



SLAM100
Handheld laser scanner



3D D
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SLAM100 is the first handheld mobile lidar scanner launched by Feima Robotics. The system has a 360° rotating head, which can form a 270°×360° point cloud coverage. Combined with the industry-level SLAM algorithm, it can obtain high-precision three-dimensional point cloud data of the surrounding environment without light and GPS.

SLAM100 adopts three 5-megapixel cameras to form an ultra-wide field of view with a width of 200° and a height of 100°. It can simultaneously obtain texture information under light conditions and generate color point clouds and partial stitched panoramic images.

SLAM100 adopts an integrated structure design with a built-in control and storage system and built-in replaceable lithium batteries. Once press the start button, SLAM100 can start operations immediately, making data acquisition more efficient and convenient.

SLAM GO is the mobile APP for SLAM100 to view and manage projects, which would automatically be synced to the cloud to furthermore perform real-time SLAM mappings and previews. Moreover, SLAM GO can be utilized to perform operations such as firmware upgrades and equipment maintenance. SLAM GO POST, as a PC software module integrated in UAV Manager Professional Edition which is a comprehensive software platform Released by Feima Robotics, can realize the functions of data post-processing, color point could production, data stitching, data optimization, data preview and measurement and so on.

SLAM100 can be widely used in various applications such as traditional surveying and mapping, enclosed space, three-dimensional digitization, emergency response and so on due to its portability,GPS-free, and multi-platform mounting ability.

Overall parameters

Laser scanning FOV	270° × 360°
Camera FOV	200°(H) × 100°(V)
Relative accuracy	2 cm
Absolute accuracy	5 cm
Storage	32 GB(Standard)
Power supply	Replaceable battery; External power supply
External power supply voltage	20-30 V
Battery capacity	3350mAh*4
Battery duration	2.5 h
Power consumption	25 W
Operating temperature	-10℃ ~ +45℃
Operating humidity	<85% RH
Weight	1588 g(Without Battery)
Size	372 mm × 163 mm × 106 mm(Without Base)

Sensor parameters

Laser class	Class 1
Laser channels	16
Maximum range	120 m
Laser pulse repetition rate	320 kHz
Echo signal intensity	8 bits
Number of cameras	3
Camera resolution	5 Megapixels
NFC	Supported



02 | Component introduction

Laser scanner

120 Meter range 320 kHz laser PRR

Rotating head

360°x270° FOV

Three cameras

5 Megapixels for each

Dismountable handle

Replaceable battery

NFC

Touch WIFI for connection

Status indicator

Power and working status reminder

Start button

One-key to active

SD card slot

Replaceable storage medium

Extended interface

Abundant external equipment

USB interface

Firmware updating or log downloading

SLAM100

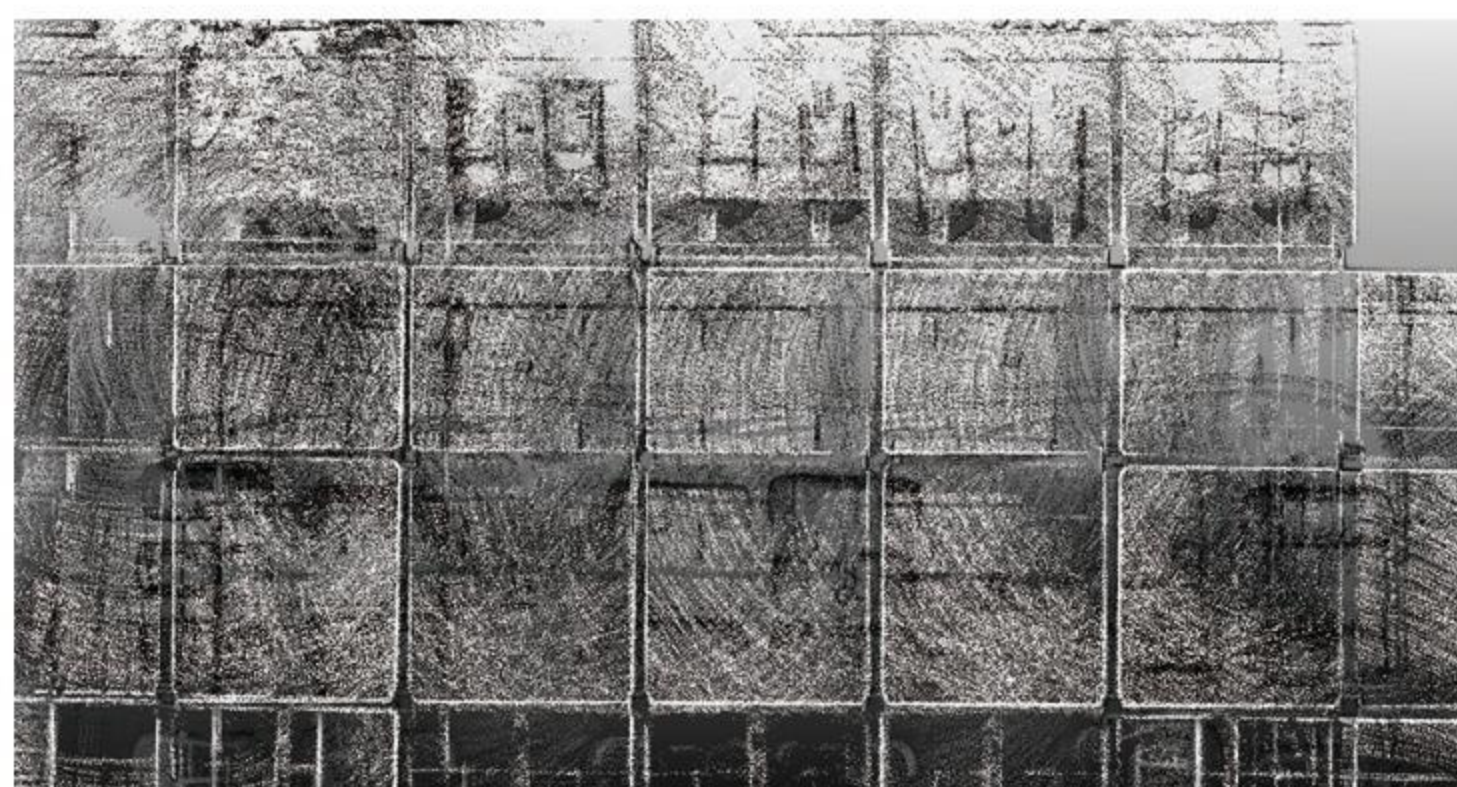
03 | Feature introduction

270° × 360° Laser FOV

Through rotating scanning, the laser Scanner of SLAM100 can dynamically collect data and form a 270°×360° field of view, making it accurate and complete to acquire data from the space around us.



Rotating scanning making the top and bottom data uniform and the corner data complete



Fixed scanning resulting in the top and bottom data sparsity and the corner data occlusion



The visible light cameras

Three 5-megapixel cameras are adopted to form a horizontal 200-degree field of view and a vertical 100-degree field of view, which can synchronously obtain texture information and to furthermore produce color point clouds and partial panoramic images.



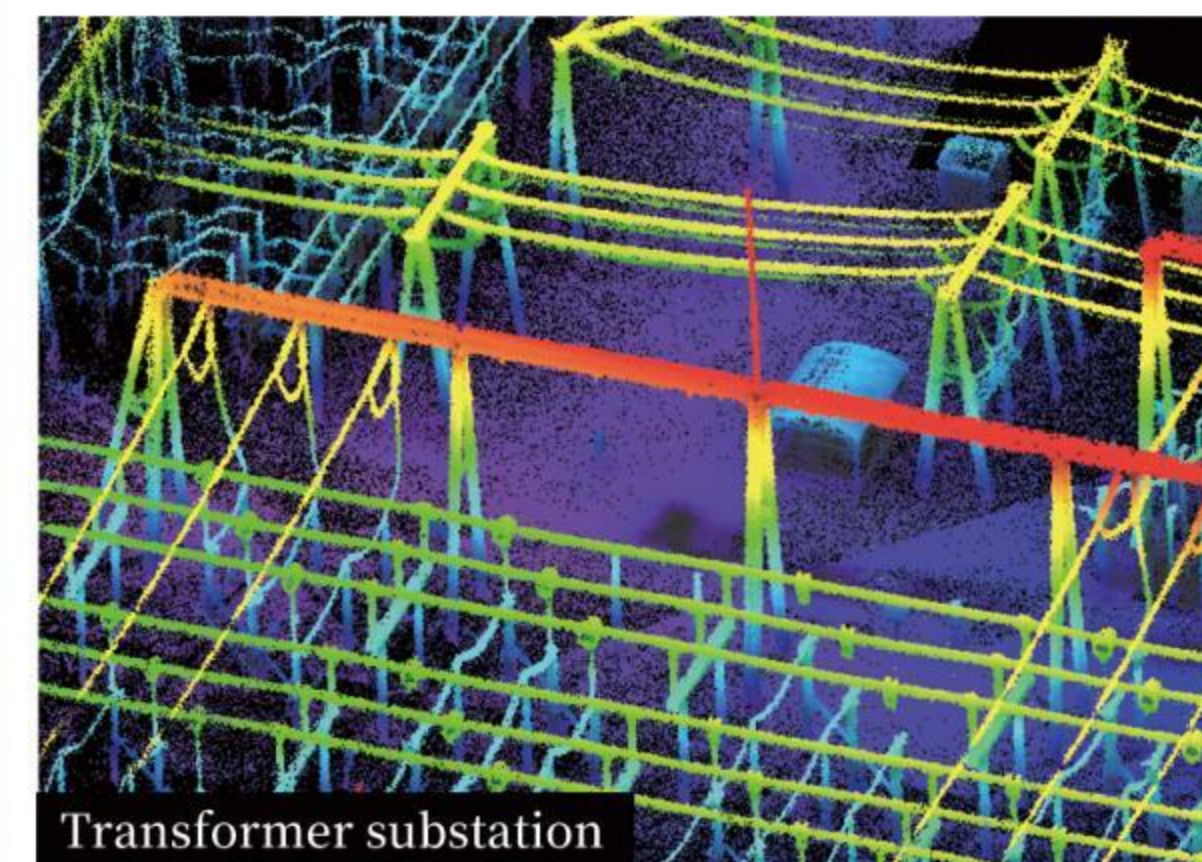
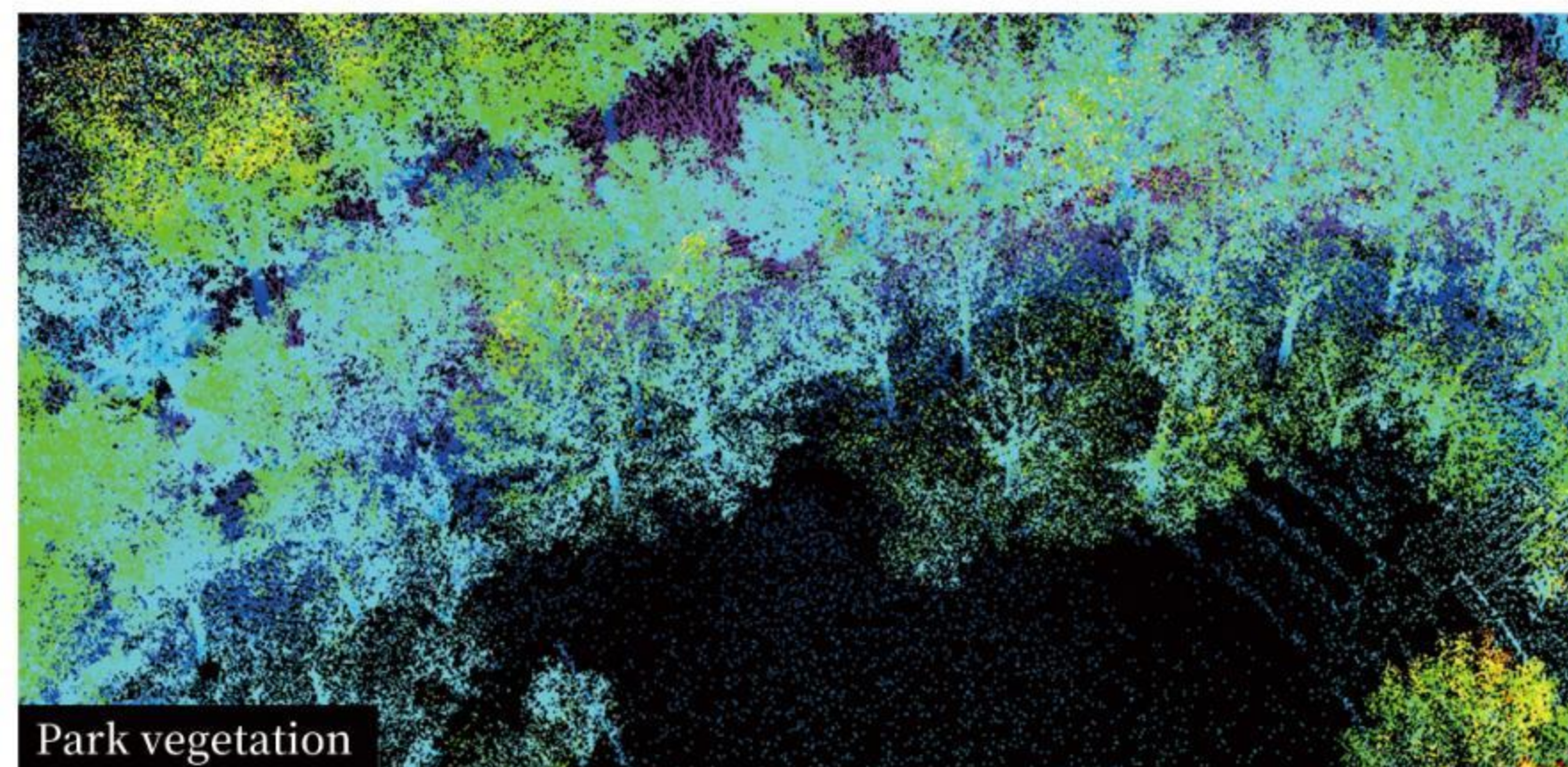
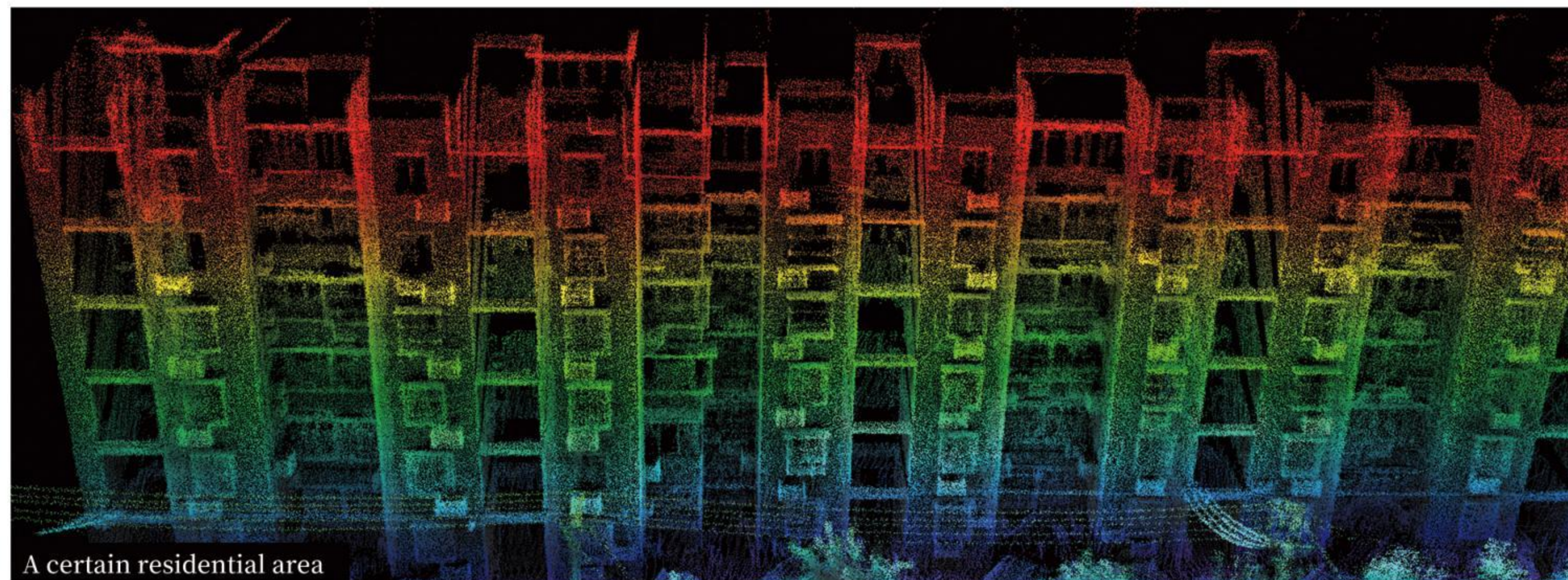
Schematic diagram of data cloud and Image fusion



