overlay analysis, and proximity analysis.
- Support attribute table template configuration.
- Image (panoramic, planar, orthophoto) based vector drawing and editing.
- Support mapping in multi-view (3D, 2D, section).
- Built-in national standard road asset symbol library and general symbol library.
- Support adding annotation to point cloud, features, vertices/edges multi-level data.
- Support field calculator and object photo database storage. The field calculator includes over 300 built-in functions and provides Python scripting tool.
- Support CAD plug-in, result data seamlessly connected to CAD platform, support CAD symbols definition and settings.



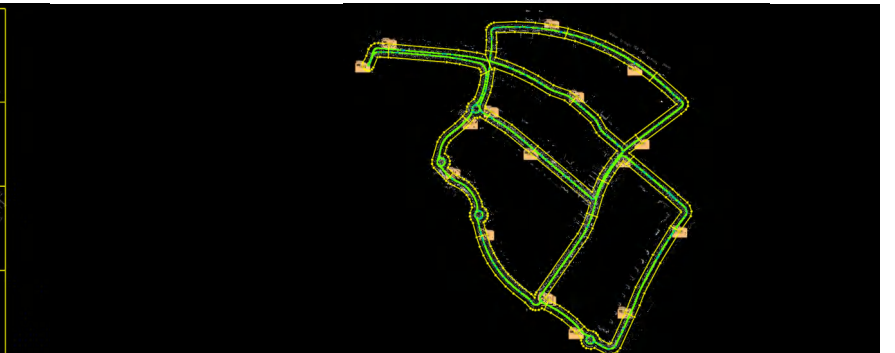
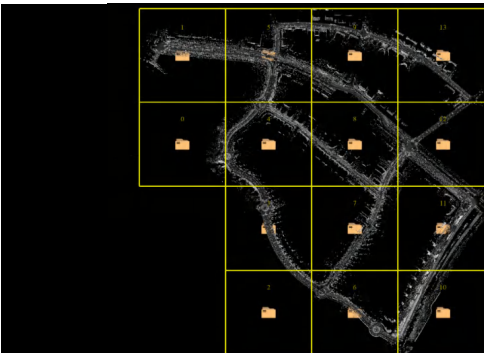
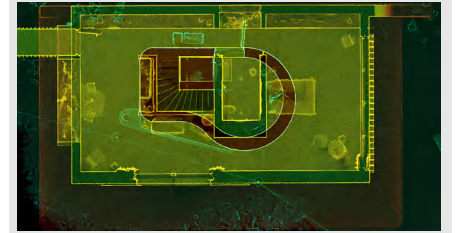
Display by Height

