

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

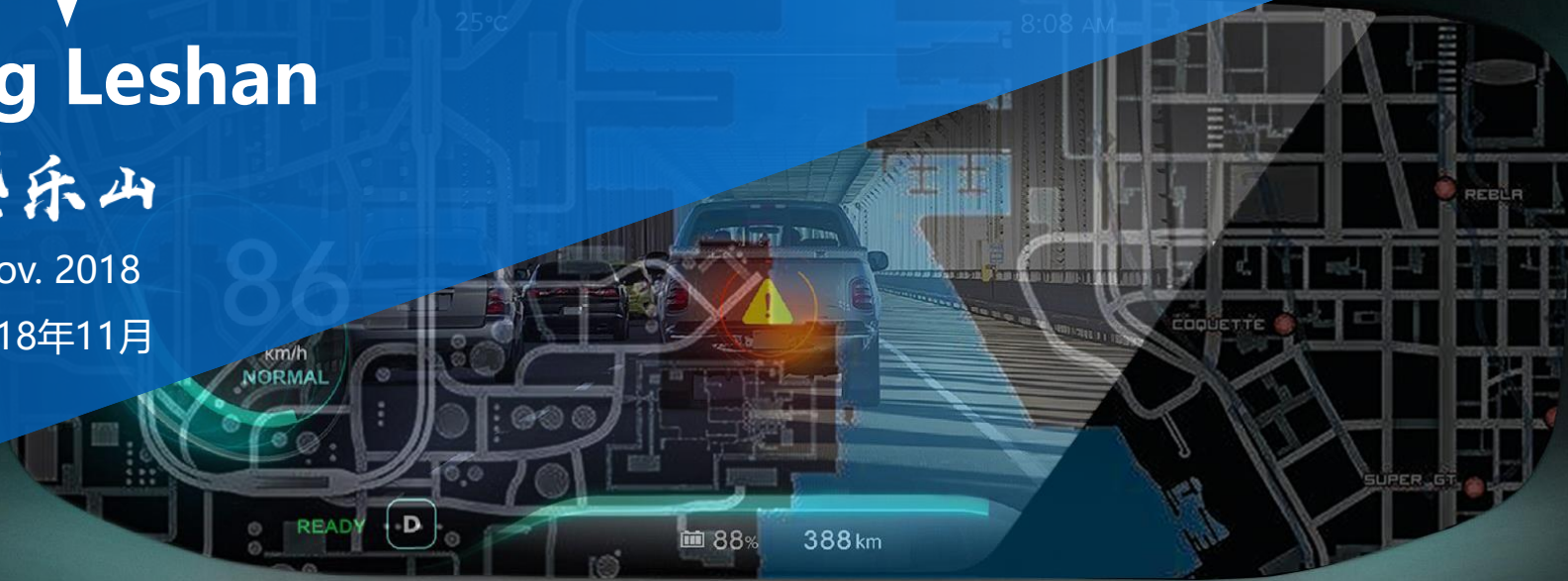
高精度地图与定位

◆
Sheng Leshan

盛乐山

Nov. 2018

2018年11月



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02 Exploration and Practice in Zhejiang Province

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中国央视网 www.cctv.com

首页 在线地图 手机地图 应用商店

CCTV 央视网

天地图·浙江

搜索地点、公交、路线

热点专题 特色专题

- 酒店
- 银行
- 加油站
- 房产
- 医疗
- 美食
- 购物
- 教育
- KTV

天地图 湖州 天地图 嘉兴 天地图 杭州 天地图 绍兴 天地图 宁波 天地图 衢州 天地图 丽水 天地图 台州 天地图 温州 天地图 金华 天地图 衢州 天地图 丽水 天地图 台州 天地图 温州 天地图 金华

在线地图

最新动态

- 浙江省全面启动现代地理信息公共服务体系建设 2018-10-26
- 国新办举行联合国世界地理信息大会有关情况发布会 2018-10-24
- “天地图·浙江”省市县联合巡检系统上线试运行 2018-08-16
- 长兴县住建局宣传“天地图”系统 普及率全动 2018-08-16



