



Intelligent Transportation and Autonomous Vehicles

Introduction to Sheng Leshan

- **Vice director** of Department of Natural Resources of Zhejiang Province.
- **Party member** of Zhejiang provincial department of Land and Resources, and **communist party secretary and director** of Administration of Surveying Mapping and Geoinformation in 2016.



Organizer:



浙江省自然资源厅 测绘与地理信息管理
Department of Natural Resources of Zhejiang Province (Administration of Surveying Mapping And Geoinformation)

United Nations World Geospatial Information Congress
联合国世界地理信息大会
Intelligent Transportation and Autonomous Vehicles
智能交通和自动驾驶分会场

High Precision Map and Positioning 高精度地图与定位

Sheng Leshan

盛乐山

Nov. 2018

2018年11月

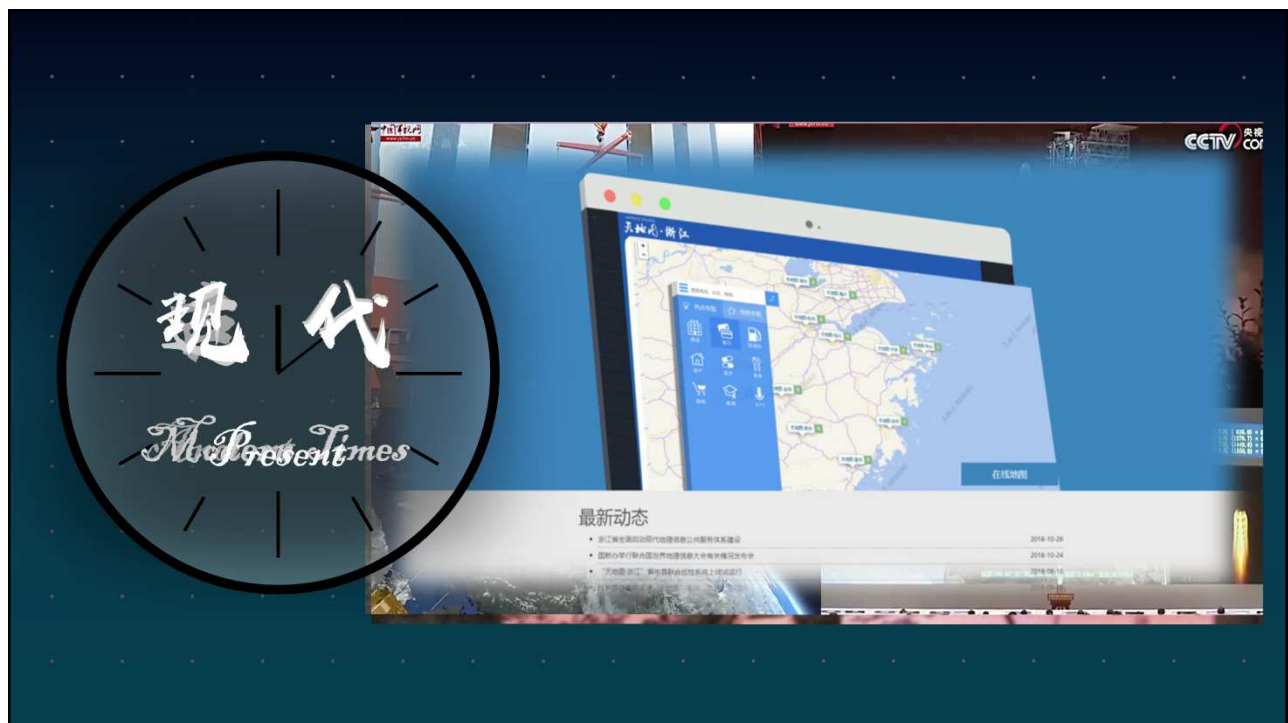




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- 03 Future Prospects
03 未来展望





Precision Agriculture
精准农业



Autonomous Vehicles
自动驾驶



Storage and Logistics
仓储物流



Intelligent Transportation
智能交通



Urban Intellectualization
城市智能化

What' s the definition
of high precision map & positioning?