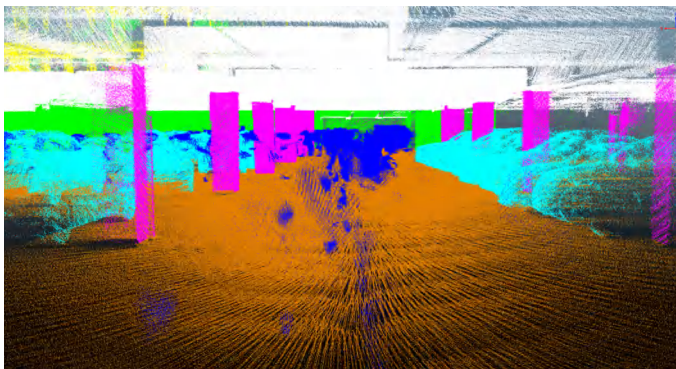


Display by Height+EDL



Display by Height+X-ray

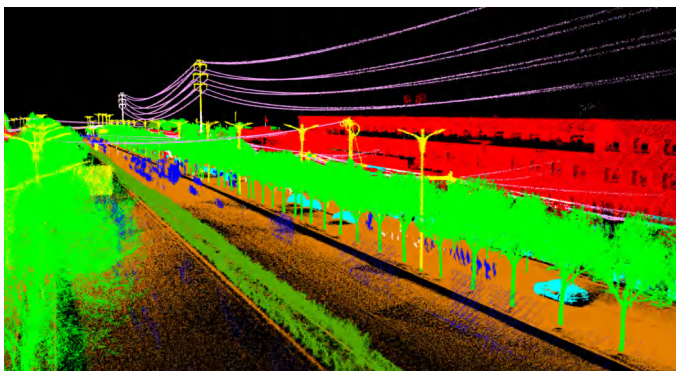




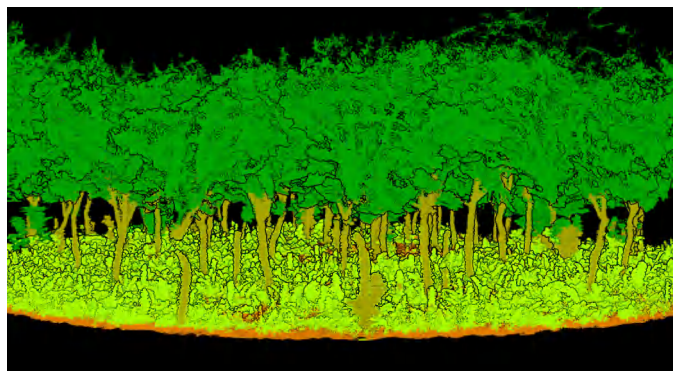
Scene 1: Underground Parking Garage



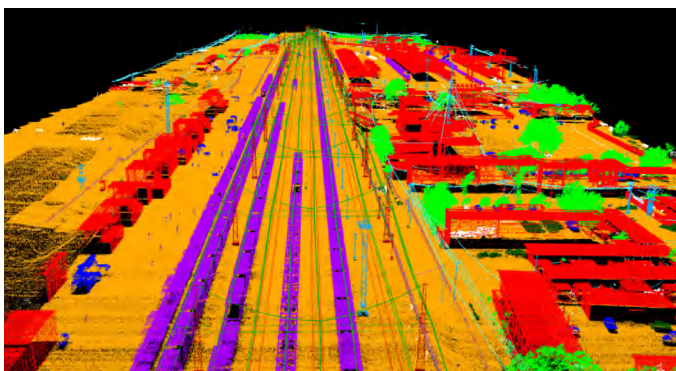
Scene 2: Shopping Mall



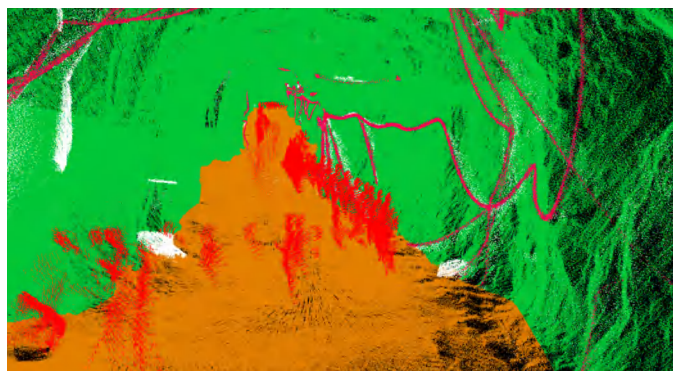
Scene 3: Urban Road



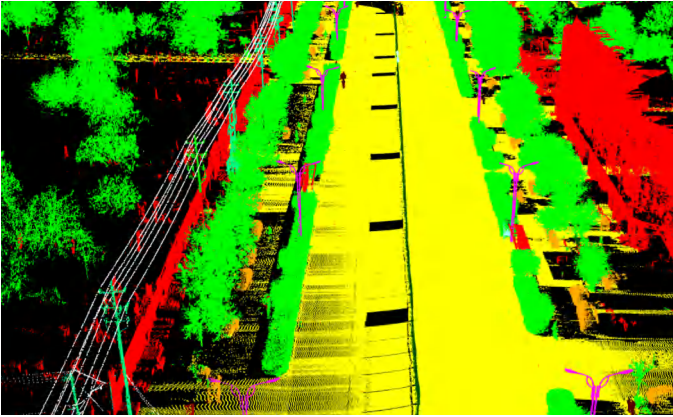
Scene 4: Forestry



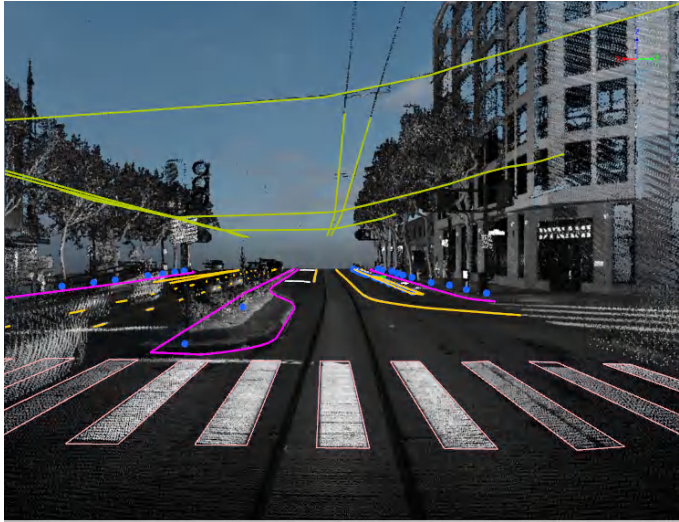
Scene 5: Railway



Scene 6: Mine Tunnel



AI-based Plates and Faces Blurring



Crosswalk

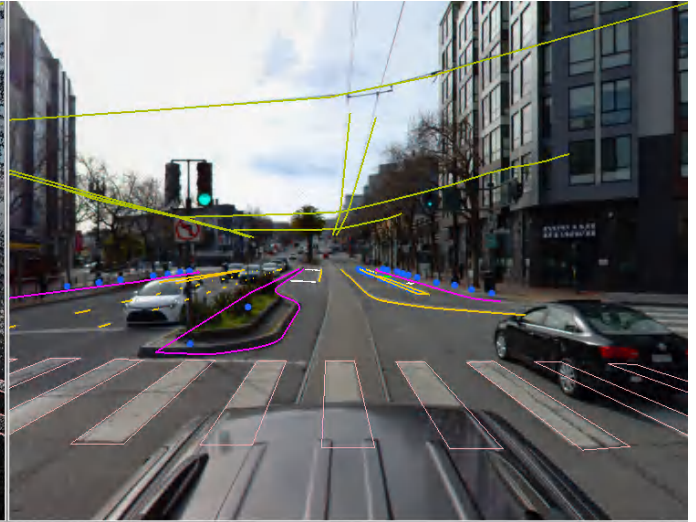
Pole

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3	3	Polygon	22

Show All Features 0 of 27 selected

	Object ID	DBH	Height
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29	41	0.648746	31.148277

Show All Features 0 of 104 selected



Tree

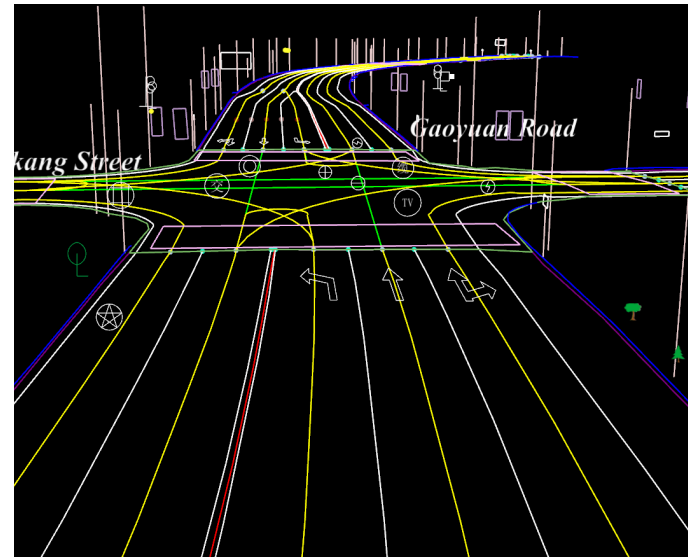
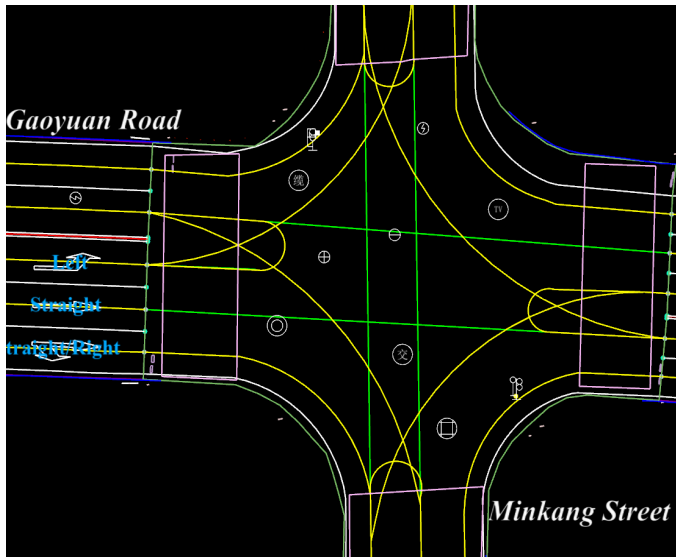
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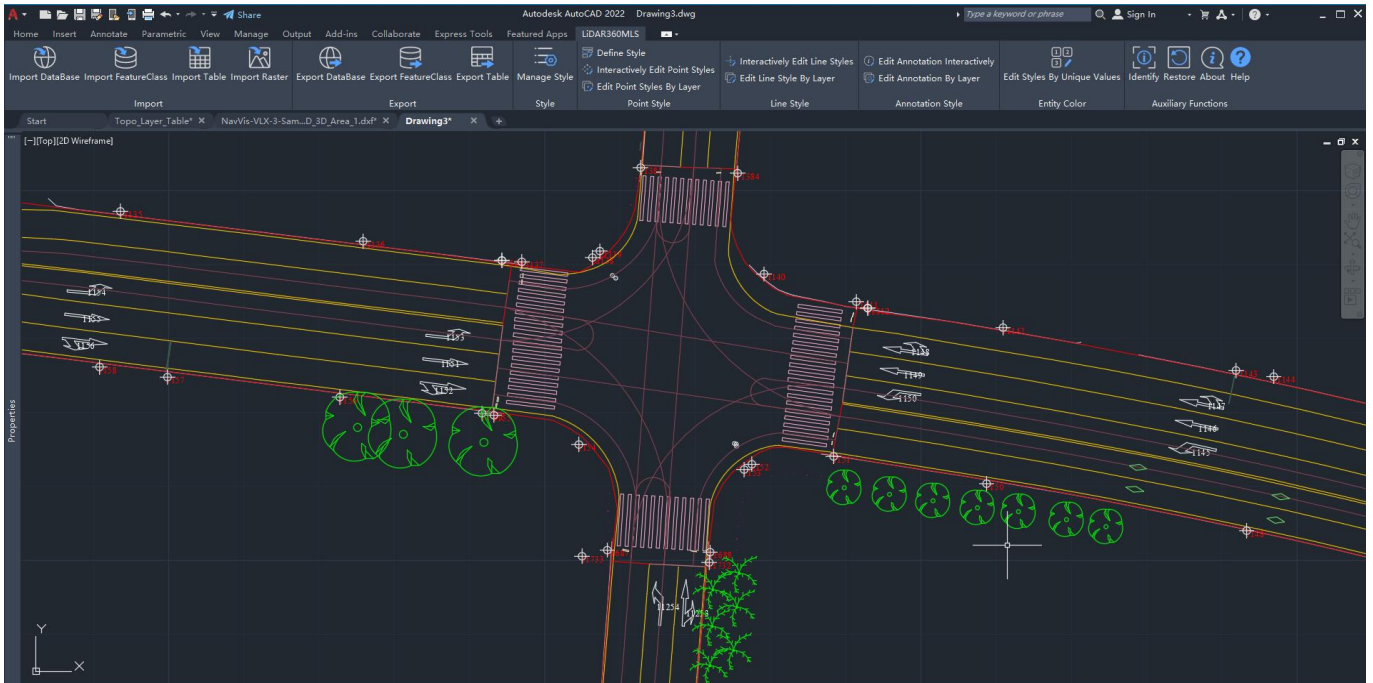
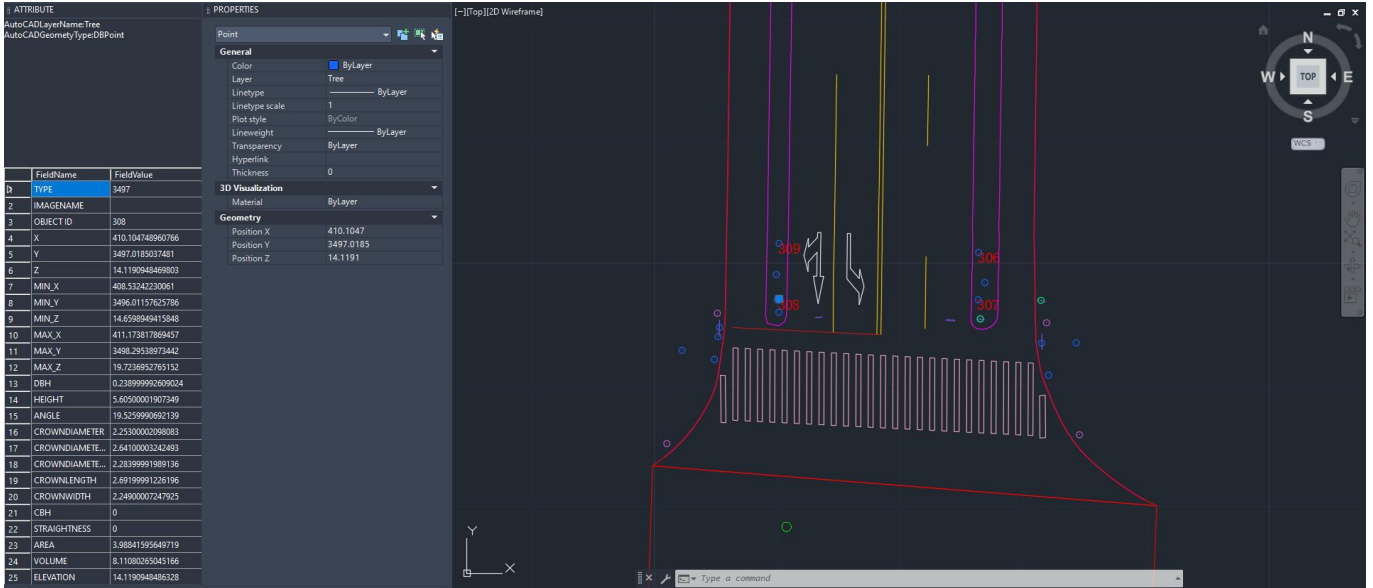
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11	11	Polyline	Curb	