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



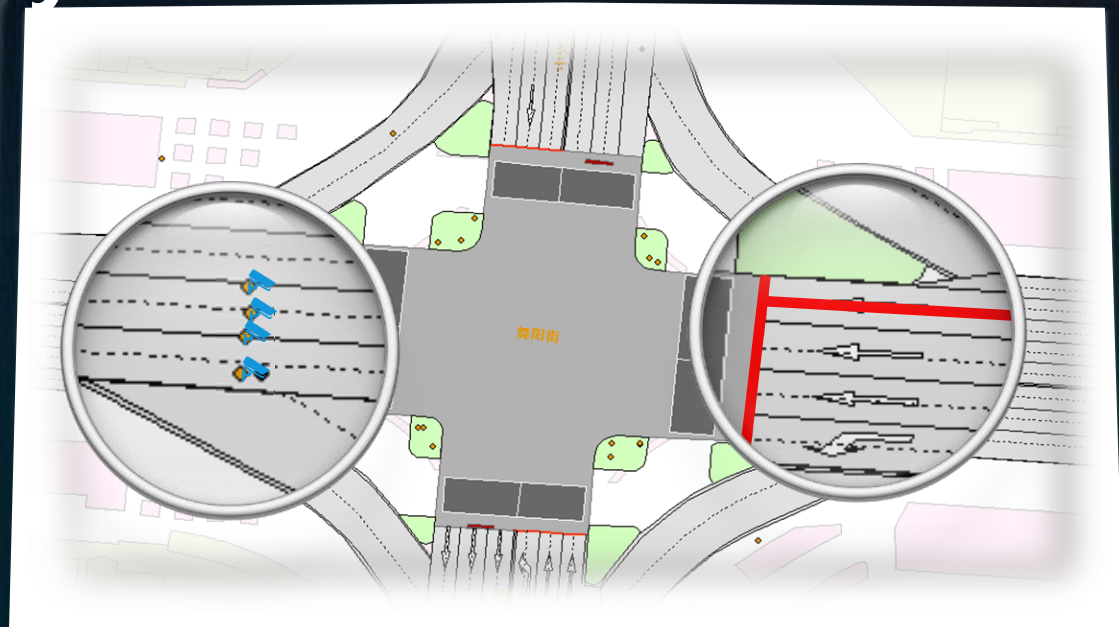
1. Overview 概述

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



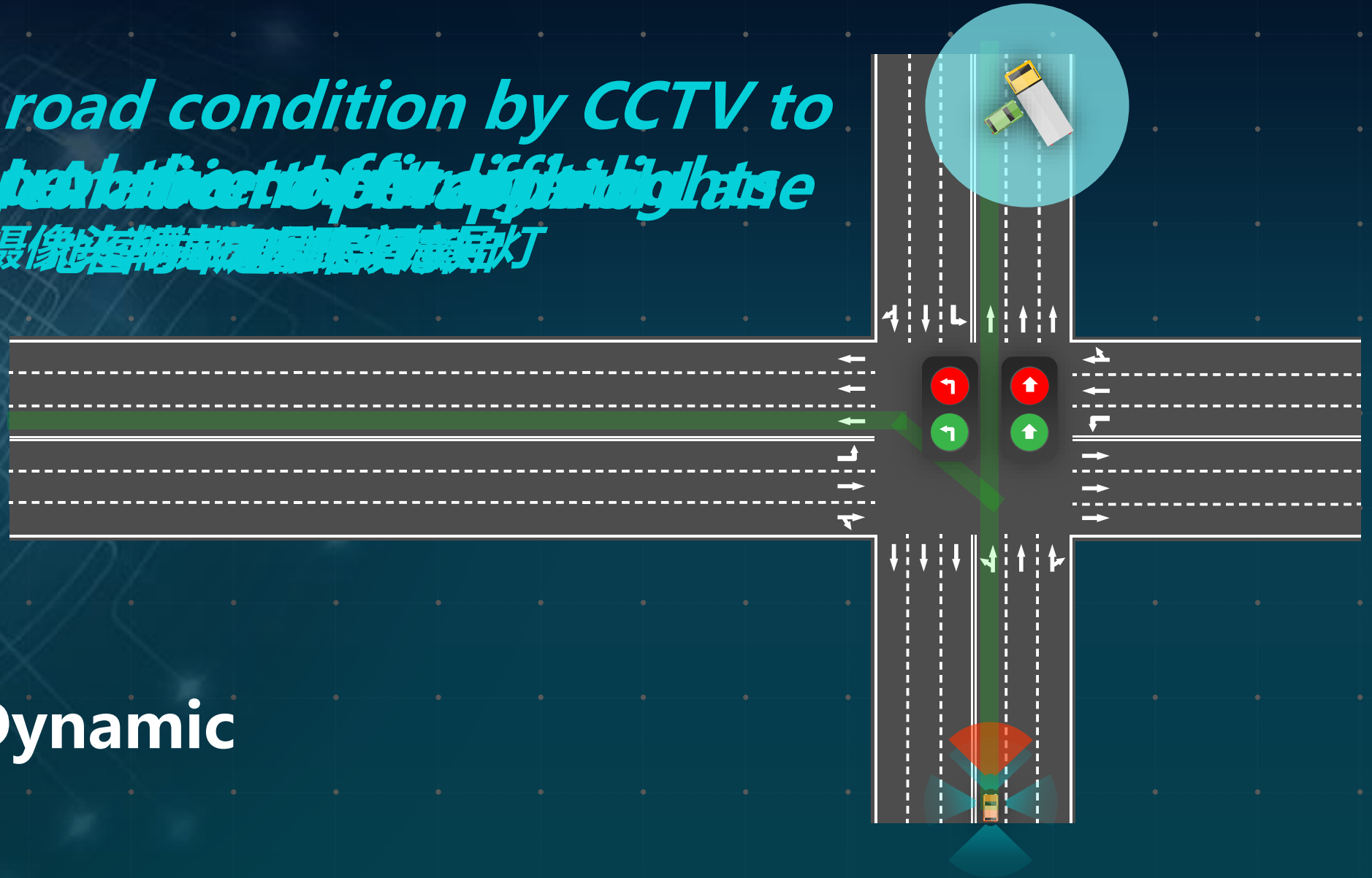
More Attributes 更多属性信息