Partial panorama image

High precision and high definition

Industry-level SLAM post-processing algorithms enable SLAM100 to obtain higher precision and finer 3D point cloud data.



Automatic control point measurement

Without the need to manually add control points, SLAM100 can actively collect and automatically extract the control points and thus easily georeference the result data in the global coordinate system.



03 | Feature introduction

Versatile external interfaces

SLAM100 has a wealth of external interfaces, which can be connected to a panoramic camera, a GPS module, a car, a UAV and so on, to diversify data collections and adapt to more application scenarios.



UAV mount

SLAM100 can be equipped to the Feima' s UAV platforms of D500 or D20 via a UAV mount, so as to carry on air-ground or indoor and outdoor data collection

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SLAM GO

SLAM GO is a mobile application developed in conjunction with SLAM100. the APP can be connected to SLAM100 through a cell phone, and can perform project management, real-time point cloud display, image preview, firmware upgrade and other operations. The APP is synchronously adapted to Android and iOS operating systems.

Real-time data display

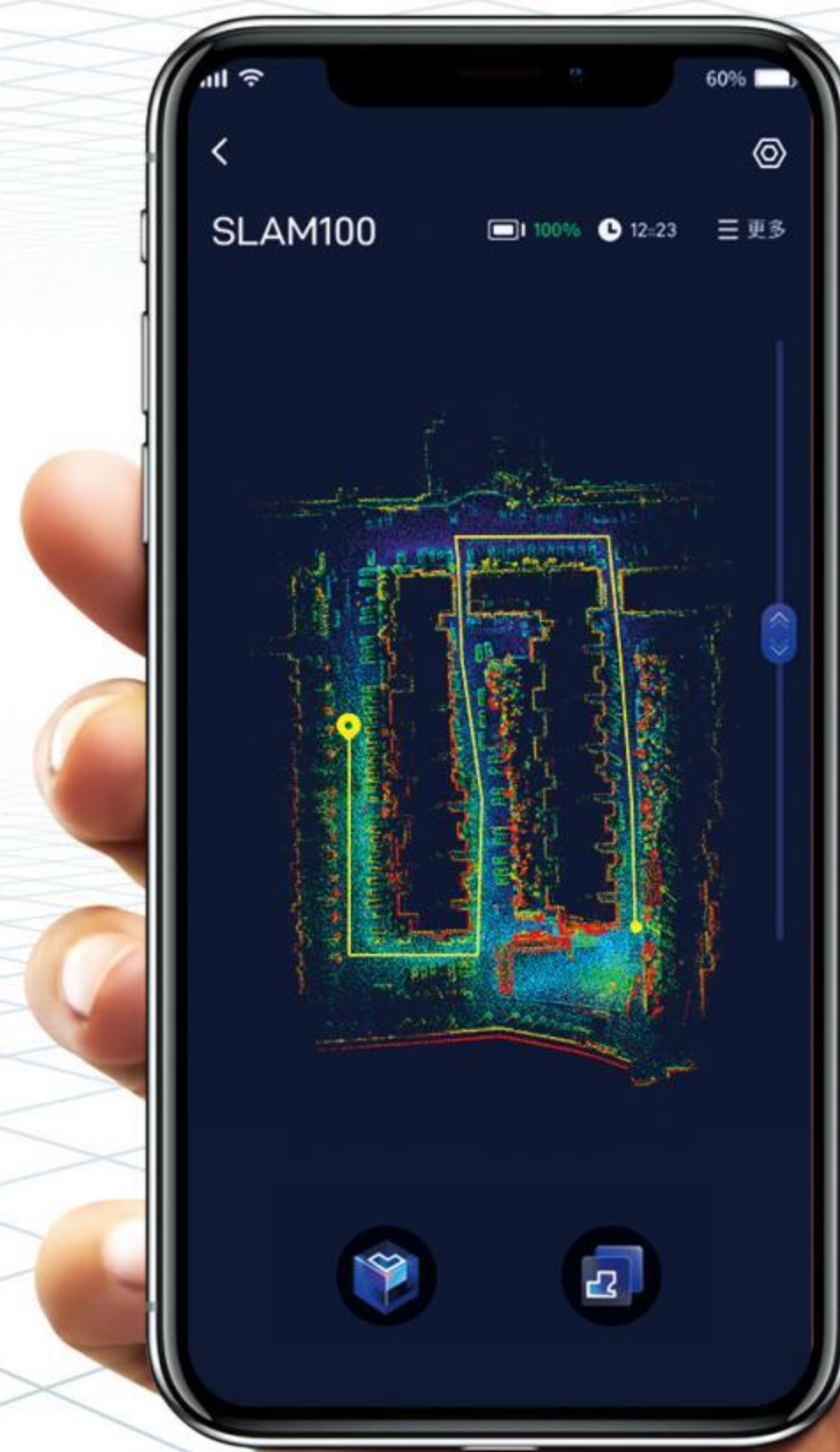
Through wireless connection to SLAM100, the scanned data can be real-timely displayed in 2D, 3D or slice display modes and without loss

Cloud information synchronization

Historical project information, such as the operating time, operating location, project overview and data overview, can be synchronized to the cloud via the APP and displayed

Image preview

The APP can preview the images obtained by three cameras, so as to adjust the operating parameters according to the actual operating environment



SLAM GO POST

SLAM GO POST, embedded in the UAV Manager professional edition, is a PC software that is compatible with SALM100. the software can perform post-processing of collected data, generate high-precision and high-definition color point clouds, produce partial panoramic images, display point cloud and perform optimization processing.

High-precision point cloud mapping

Support generating indoor and outdoor point clouds with a relative accuracy of 2 centimeters

Point cloud preview

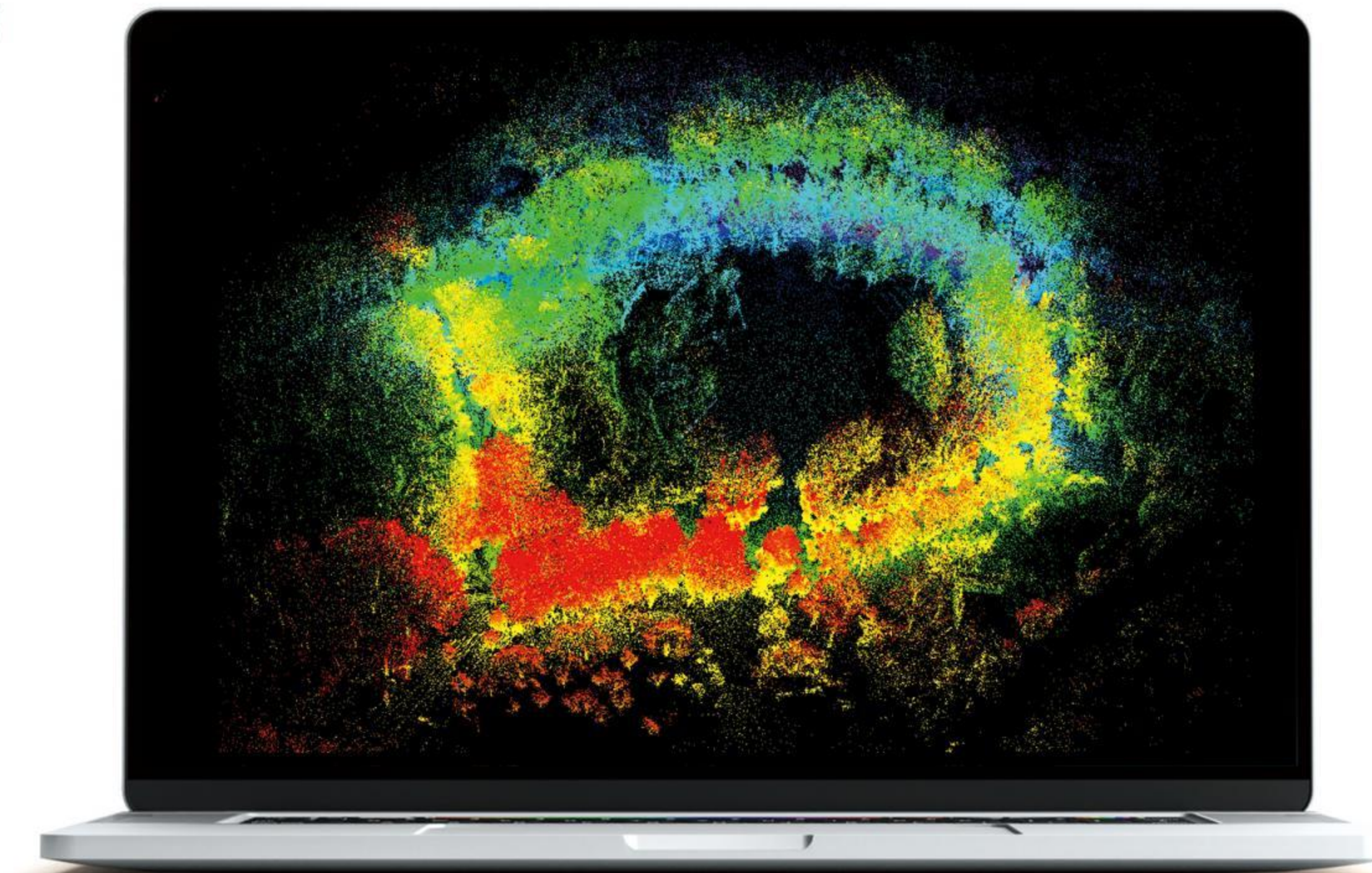
Support basic point-cloud preview operations such as zooming in, zooming out, roaming, and cross-section