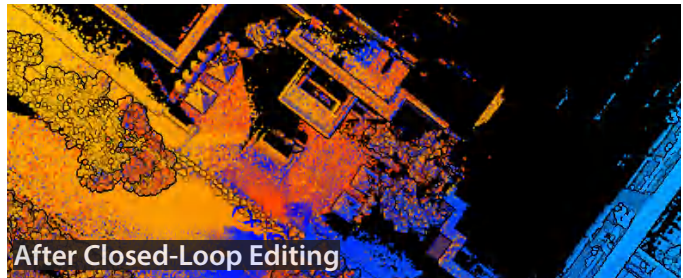
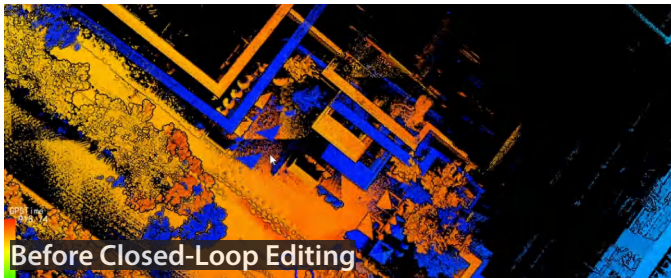
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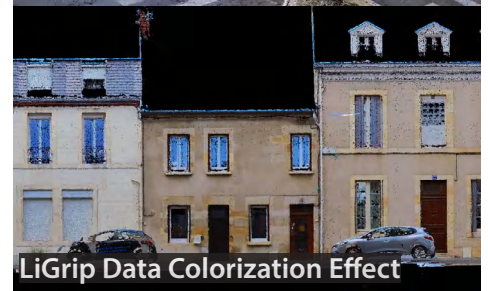
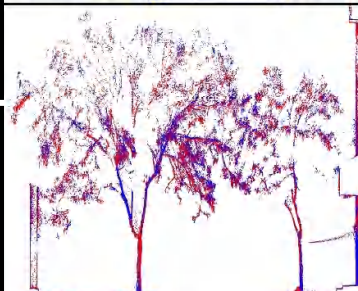
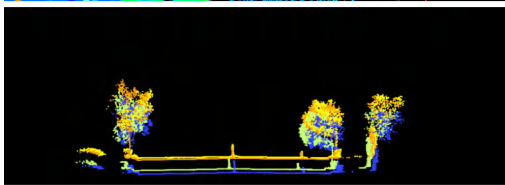
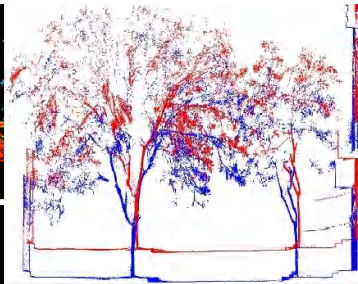
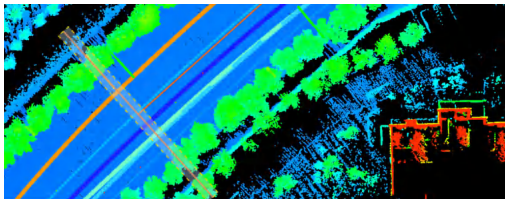
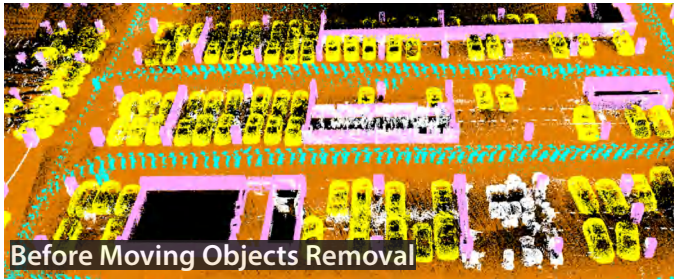




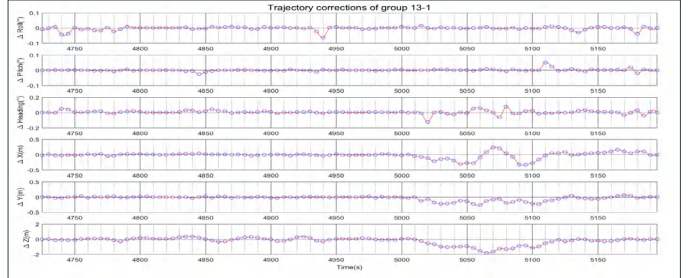
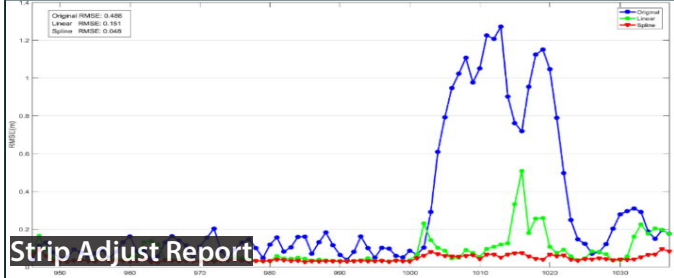
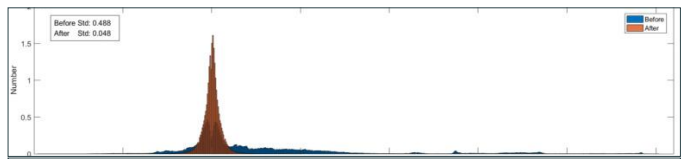
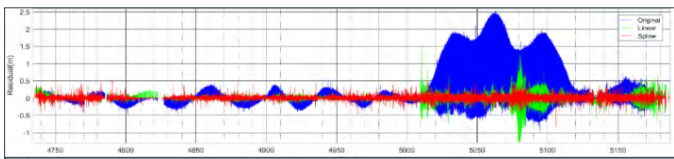
Georeference

- New data processing workflow to continuously improve algorithms and data quality.
- One click point cloud generation for LiGrip, LiBackpack and LiMobile.
- Support point cloud generation in the feet coordinate system.
- Multi-source data registration for complex scenarios.
- Support quality inspection and accuracy improvement.
- 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.
- Support moving object removal.