- Lane curvature 车道曲率
- Slope 坡度

More Reliable Quality 更可靠的质量

1. Overview 概述

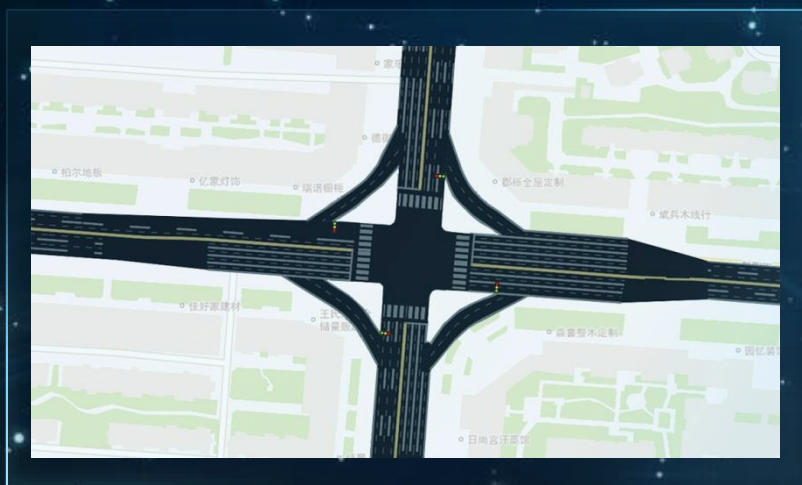
Interpret road condition by CCTV to
Fluently capture the condition of traffic light
摄像流畅捕捉路况信号灯