Point cloud rendering and coloring

Support EDL and PCV point cloud rendering and RGB color rendering

Panorama image generation

Support the generation of high-definition partial panoramic images of key locations in the scene



S-RTK100

Multi-functional portable RTK module

The multi-functional portable RTK module S-RTK100 is a high-precision satellite signal receiver system independently developed by Feima Robotis. It supports global dominated satellite navigation systems, provides real-time differential data, obtains centimeter level 3D positioning data, and provides accurate and reliable system solutions for high-precision application demands.

S-RTK100 supports assembly with SLAM100 laser scanner, backpack mounting or independent use as mobile RTK equipment, which is flexible and high precision when acquiring positioning data.

S-RTK100 adopts engineering design, with IP54 protection grade, strong waterproof and dust-proof performance, small size It is samll and light, easy to carry and use and can work with multiple Feima’ s products.

Satellite frequency bands	BDS B1/B2
	GPS L1/L2
	GLONASS L1/L2
	Galileo E1/E5b
Single point positioning (RMS)	Plane:1.5 m, altitude:3.0 m
RTK(RMS)	Plane:1 cm + 1 ppm, Altitude:1.5 cm + 1 ppm
Data format	NMEA-0183, Unicore*
Data update rate	20 Hz
Time accuracy (RMS)	20 ns
Speed accuracy (RMS)	0.03 m/s



Material	Lastic, aluminum alloy
Dimensions	196 mm × 80mm × 39mm
Net weight	203 g
Bracket weight	20 g
Protection grade	IP54
Working temperature	-20°C~50°C
Storage temperature	-20°C~55°C
Type-C external power supply	20 V
Aviation socket Power supply input range	12 V - 20 V

S-PACK100

Lidar backpack platform

The lidar backpack platform S-PACK100 is an integrated expansion platform released by Feima Robotics to adapt to the SLAM100 laser scanner. The platform, with a total weight of 3.65 kg, can support the expansion of RTK module and panoramic camera module, and can mount SLAM100 LiDAR scanner for backpack walking operations, which greatly improves the operating efficiency of SLAM100 and expands the operating mode of SLAM100. The user-friendly design of the S-PACK100 can improve the working efficiency and free hands, effectively reduce the physical consumption of operators.

Fabric material	Nylon
Colour	Lake blue, grey
Embedded carbon plate material	Carbon fibre
Material of metal parts of mounting base	Aluminium alloy
Volume	6.5 L
Closing mode	Zipper
Dimensions (without GNSS antenna)	330 mm × 240 mm × 555 mm
Dimensions (with GNSS antenna)	330 mm × 240 mm × 1050 mm
Weight	3.65 kg (without SLAM100 and power bank)



Module features



High precision positioning



Simple and portable



IP54 protection grade



Multi-operation mode



High reliability



4G/Bluetooth



Mobile RTK mapping



Mapping with SLAM100



Mapping with S-PACK100

SLAM GO RTK

SLAM GO RTK is the supporting application software module pertaining to SLAM GO fo S-RTK100. The App can connect to the S-RTK100 through Bluetooth mode via a mobile phone, to perform static station data acquisition, point data acquisition, mobile station data acquisition, automatic generation of point record report, and so on. The App supports Android and IOS and is permanent frec.

Static station data acquisition

Static station coordinates can be acquired by connecting CORS system, and static station GNSS data can be continuously acquired for PPK processing.

Point data acquisition

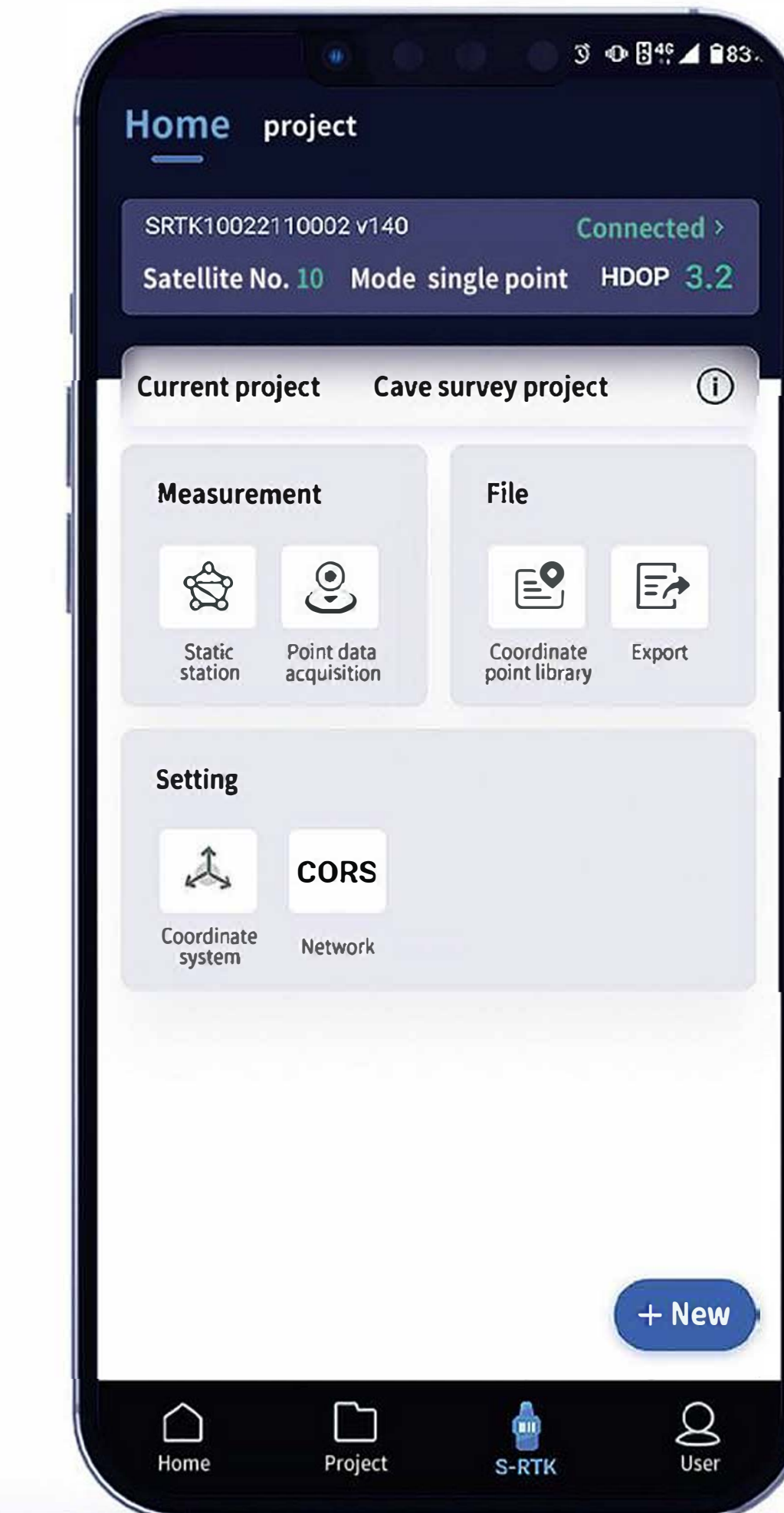
It can be connected to the CORS system and mounted on a Light tripod or centering pole to collect points. it supports the recording of shooting points during image control point collection, and automatic modification of the collection mode according to the type of collection point.

Mobile station data acquisition

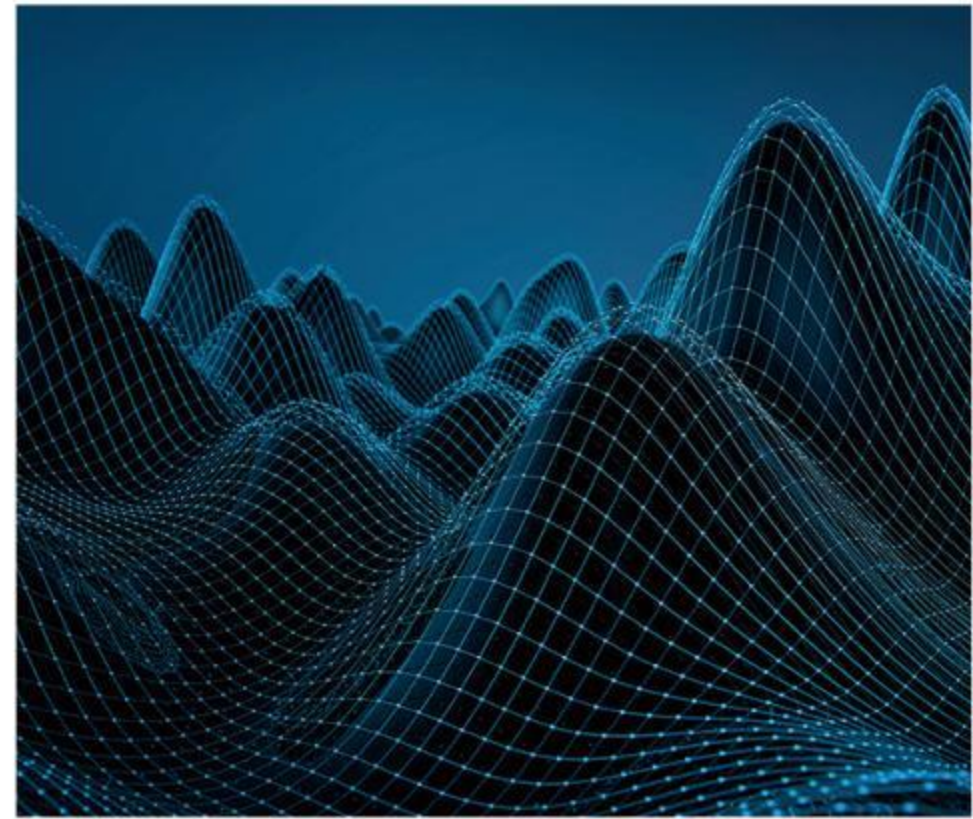
It can be installed on the mobile platform as a GNSS board to collect GNSS data of rove, output time synchronization signal, and connect CORS system for real-time RTK positioning.

Generate the record of points report

According to the colleuted coordinate point information, point records, and the report template of point records created by the user, all point record repoets can be generated with one click.



07 | Application scenarios



Topographic mapping

Traditional topographic mapping
Deformation analysis, landslide detection,
and disaster response Earthwork
calculation
.....



House property mapping

Cadastral survey
House digitization
Real estate surveying and mapping
.....



Volume calculation I

Grain piles
Coal piles
.....



Ancient building protection

Ancient buildings, ancient tombs, large-scale
space construction buildings that need to
be archived and protected, statues,
ancient trees, etc.