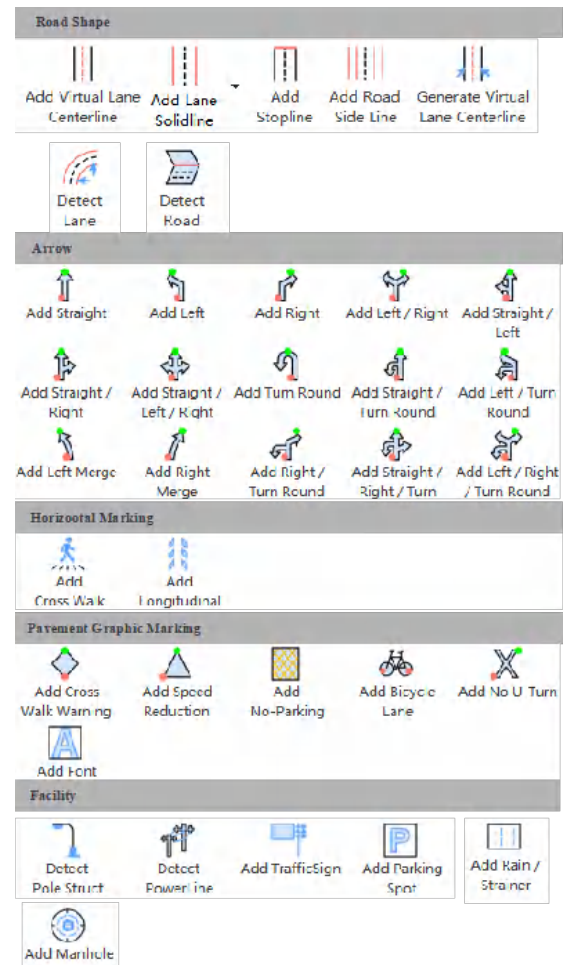


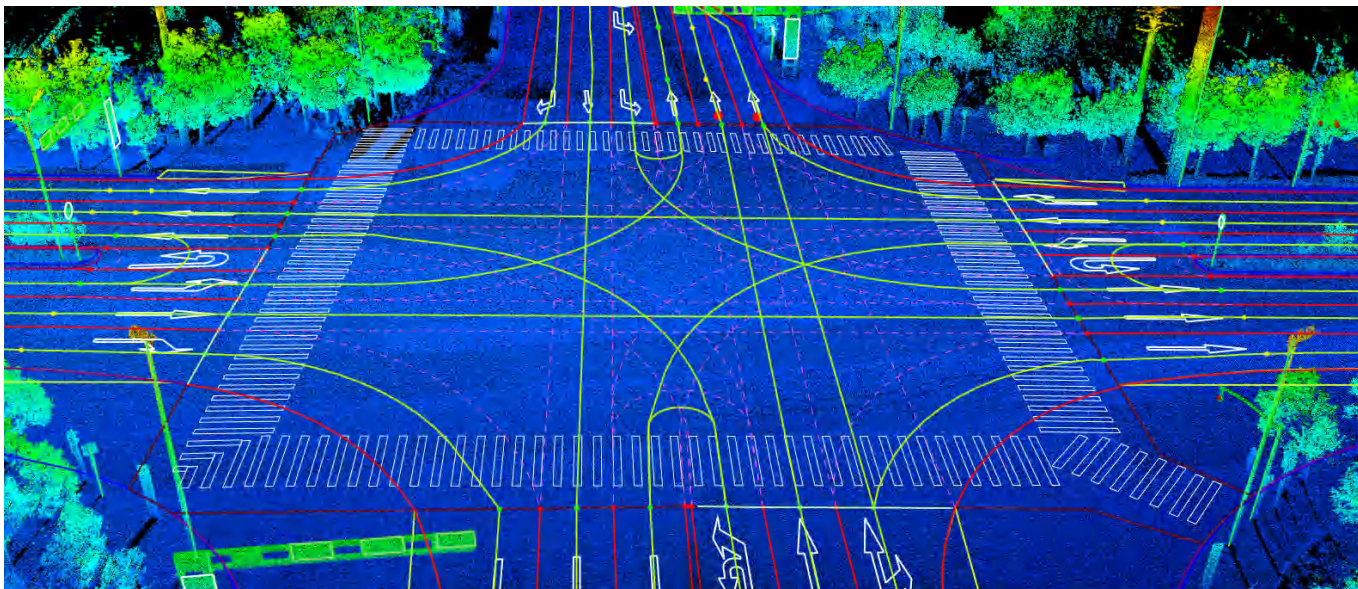
LiGrip Data Colorization Effect



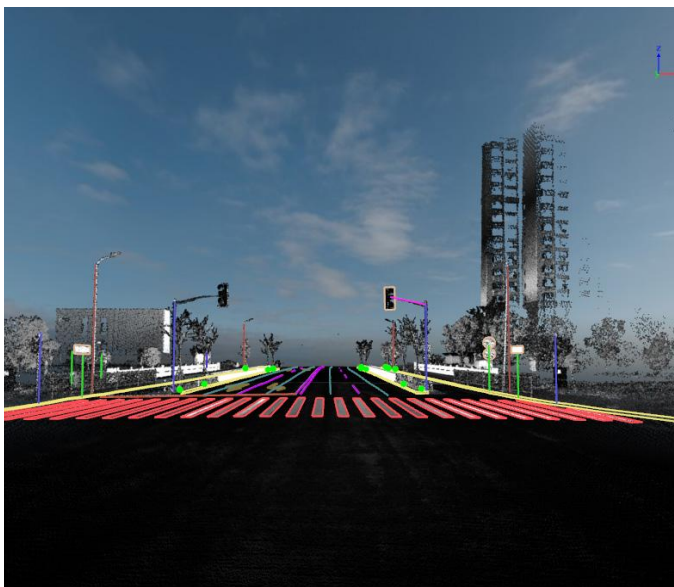
Asset Extraction

- Built-in fully automatic road marking extraction model.
- Support North American road marking AI model.
- Customized road marking extraction model training based on synthetic samples.
- Provide a rich sample libraries, support external import of sample vector contours in dxf, shp and other formats.
- Intelligent extraction of road facility, supporting custom AI models.
- Localized training and inference of custom road facility extraction models based on synthetic samples.
- Customizable road element symbol library, 100% fit in the drawing effect .
- Support the drawing of special symbols such as characters and letters, and enrich the achievement database.
- Interactive automatic multi-element detection improves mapping efficiency.
- Rich road element templates, drag and drop with one-click.
- Support customization of linear facility template to achieve batch extraction of linear elements.
- Support batch extraction of existing railroads and central lines.
- Support individual segmentation and parameter extraction of road facilities such as poles and vehicles.