Real Time Dynamic
实时动态

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

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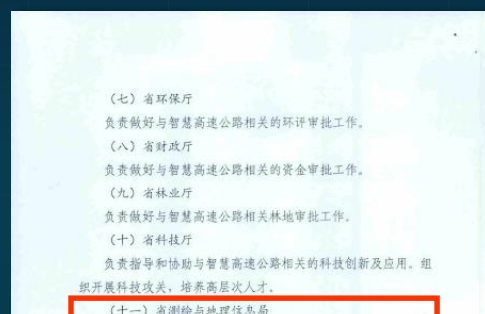
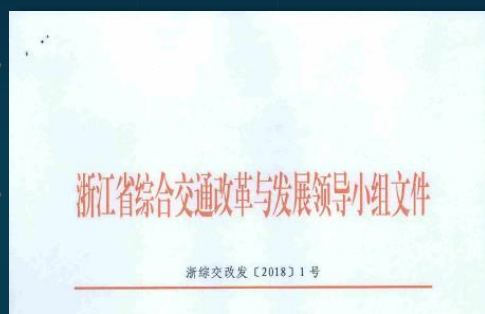
02 浙江的探索与实践

03 Future Prospects

03 未来展望

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

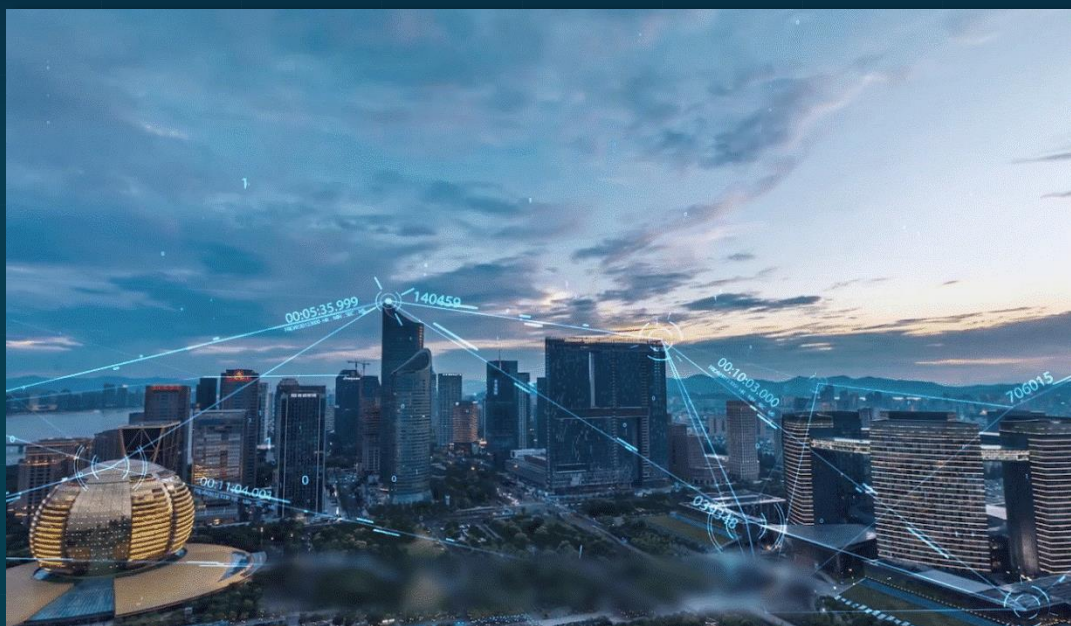
Intelligent and efficient

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 **30Km² & 100Km** high precision
map data field collection