什么是高精度地图与定位?

1. Overview 概述

High Precision
精度高



1. Overview 概述

High Precision
精度高

Road test in Deqing county
德清道路测试

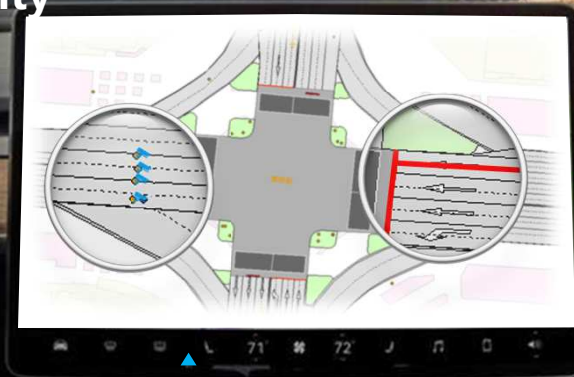


1. Overview 概述

Fine Granularity
颗粒度细

More Elements
更多要素信息

- Lane Line 车道线
- Stop Line 停止线
- Traffic Signal Equipment 交通信号设备



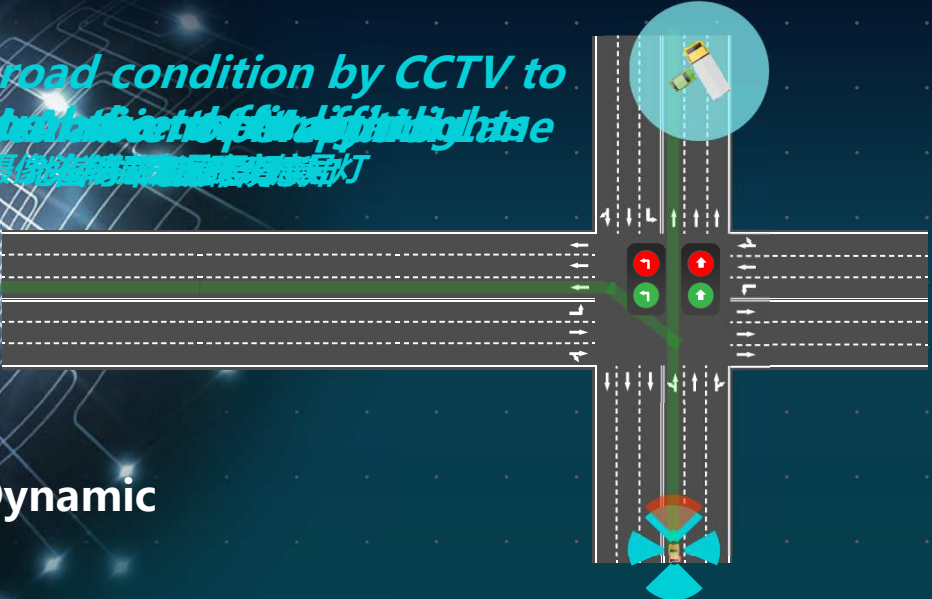
More Attributes
更多属性信息

- Lane curvature 车道曲率
- Slope 坡度

More Reliable Quality
更可靠的质量

1. Overview 概述

Interpret road condition by CCTV to
Visualize traffic light status in real time
根据监控画面实时解读交通灯




Real Time Dynamic
实时动态

The diagram shows a top-down view of a four-way road intersection. A CCTV camera is positioned at the top, with a circular inset showing its lens. A traffic light is located at the center of the intersection, with red and green lights visible. A green line highlights a path through the intersection. The background is a dark blue space with glowing white lines representing a road network.

1. Overview 概述

Easy to access by machine
易于机器读取



Easy to use big data technology for analysis
易于大数据分析

Intelligent Structure
结构智能

The diagram features a central human head rendered in a blue wireframe style. Two empty blue rectangular boxes are positioned on either side of the head. Lines connect the boxes to the head, suggesting data flow or analysis. The background is a dark blue space with glowing white lines representing a road network.