Digital management

Digital factory, indoor navigation, BIM
application, line inspection and other
digital management applications



Reverse engineering

Internal and external scanning of large objects
such as airplanes, ships, and large vehicles,
for applications such as reverse engineering



Underground space

Internal measurement of artificial closed spaces
such as underground garages, tunnels, and
subways, etc., can be used for closed space detection,
intelligent navigation maps



Karst cave and tunnel

Detection of channel-type scenes such as
natural caves, roadways, and urban underground
corridors, and emergency rescue
based on them



Volume calculation II

Volume measurement of large airtight
containers such as oil tanks and granaries



Completion measureme

Completion measurement of buildings,
factories, communities, subways and other
large construction factories



Forestry investigation

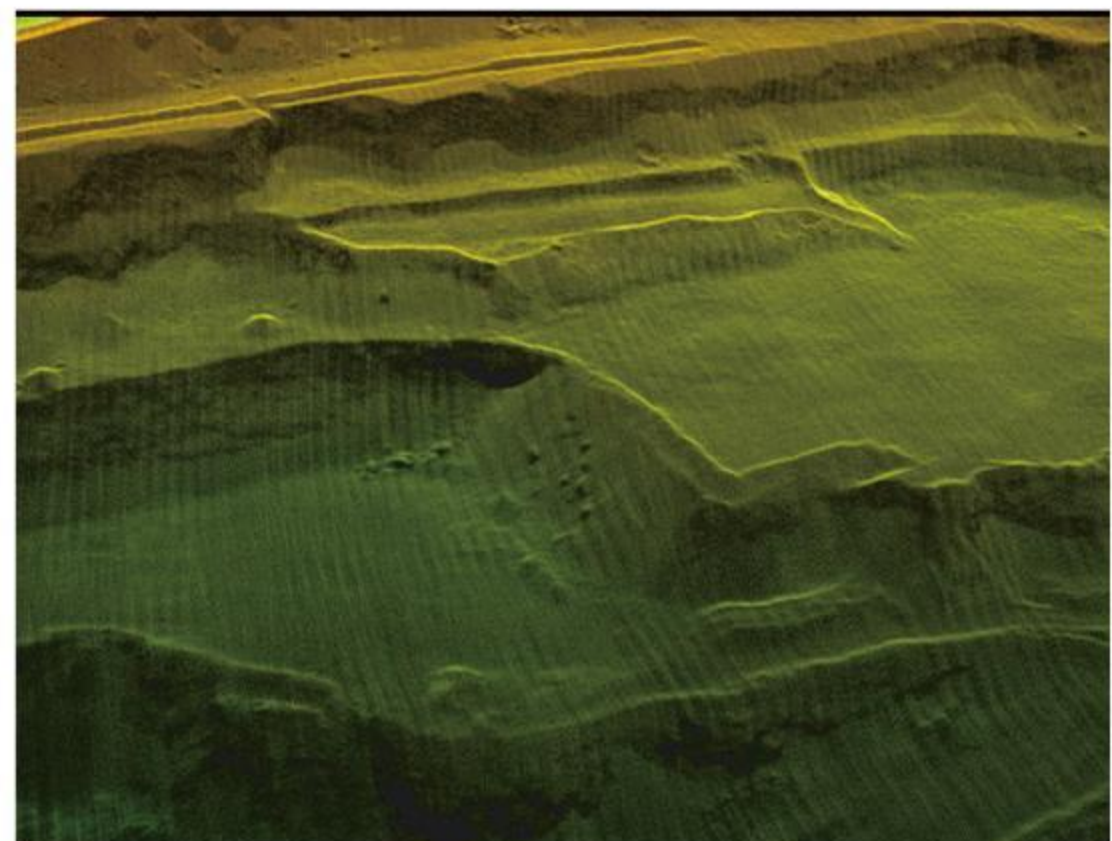
Single tree extraction and separation,
tree number statistics, tree DBH statistics



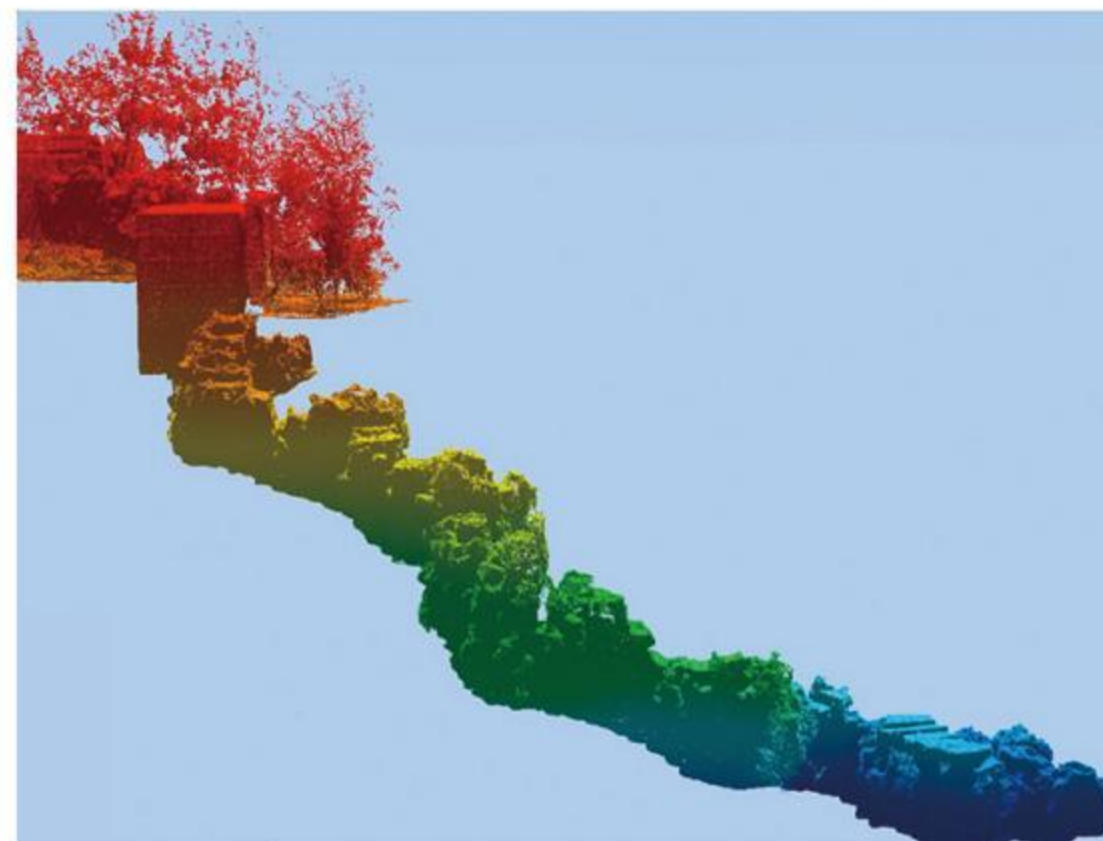
Building facade survey

Renovation of old communities
Scanning of building facades
.....