德清县 **30平方公里 100公里** 的高精度地图数据的实采



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



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

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3. Future Prospects 未来展望

BDS Satellites Launching

北斗卫星发射

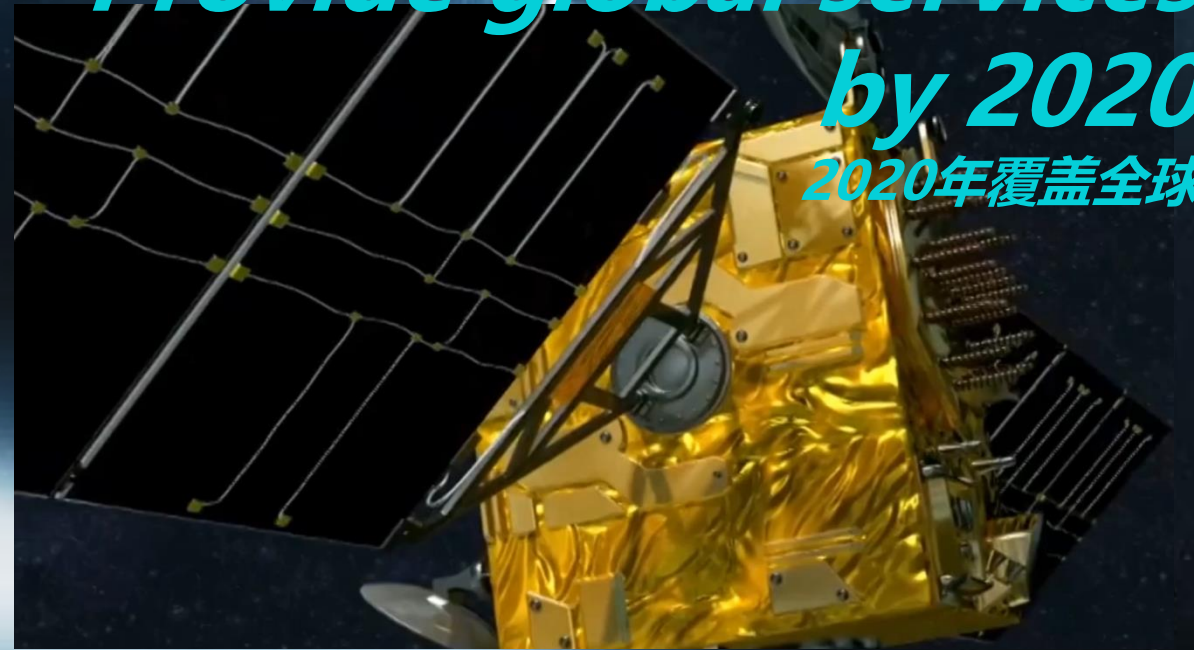


*Covering the B&R Countries
by the end of 2018*

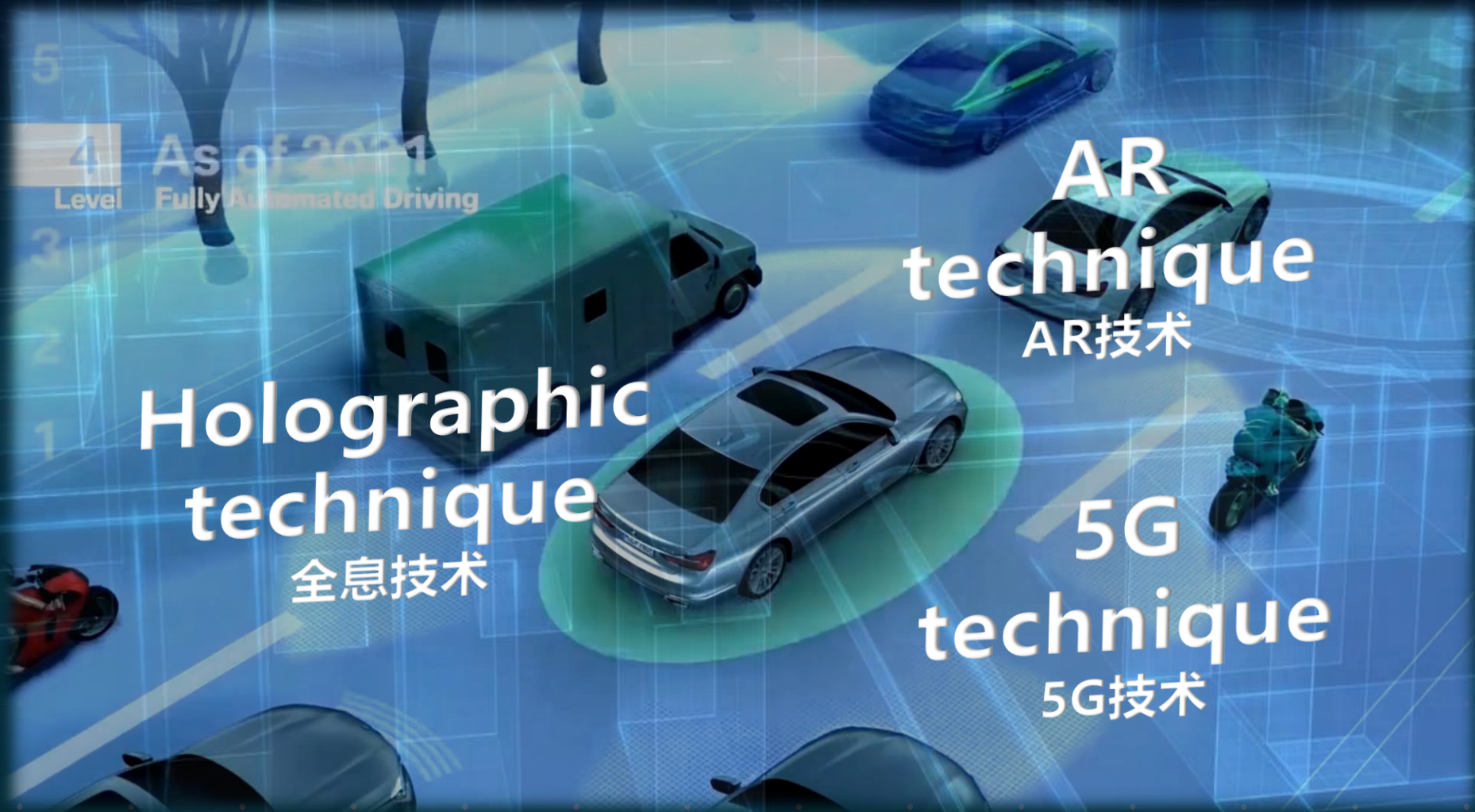
2018年底覆盖一带一路及沿线国家

*Provide global services
by 2020*

2020年覆盖全球



3. Future Prospects 未来展望



5

4

Level

As of 2021

Fully Automated Driving

3

2

1

Holographic
technique

全息技术