AI-based Road Marking Extraction

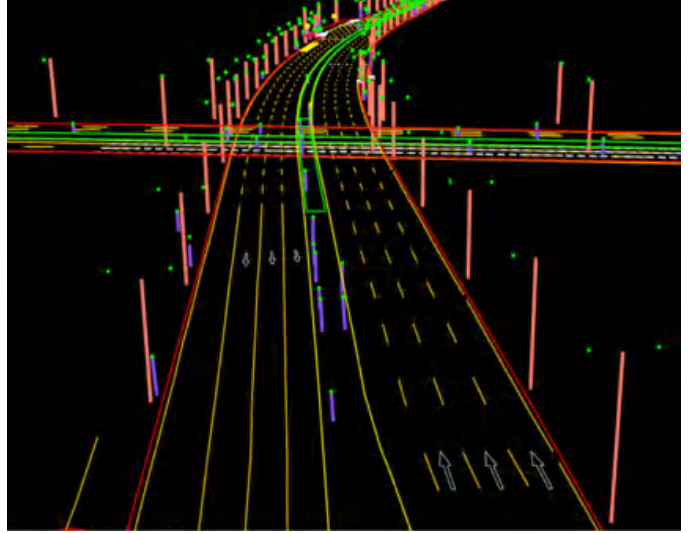


AI-based Road Facility Extraction

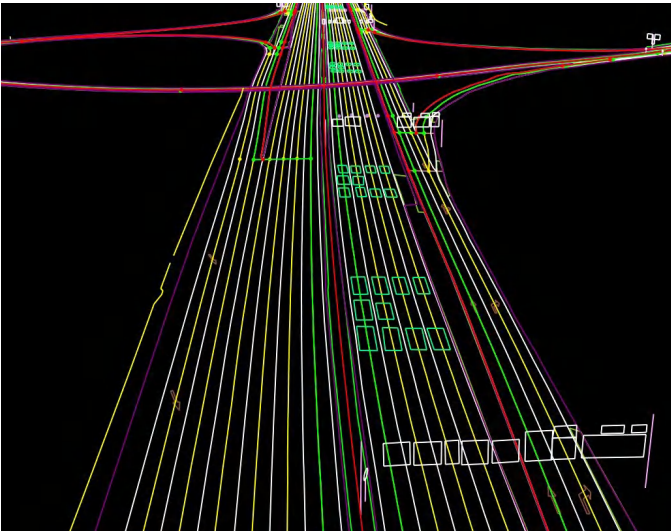




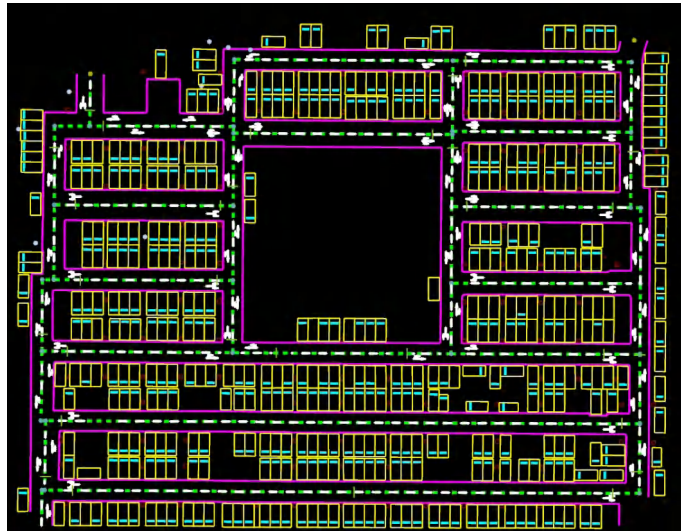
Urban Road Scene



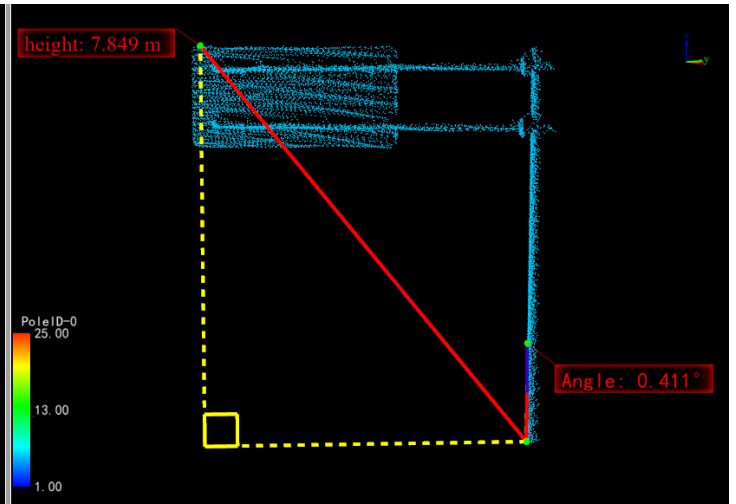
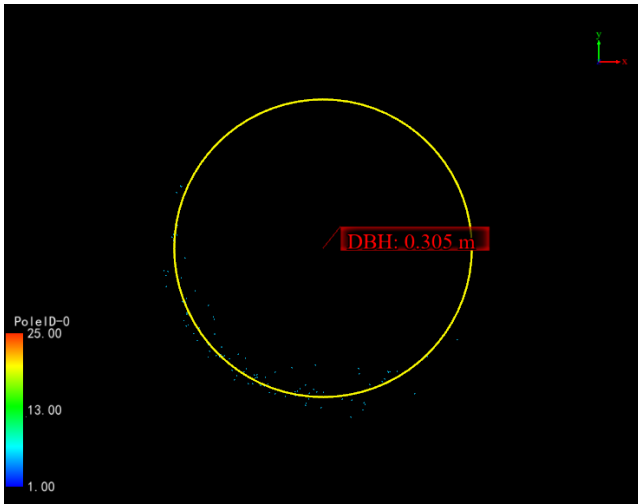
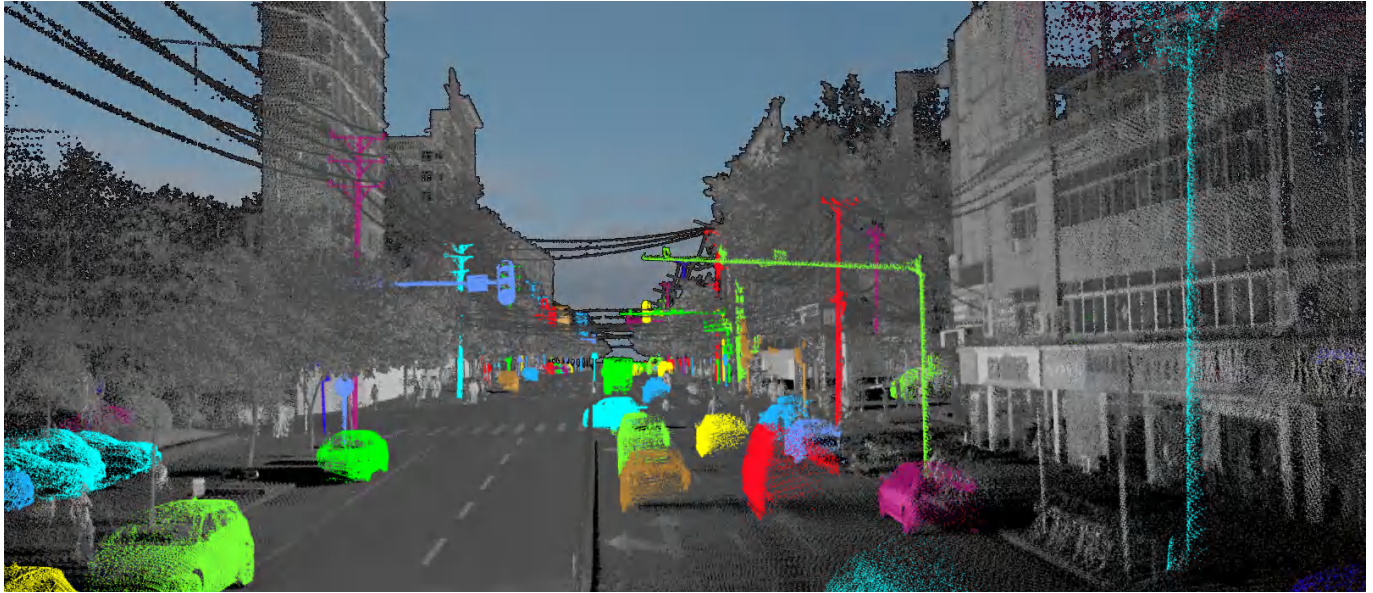
Overpass Scene