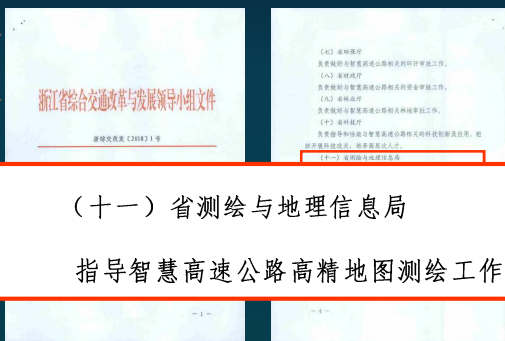
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2. Exploration and Practice in Zhejiang Province 浙江的实践与探索

Location map of Hang Shao Yong super highway 杭绍甬高速位置图



(十一) 省测绘与地理信息局
指导智慧高速公路高精地图测绘工作。



2. Exploration and Practice in Zhejiang Province 浙江的实践与探索



到2018年底，全面建成“一网一中心一平台”，在此基础上持续提升服务能力。2019年1月1日起，向社会提供全省网上申请注册和免费开放服务，用户可以通过浙江政务服务网统一申请注册使用。



2. Exploration and Practice in Zhejiang Province 浙江的实践与探索

“New Basic Surveying and Mapping System”

“新型基础测绘体系”



Planning and coordination

统筹协同

Land-sea integration

陆海一体

Joint update

联动更新

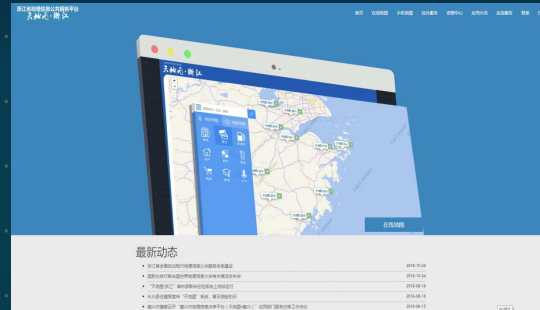
Intelligent and efficient

智能高效

2. Exploration and Practice in Zhejiang Province 浙江的实践与探索

"Modern Geospatial Information Public Service System"

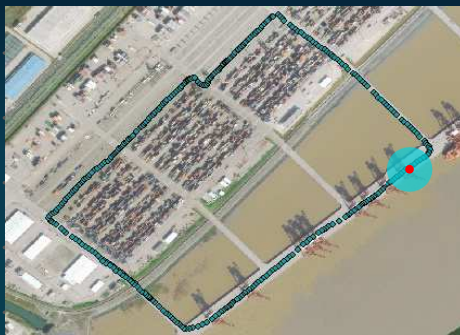
"现代地理信息公共服务体系"



Mapworld Zhejiang 天地图·浙江

2. Exploration and Practice in Zhejiang Province 浙江的实践与探索

Ningbo Zhoushan Port 宁波舟山港



High precision map and high precision positioning

Collaborative automated operation

高精度地图与高精度定位 协同自动化作业

2. Exploration and Practice in Zhejiang Province 浙江的实践与探索

Verification: Intelligent high speed and high precision map collection
Technology and Equipment