AR
technique

AR技术

5G
technique

5G技术

3. Future Prospects 未来展望

Outdoor scene of Gexiang Road 葛巷路实景

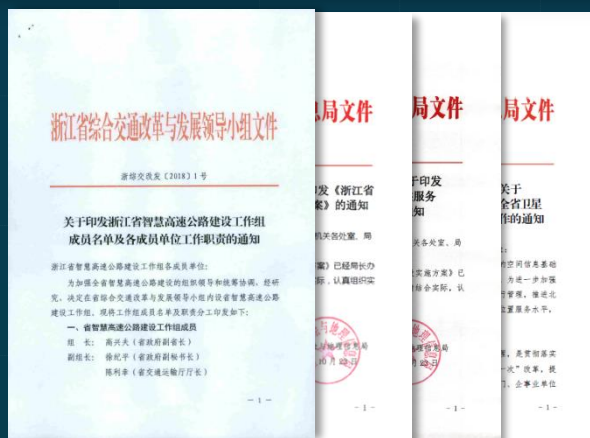


3. Future Prospects 未来展望

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

3. Future Prospects 未来展望



An aerial night photograph of a city. The central focus is a large, illuminated dome-shaped structure, possibly a stadium or arena, covered in a grid of lights. The surrounding city is lit up with various lights from buildings and streets. The sky is dark, and the overall scene is vibrant with city lights.

Thank you!

谢谢大家