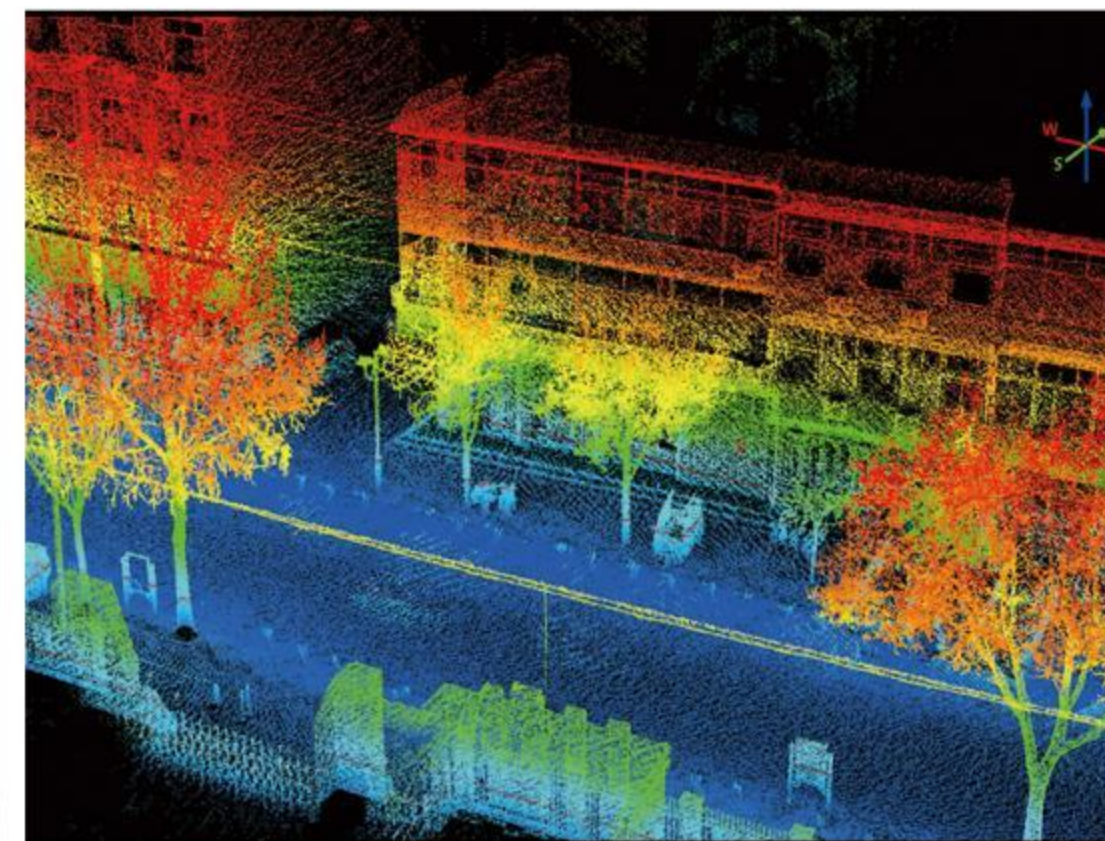
Geographic information



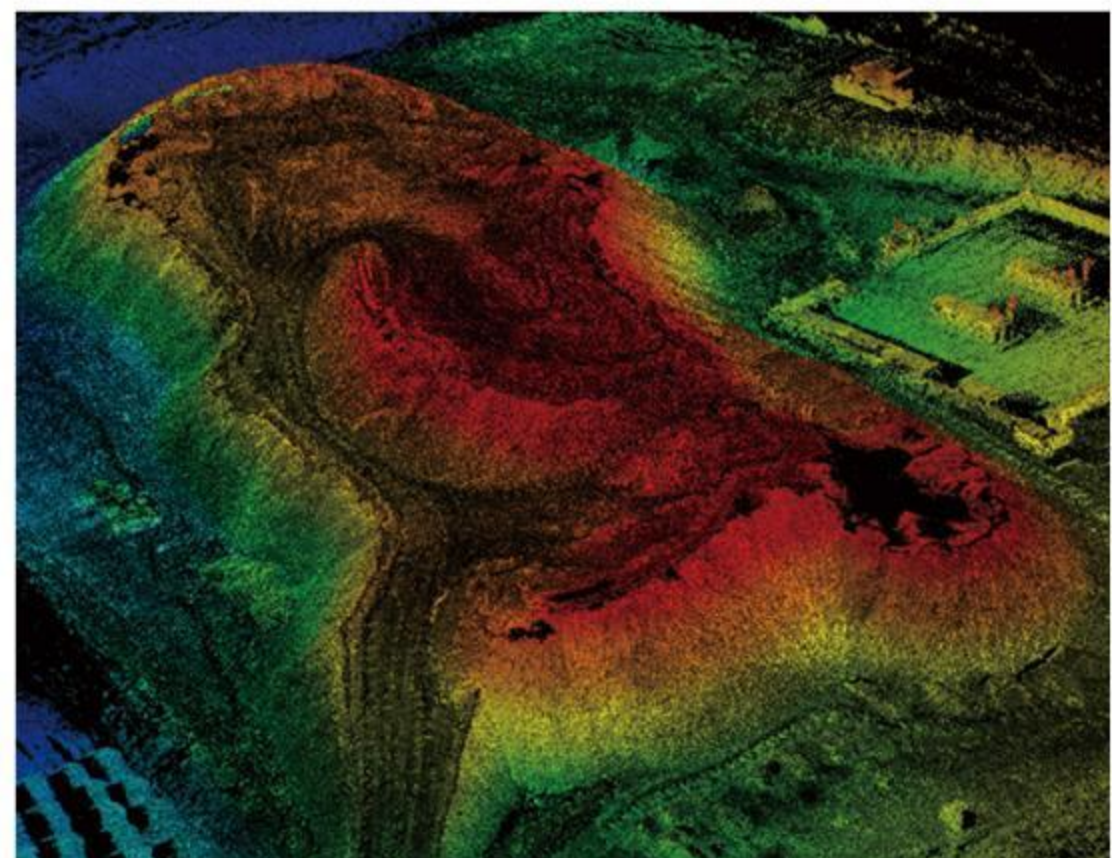
Topographic mapping



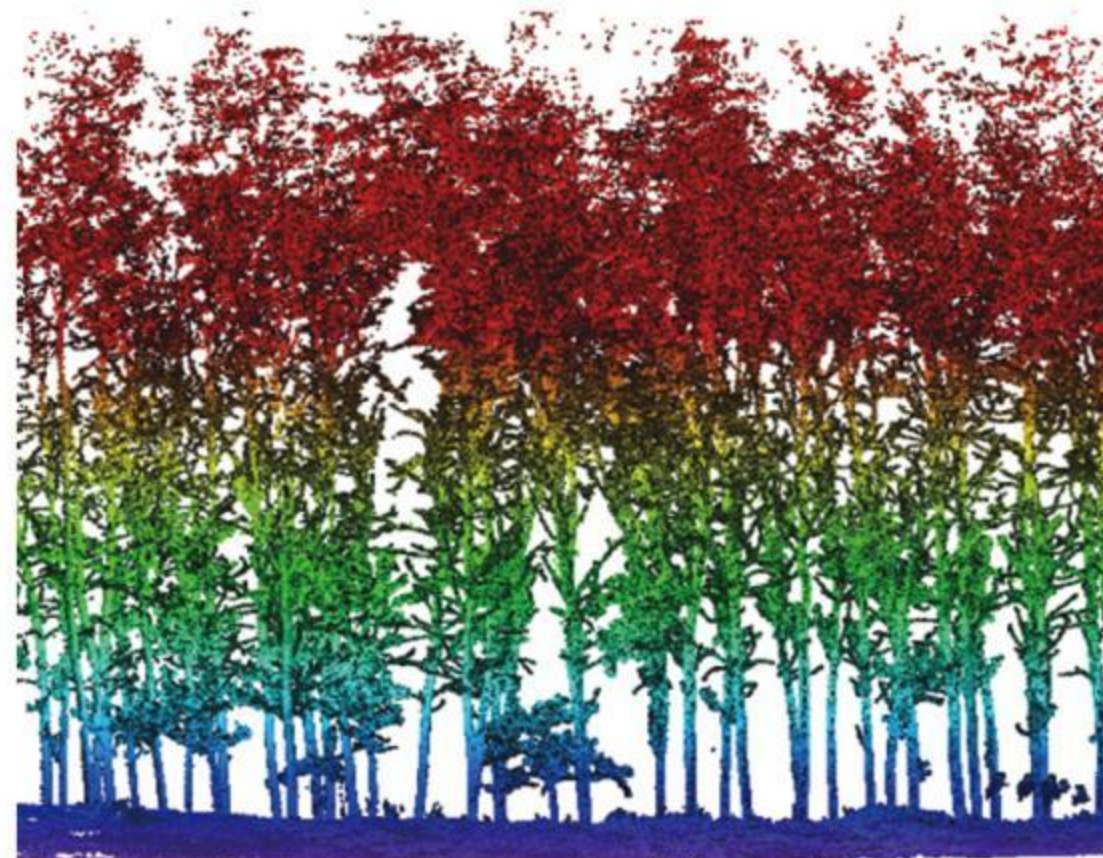
Karst cave and tunnel



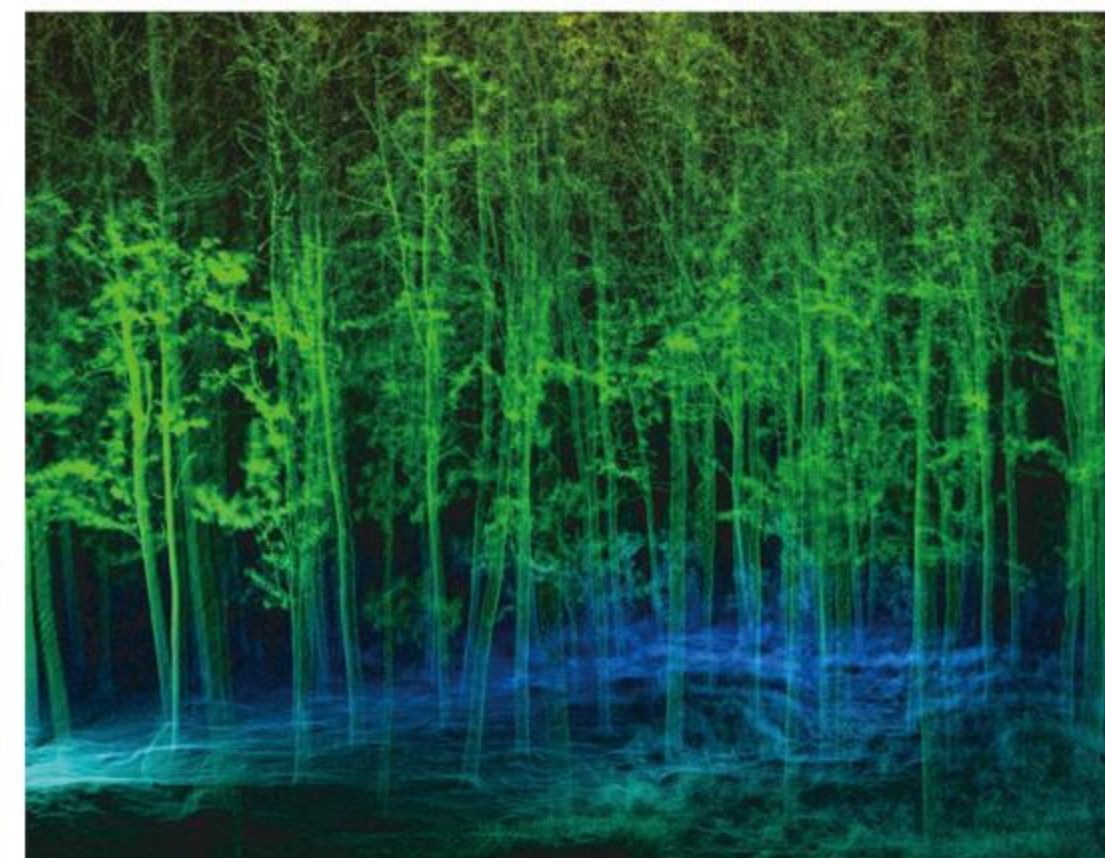
Fundamental surveying and mapping



Volume calculation

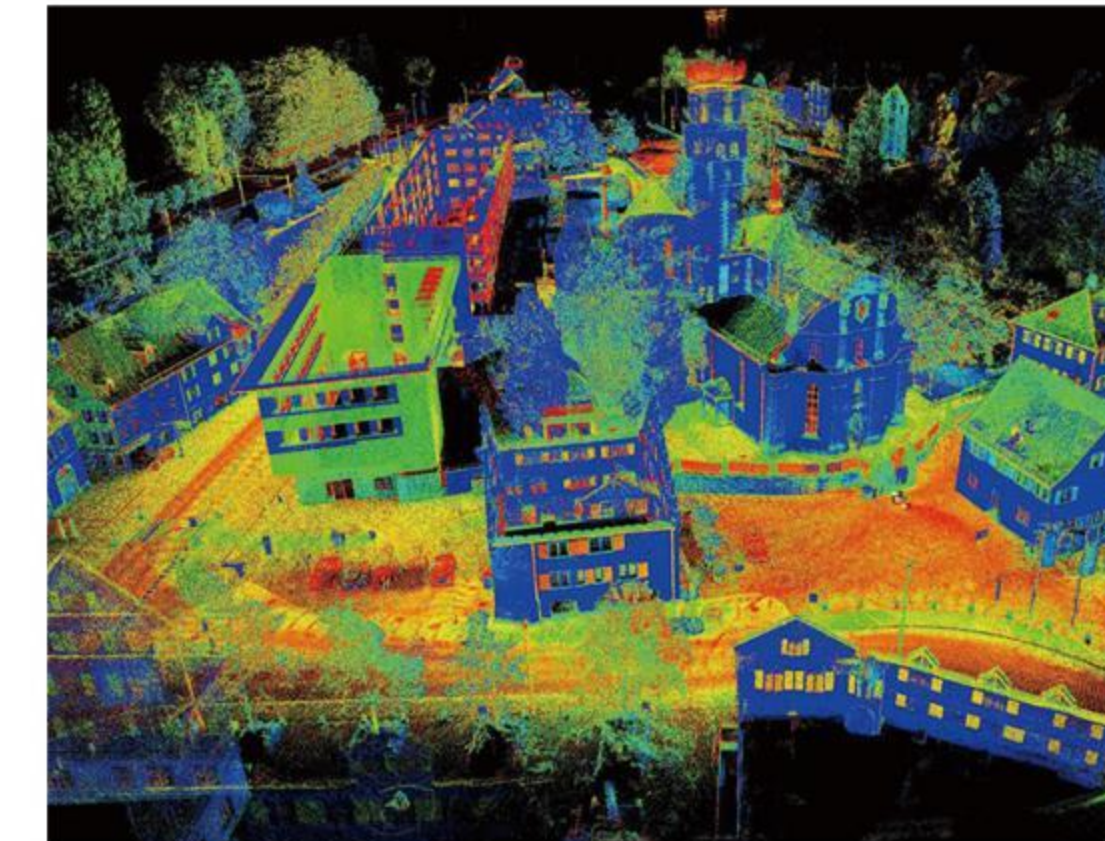