Highway Scene



Underground Parking Garage Scene



Feature Objects Table

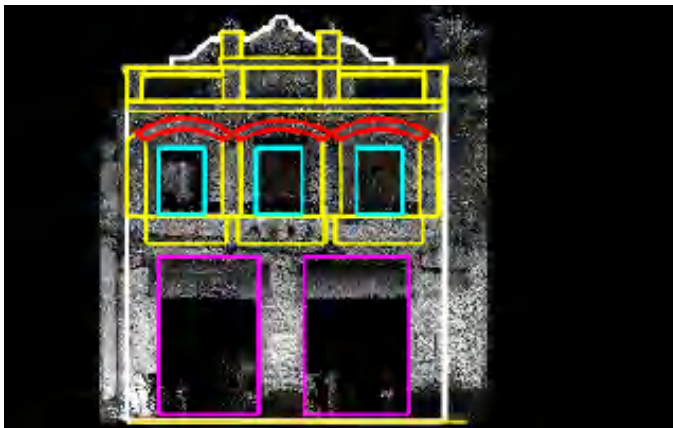
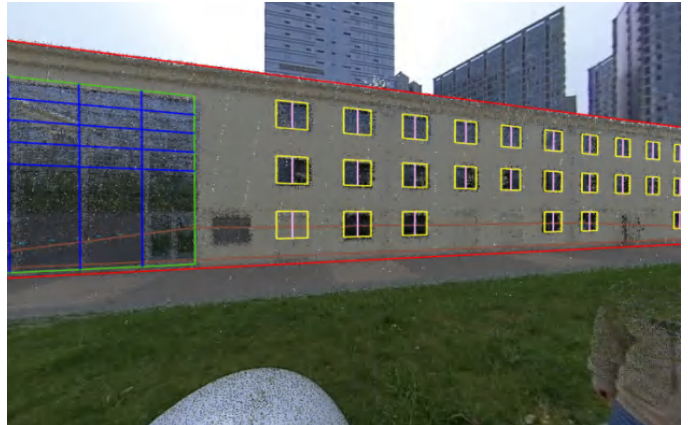
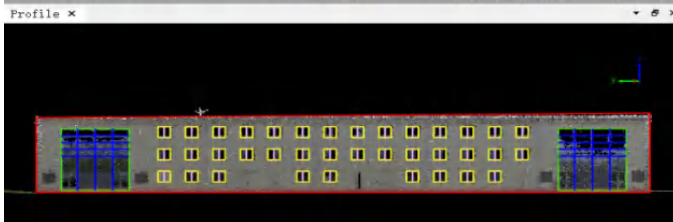
Type: Pole Calculation

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

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 plans.
- Provide a multi-mode baseline collection method to adapt to various 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.



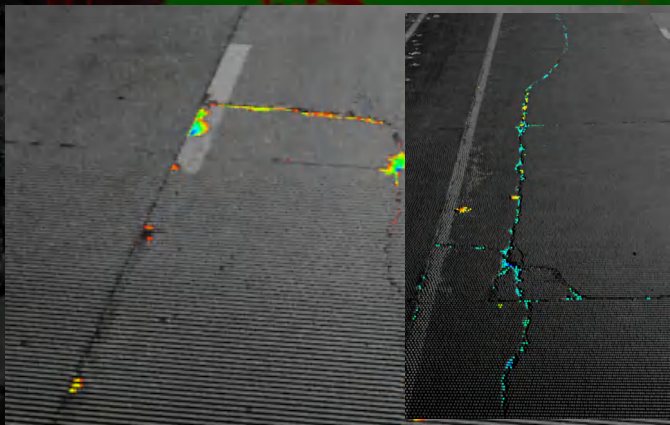


Road Condition

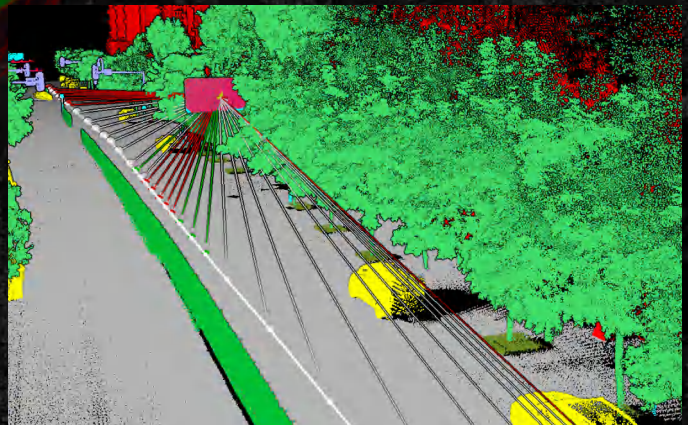
- AI-based pavement damage detection and support for pavement condition index(PCI) calculation.
- Support for multi-source data fusion in road damage editing.
- Support 3D space analysis methods such as clearance analysis, viewshed analysis, bridge height limit analysis, vehicle collision simulation analysis, railway inspection, etc.
- Support road section analysis, compare and analyze multi-phase data and generate standard comparison reports.
- Generate high-precision terrain based on cross-sectional key points, support road section analysis and parameter calculation.
- Support the calculation of various road section parameters to assist in the analysis of road construction and other operations.



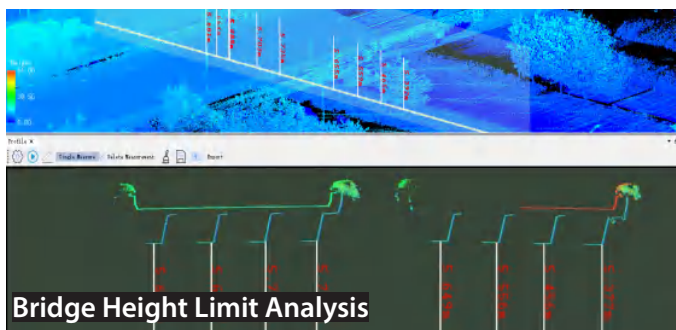
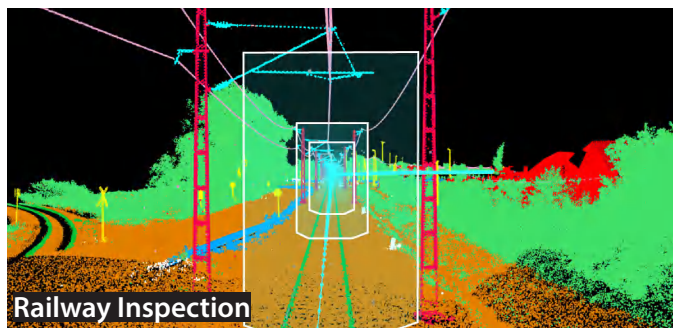
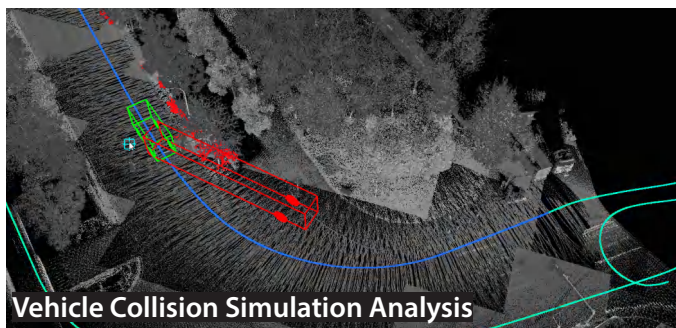
AI-based Pavement Damage Detection



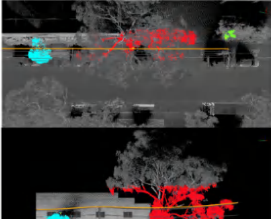
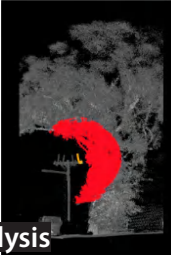
Road Pavement Analysis



Viewshed Analysis Based on Target Point



No.	Position	Type	Horizontal Distance(m)	Vertical Distance(m)	Clearance Distance(m)	Clearance Area(m ²)
2	33°56'43.61"S 151°11'32.19"E	Vegetation	1.04	0.27	1.07	0.28

Urban Power Distribution Line Analysis

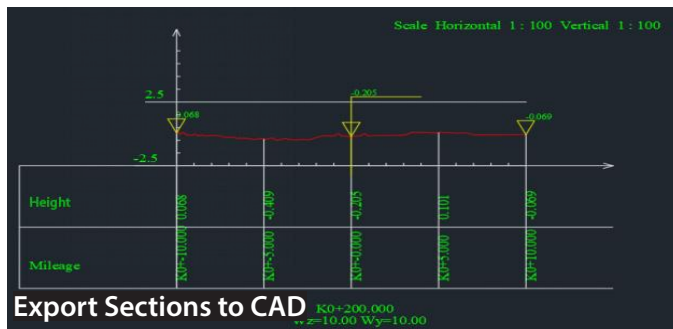
Name	Unit	Value
Corridor	M	38
MO-20	M	20
MO-40	M	40
MO-60	M	60
MO-80	M	80
MO-100	M	100
MO-120	M	120
MO-140	M	140
MO-160	M	160