验证：智慧高速高精地图采集
技术、装备



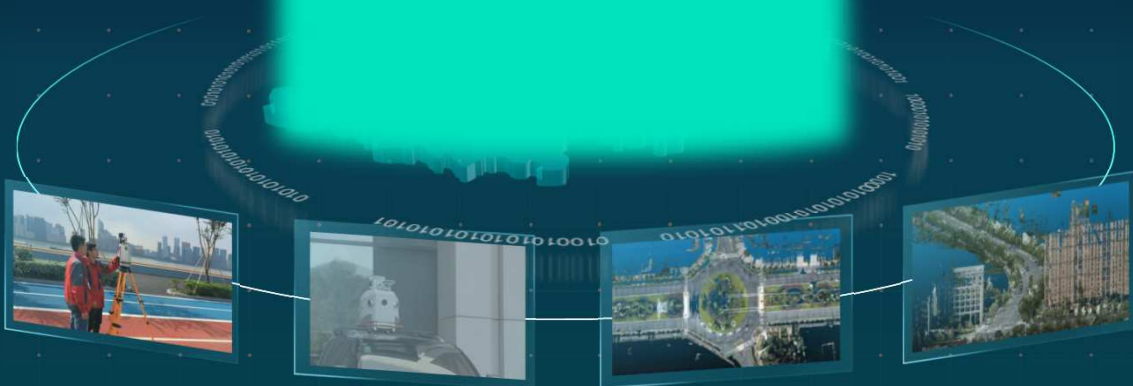
Key technologies: high precision mobile measurement, automatic classification of laser point cloud, tightly integrated technology of satellite positioning and inertial navigation, etc.
关键技术：高精度移动测量、激光点云自动分类、卫星定位与惯性导航紧组合技术等