Forestry investigation

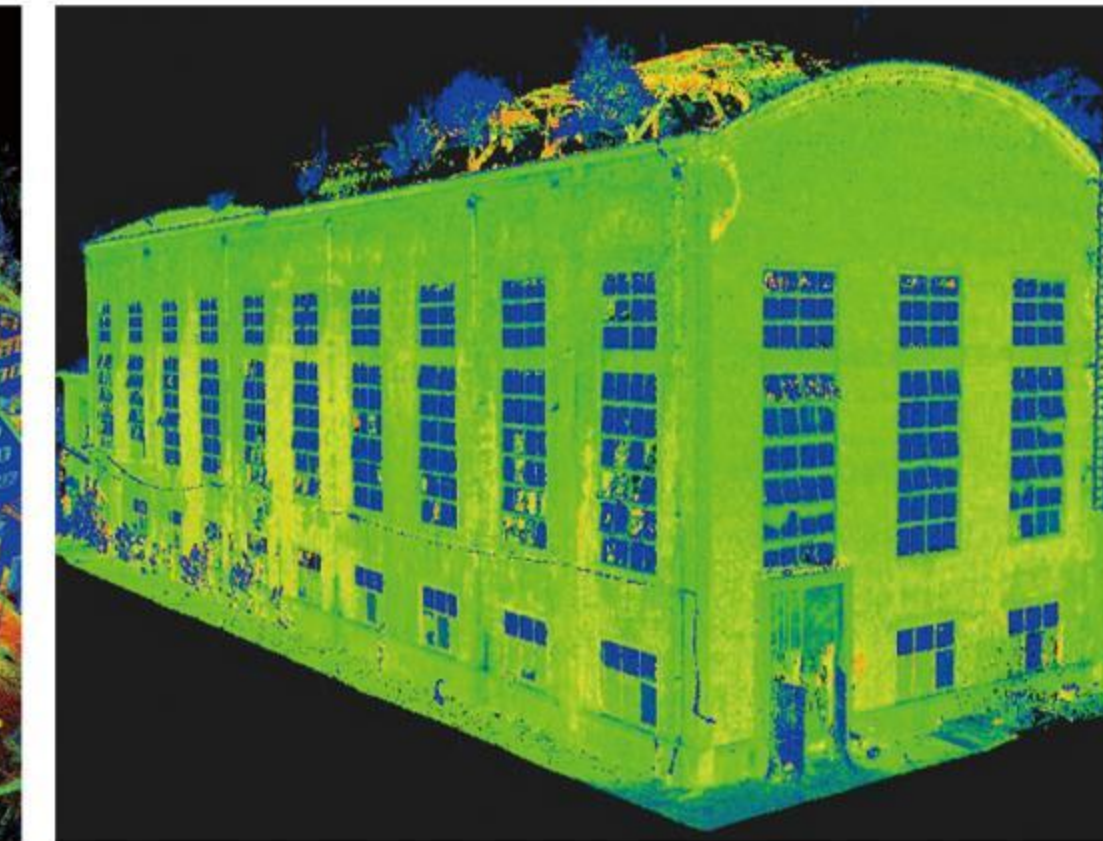


Forestry investigation

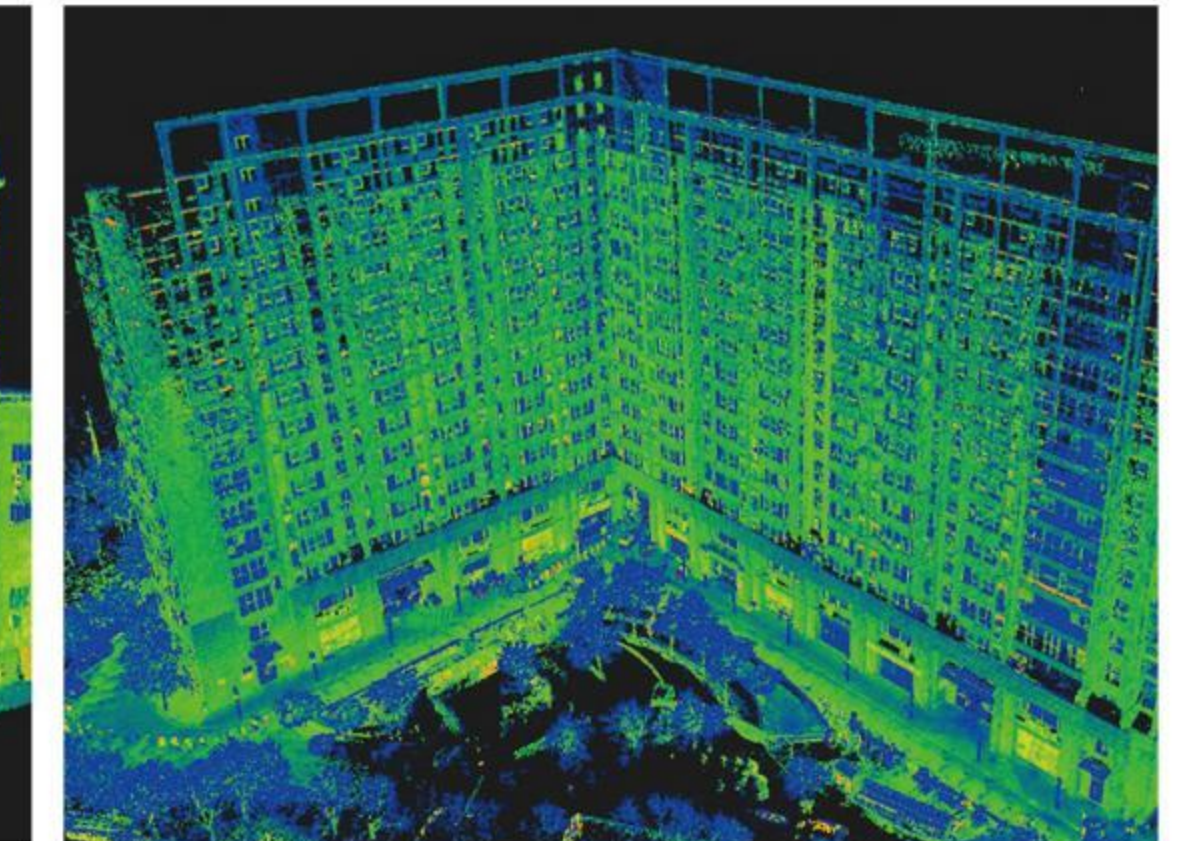
Construction property



Urban planning



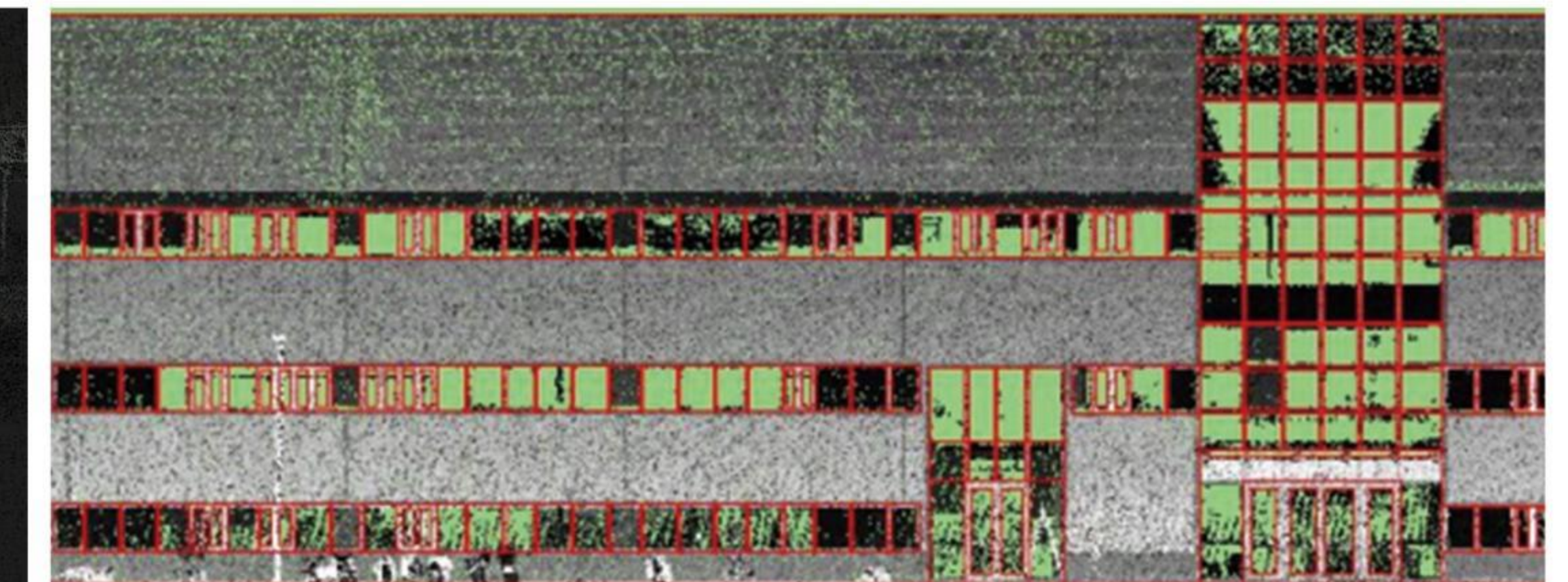
House property mapping



Completion and acceptance

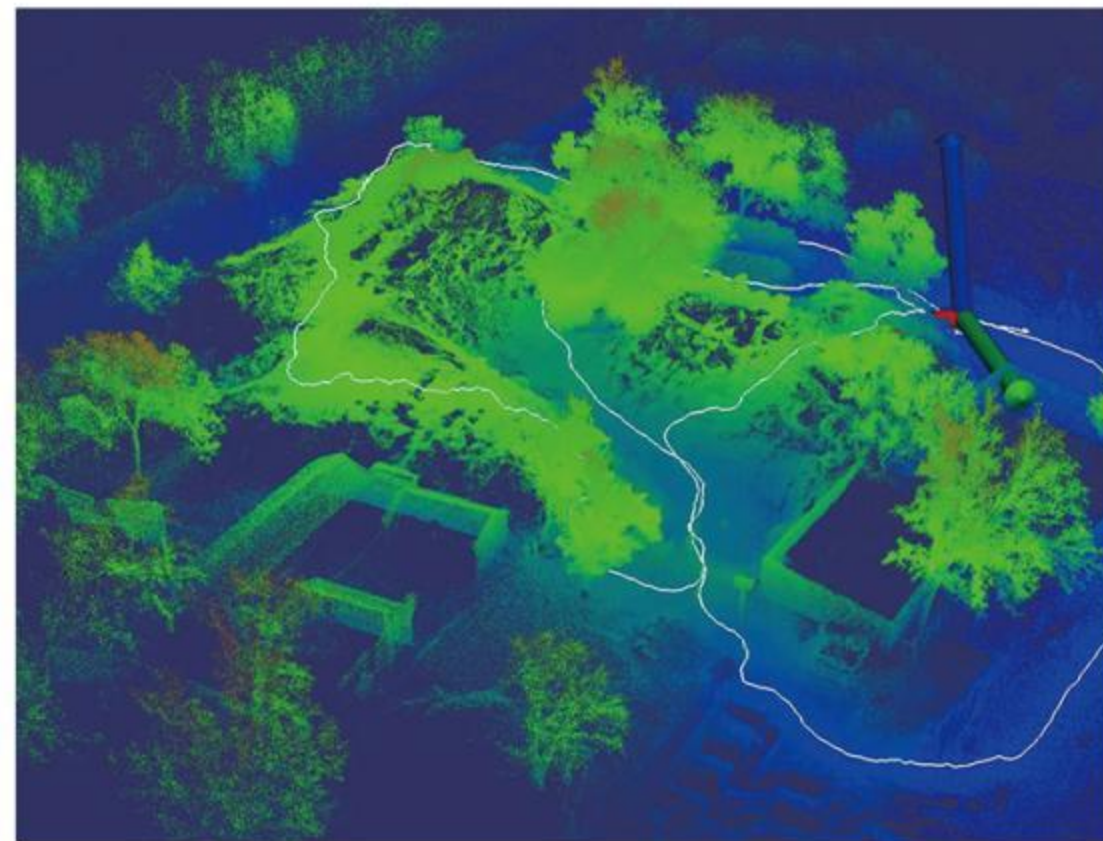