Cross Section Analysis

Longitudinal Section Analysis

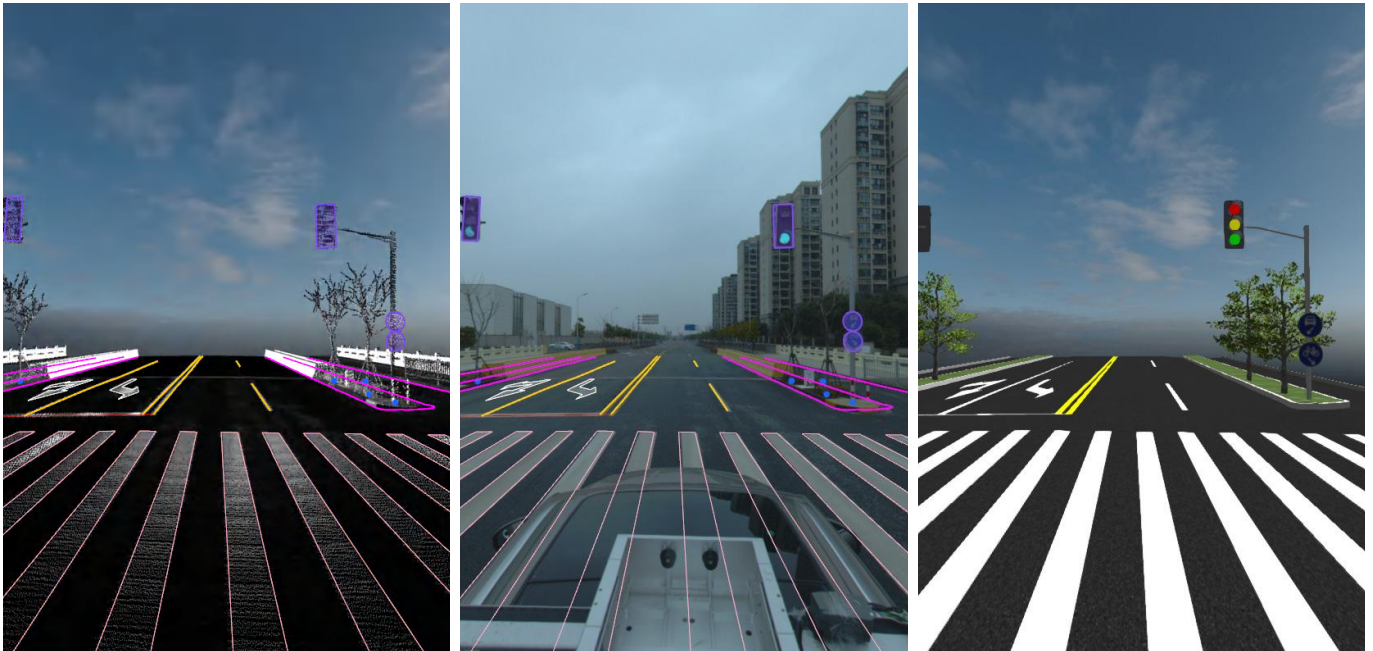
Section Measurement Report

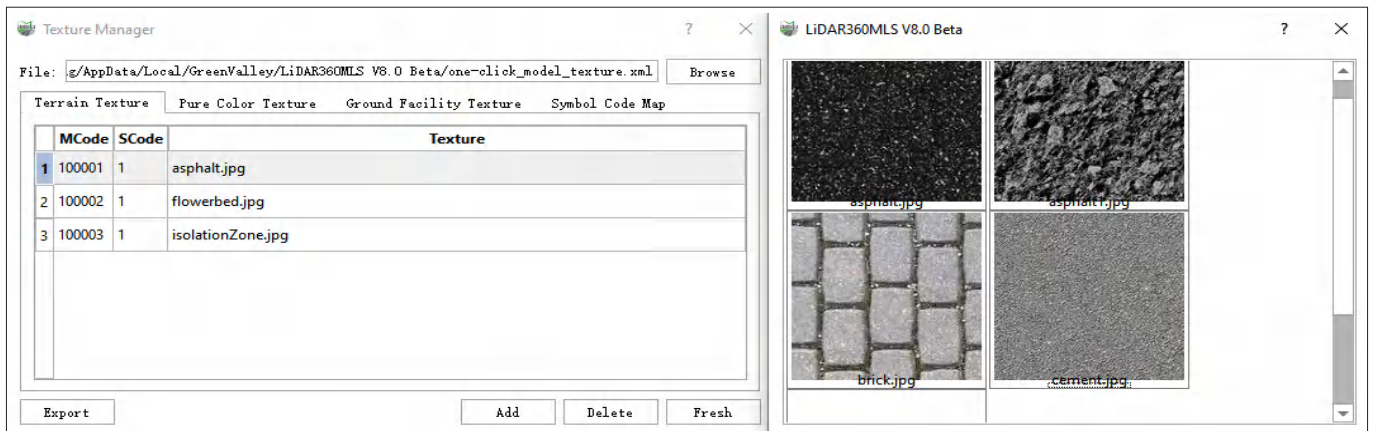
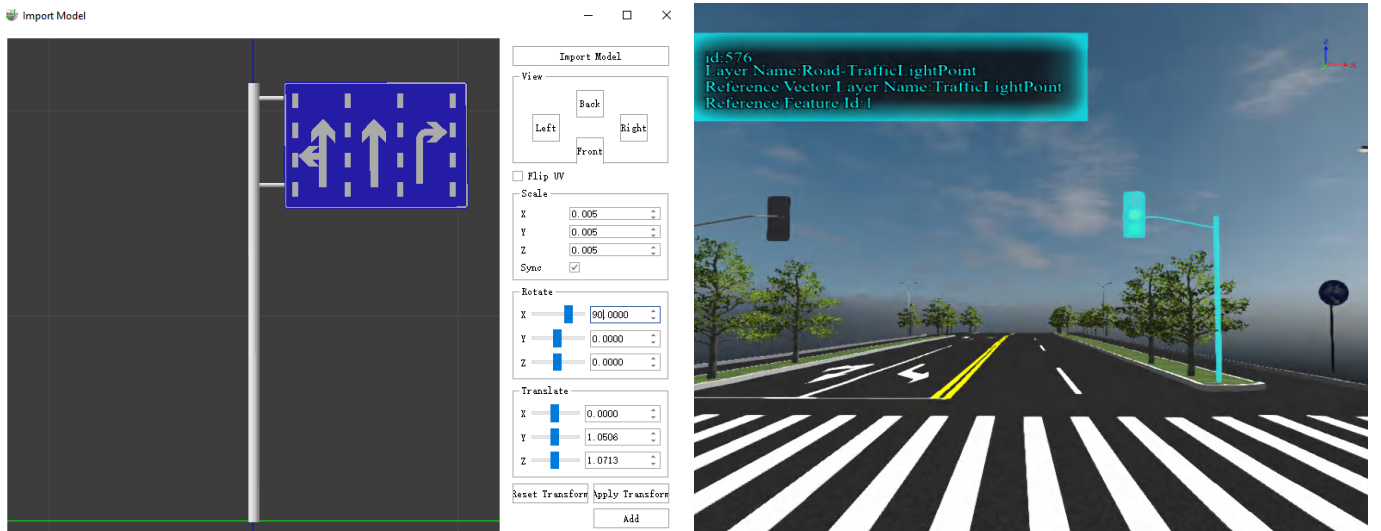
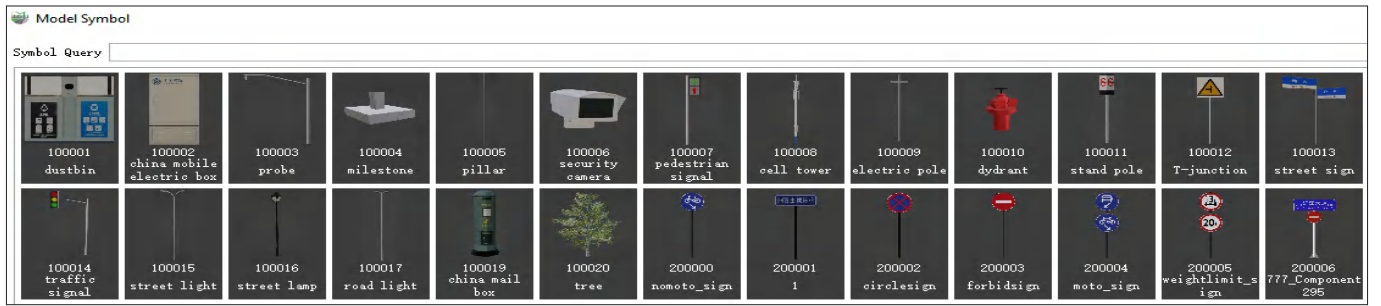
Section Report