2. Exploration and Practice in Zhejiang Province 浙江的实践与探索

Deqing County

high precision

德清县 高精地图采集的实践



2. Exploration and Practice in Zhejiang Province 浙江的实践与探索

Application of urban brain 城市大脑应用



Formulate standard specifications
研制标准规范



2. Exploration and Practice in Zhejiang Province 浙江的实践与探索

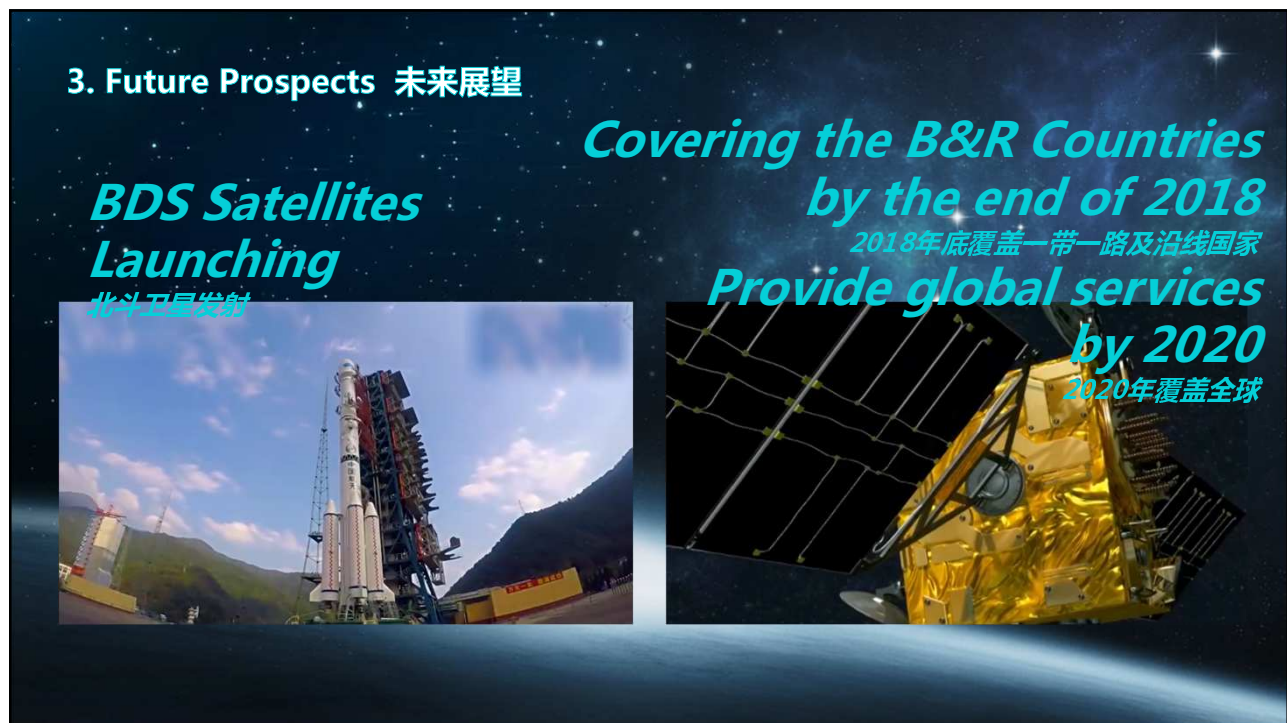


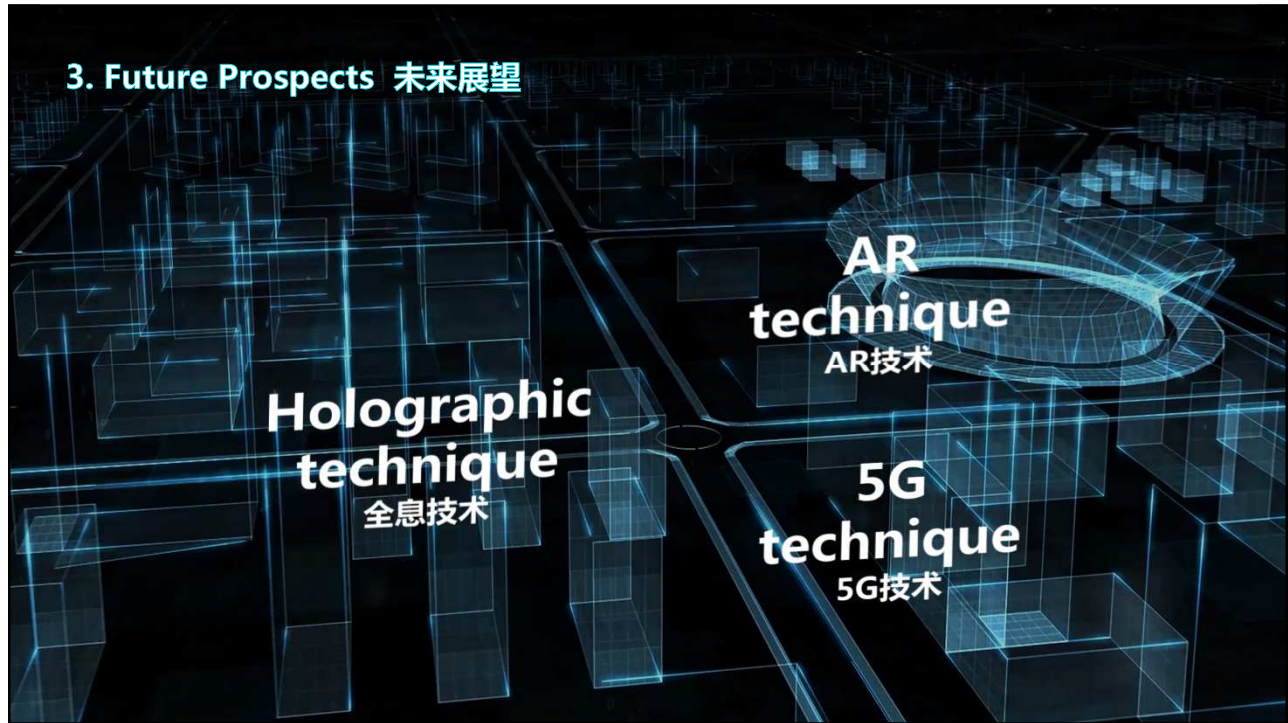
Deqing Geospatial Information Industry Park
 德清地理信息产业园



- Chip manufacturing 芯片制造
- Standard Formulating 标准研制
- Data Producing 数据生产
- Software Developing 软件开发

The foundation of industrial development is good
 产业发展基础良好





3. Future Prospects 未来展望

Location of Gexiang Road 葛巷路位置



Unmanned driving test vehicles
无人驾驶测试车辆



3. Future Prospects 未来展望

Providing Support for Researching and Testing 提供研究和试验的支撑保障



智能交通 无人驾驶



Policy
政策



Place
场地



Project
工程项目