Underground space

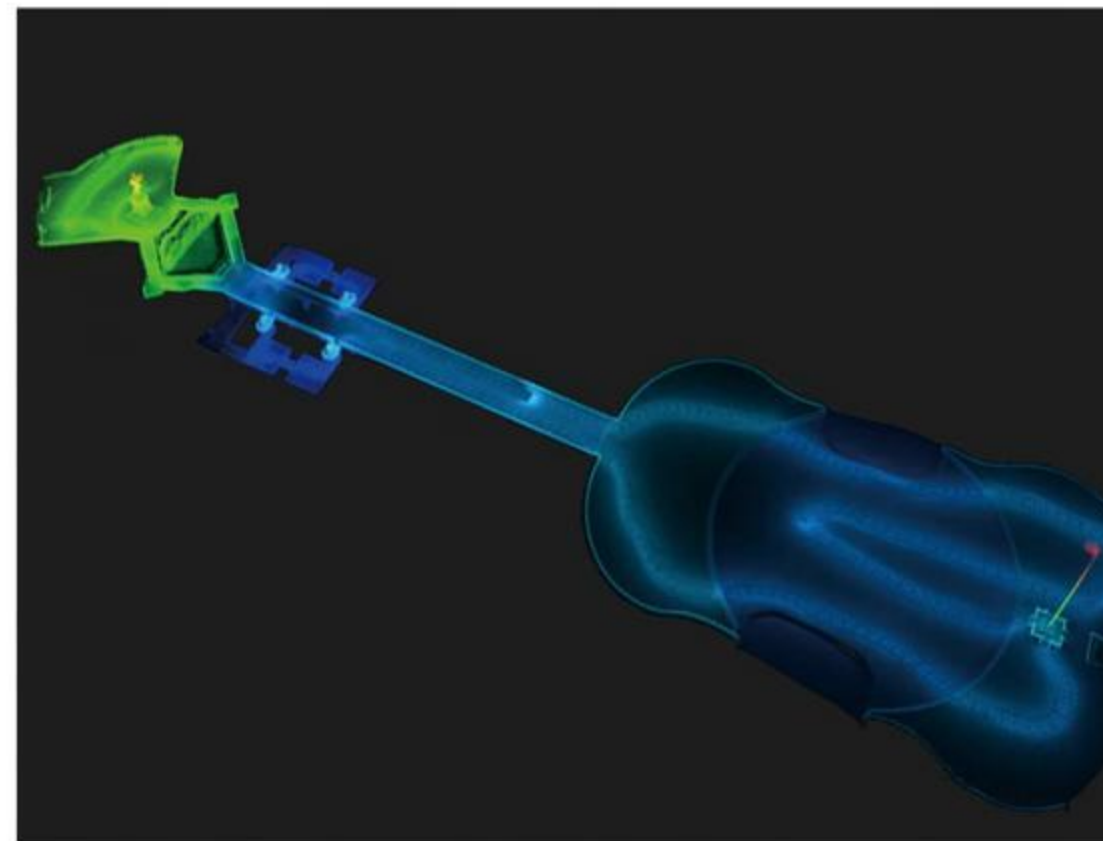


Building facade

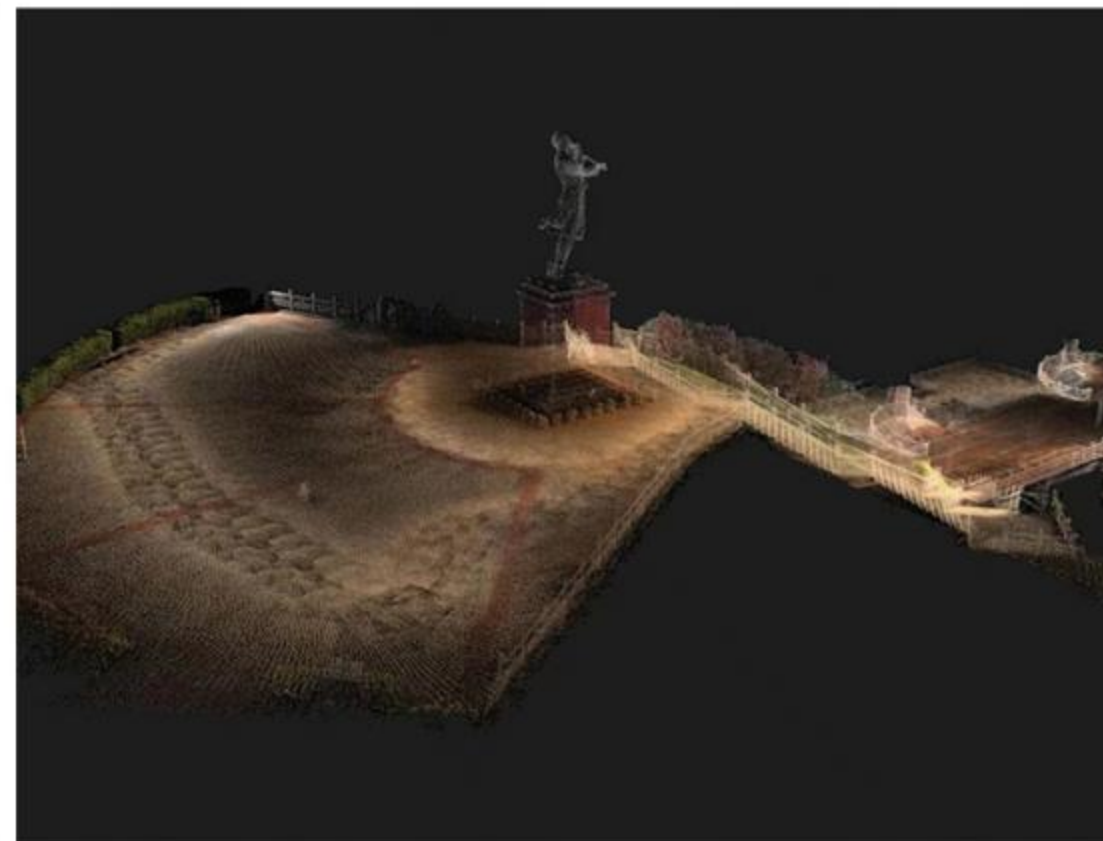
Human culture



Ancient ruins



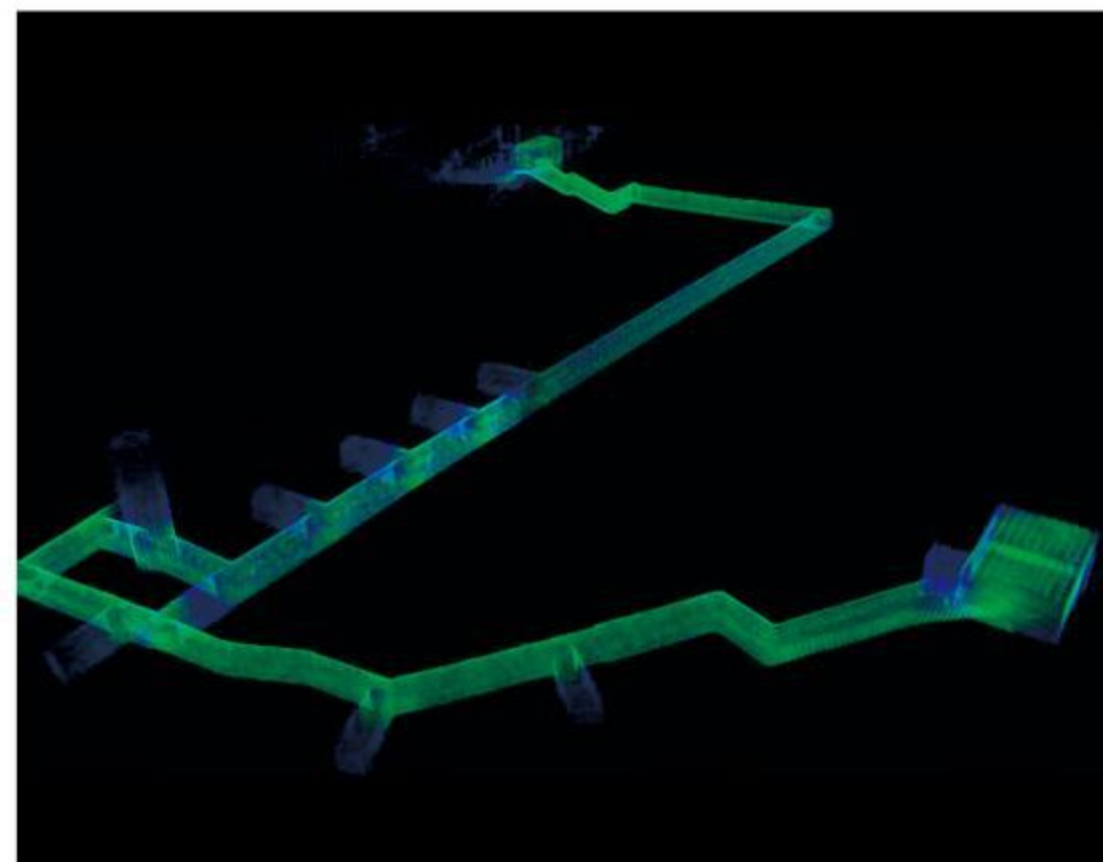
Cultural square



Cultural square



Ancient buildings

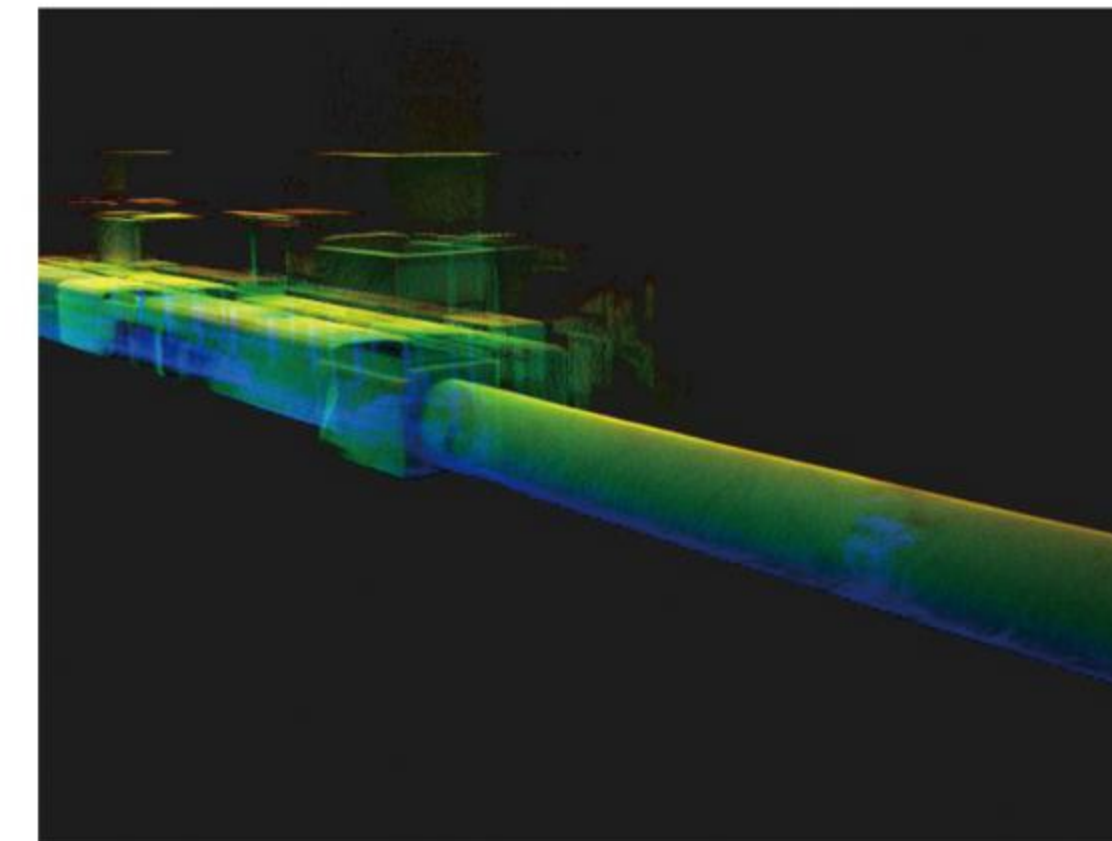


Civil air defense works