Road Scene

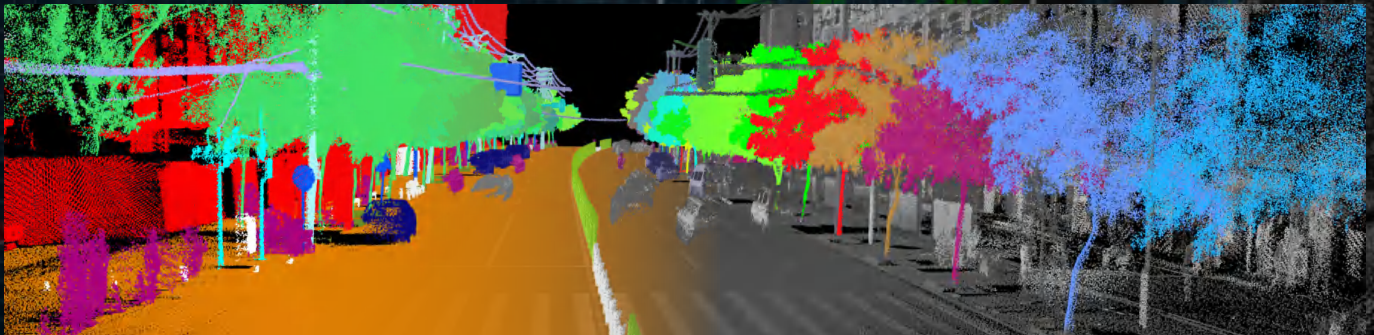
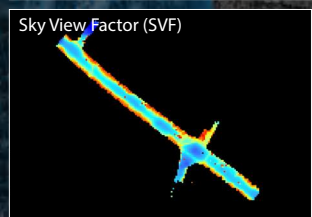
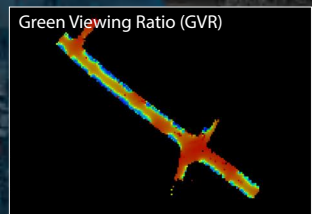
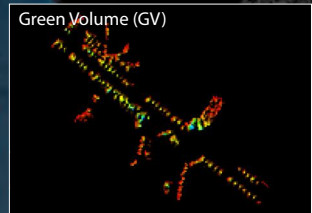
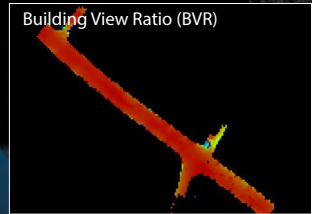
- Generate component-level 3D real scene with one click.
- Support automated quality inspection.
- Support model library expansion and customized configuration of model textures, with more than ten model editing tools.
- Support model export to obj format.





Forestry

- AI-based point cloud classification.
- Seed point extraction, supporting single point, batch and global modes.
- Individual tree segmentation and parameter extraction.
- Individual tree editor and parameter measurement.
- Support measurement of parameters including DBH, Height, Crown Width, Crown Length, Crown Diameter, Crown Diameter SN, Crown Diameter EW, CBH, Angle, Area, etc.
- Individual tree management with parameters and photos.
- Ecological landscape thematic map.
- Simulation analysis of Green Viewing Ratio(GVR), Green Volume, Sky View Factor(SVF), etc.
- Expand batch processing mode for ecological landscape analysis to meet the needs of large-scale scene analysis.



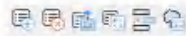
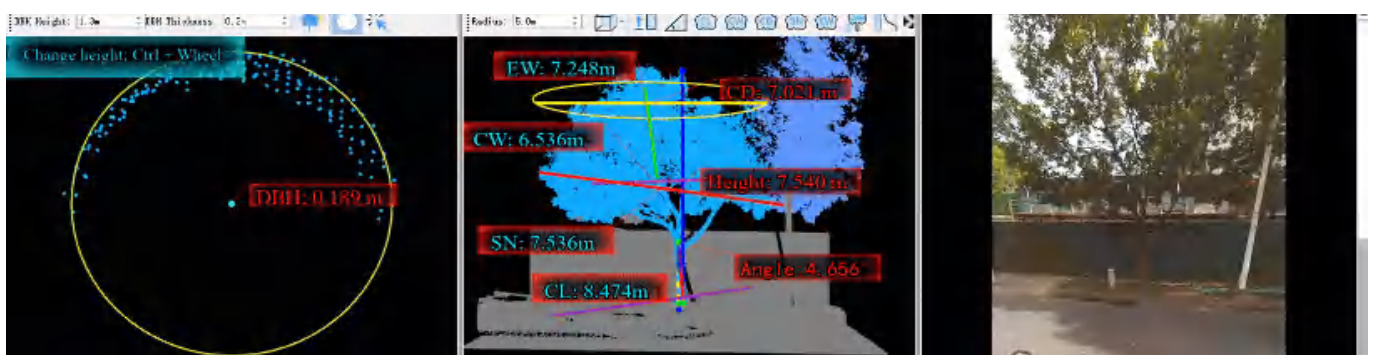
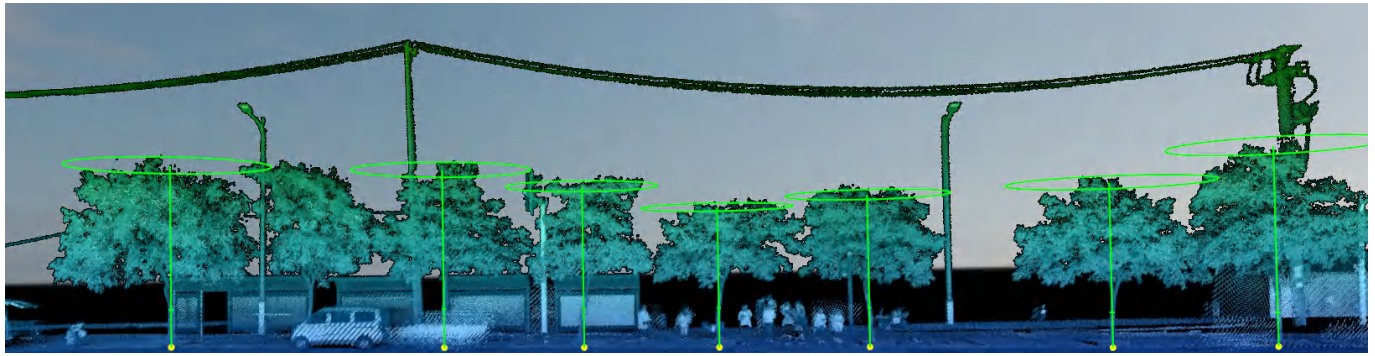


Image	Object ID	X	Y	Z	DBH	Height	Angle	CrownDiameter	ownDiameterS	ownDiameterE	CrownLength	CrownWidth	Area	Volume	B...
1	Blob	625		12,329	0.189	7.540	4.656	7.031	7.965	6.808	10.434	6.536	18.718	554.973	
2	Blob	637		12,702	0.285	11.968	2.941	8.041	9.969	8.135	10.852	8.090	50.779	252.884	

Tree ID	Location(m)	Z(m)	Elevation(m)	Height(m)	DBH(m)	CD(m)	SN(m)	EW(m)	Area(m ²)	Volume(m ³)	Distance(m)	Azimuth(°)
1	532242.752, 3373649.822	10.696	10.696	6.806	0.165	4.103	4.252	4.392	13.223	37.522	114.573	81.851

GSReconstruction

- Support Gaussian reconstruction based on LiGrip O1 Lite and LiGrip H300 device data.
- Support importing PLY and LiSplat Gaussian models and displaying roaming view.
- Support Gaussian model superimposed point cloud rendering, as well as linkage between GS data and Point Cloud.
- Support linkage between GS data and Panorama.
- Support single-point, multi-point, length, height, area, angle, and other measurements based on Gaussian data.
- Support Gaussian model editing and provide a variety of options for cutting tools and exporting data after cutting.
- Support viewing cross-sectional data of Gaussian models.
- Support exporting data in both LiSplat and PLY formats.
- Support browsing Gaussian data based on camera or trajectory.
- Support 3D mapping on Gaussian data.



Gaussian-linked point cloud



Panorama-linked Gaussian



3D Measurement



Substation Scene



Sculpture Scene



Architectural Facade Scene



Indoor Scene



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