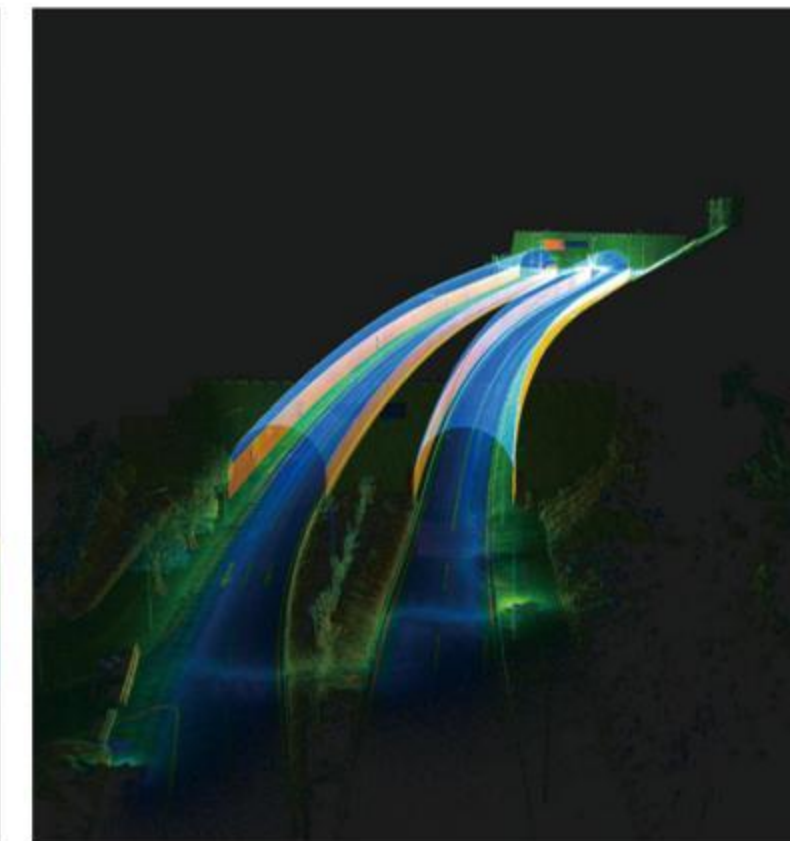


Playground

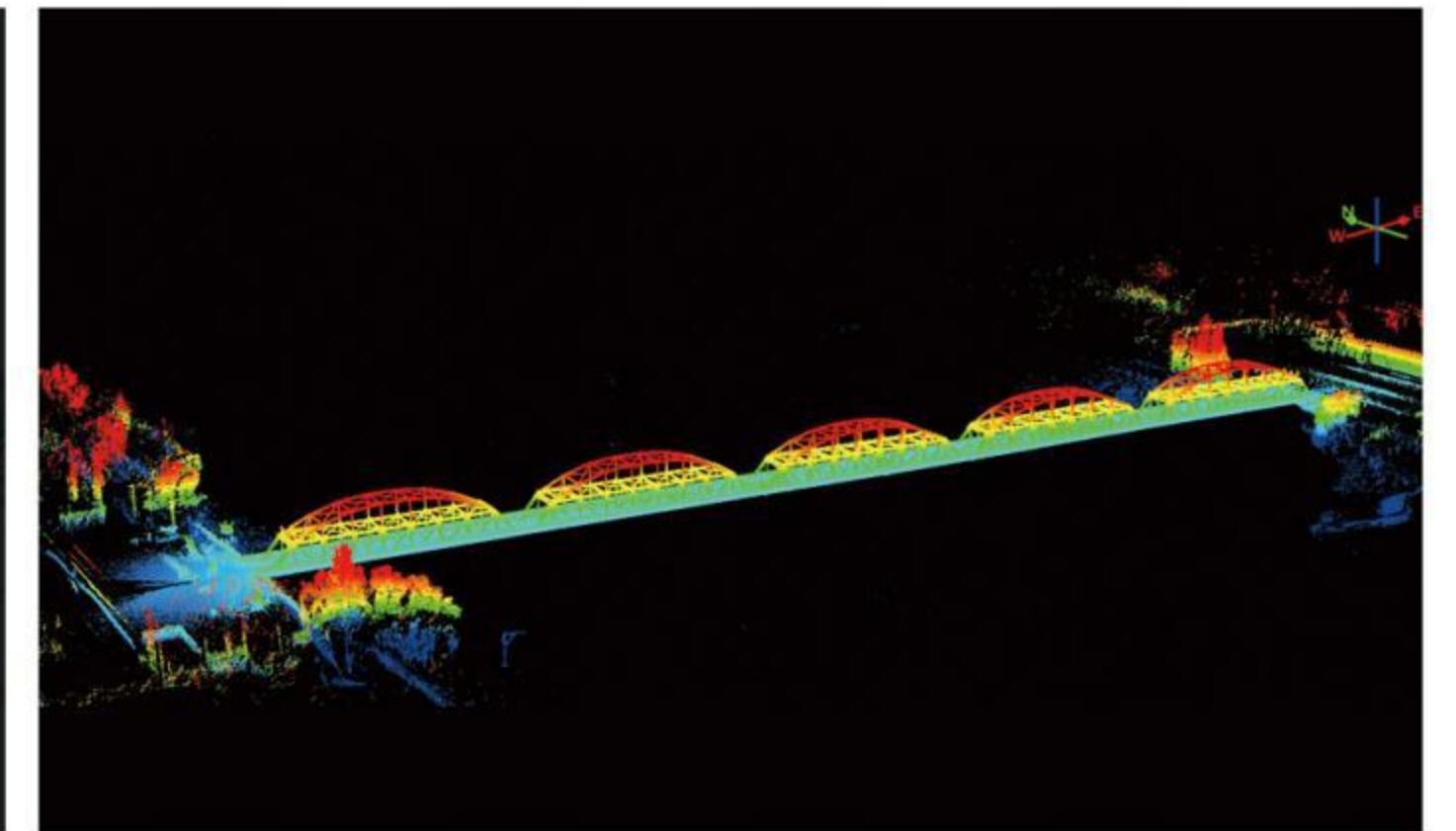
Industrial engineering



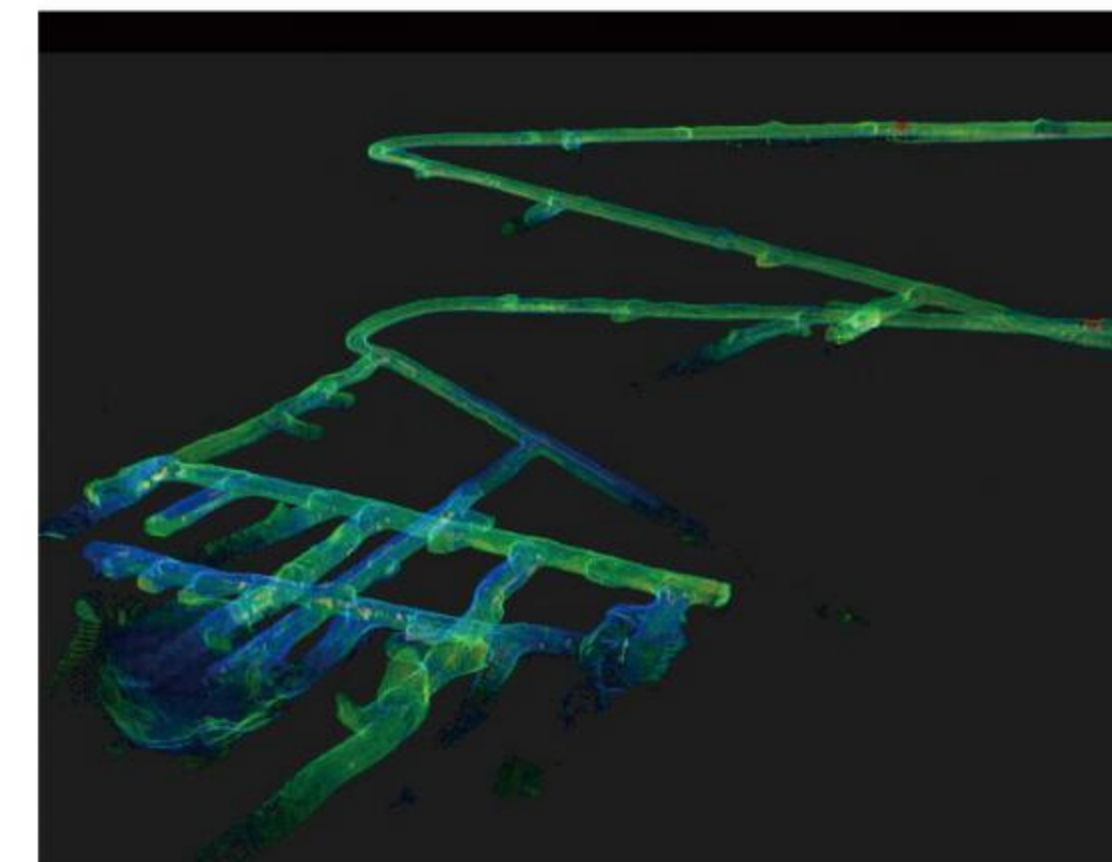
Subway



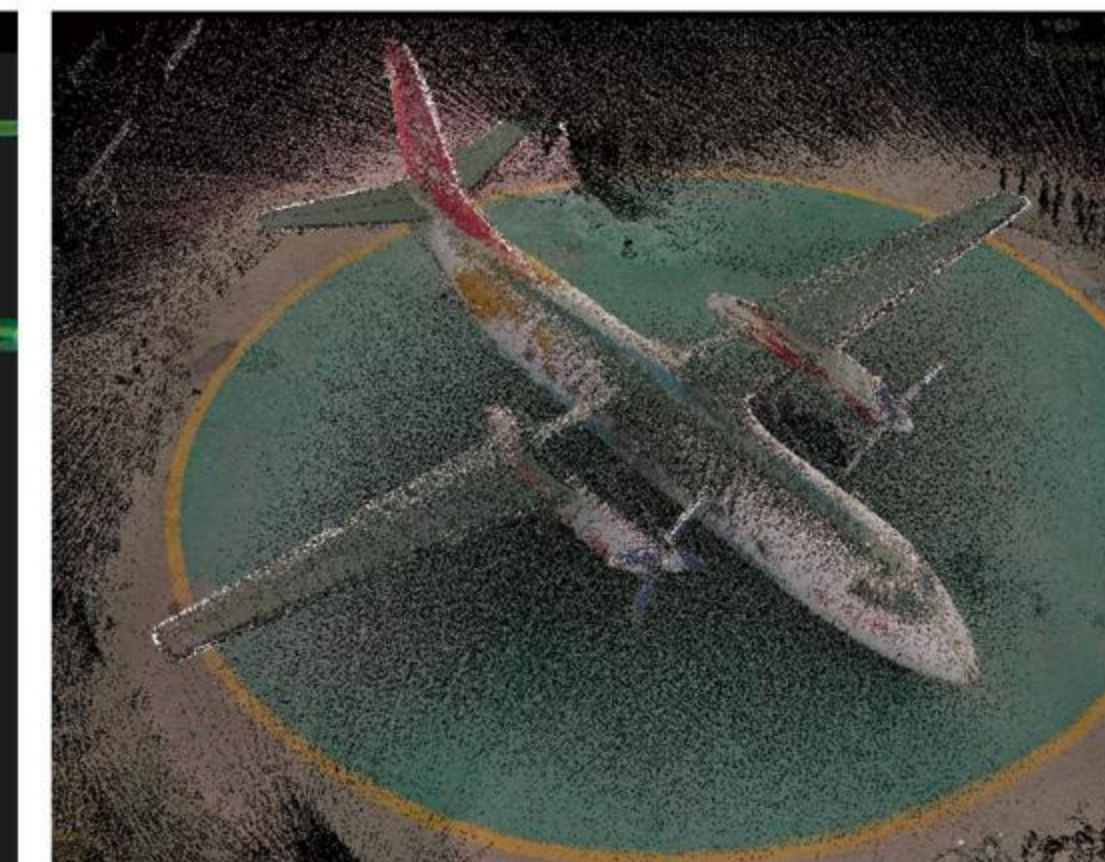
Tunnel



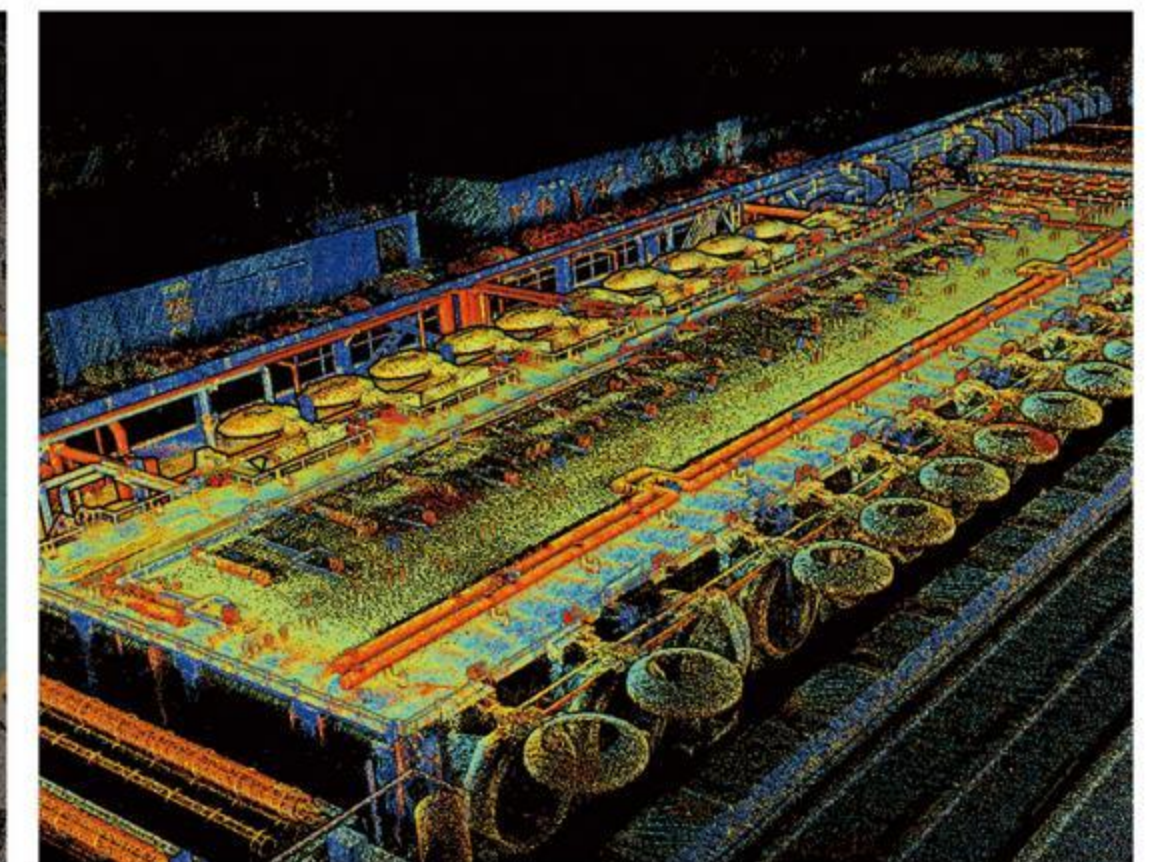
Bridge



Mine



Reverse engineering



Factory