GeoIT

GeoIT Wherecamp Conference 2019

Venue Partner

Technische Universität Berlin

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GeoIT Wherecamp Conference 2019

Opening

President of the Association for Geoinformatics, GeoIT and Navigation e.V.
Prof. Dr. Roland Wagner

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Association for
Geoinformatics, GeoIT and Navigation e.V.:
74 personal Members (within 20 Professors)
17 Company Members

GALILEO NAVIGATION SOLUTIONS POWERED BY EUROPE

Google

Geocode.xyz

eagle eye technologies

here

indoors

MENTZ

Heidelberg Mobil

Navigine

NAVINFO

OpenCage

ORBICA

ROKUBUN

TELENAV

TOMTOM

Ubilabs

VDE

Association for
Geoinformatics, GeoIT and Navigation e.V.:

- Events
  - GeoIT Talks,
    GeoIT Wherecamp, full day, 1 x per year
- Workshops
- Hardware, e.g.
  - Xiaomi Mi 8 with GNSS L5/E5

GeoIT Wherecamp Agenda 2019

	09:00	Doors Open			
1	10:00	Opening by GeoIT.org President	Prof. Dr. Roland	Wagner	Association for Geoinformatics, GeoIT and Navigation e.V.
2	10:10	Welcome by Host	Prof. Dr. Martin	Kada	IGG TU Berlin
3	10:20	Scenic Routing	Luca	Osten	calimoto
4	10:40	Demand modelling based on geostatic data calibrated using mobile network data	Dr. Jesse	Hinrichsen	civity Management Consultants
5	11:00	Smart Manufacturing and industrial RTLS	Dr. Matthias	Jöst	Heidelberg mobil international GmbH
	11:20	Morning Break			
		Indoor Session with Chair	Dr. Michel	Deriaz	Univercity of Geneva
6	11:40	Design Patterns of GeoData Driven Apps	Shoaib	Burq	Geografia Pty Ltd
7	12:00	Indoor Wayfinding with the new Generation of Google Access Points	Aleksandr	Mikov	Senior Software developer, Navigine
8	12:20	Improving mobility for events	Chris	Stelzmüller	CTO, triply
9	12:40	Infrastructureless Indoor Positioning & Navigation	Matthias	Rosken	and Sebastian Schuster, Navvis
	13:00	Lunch Break			

GeoIT Wherecamp Agenda 2019

	13:00	Lunch Break			
10	13:40	Key Note: The foundation of GDI.NRW in 1999 – history inspiring the future	Markus	Müller	SiG Architecture Chair GDI.NRW
11	14:00	Panel Discussion	all		
		Autodrive Session with Chair (tbd):	Vladimir	Vasilev	TomTom
12	14:20	Mapping driver cognitive load	Markus	Gräser	German Autolabs
13	14:40	Automated and connected driving in Berlin-Reinickendorf	Luca	Ricci	Berliner Senatsverwaltung für Umwelt Verkehr und K.
	15:00	Afternoon Break			
		Outdoor Session with Chair Dr.	Robert	Schönduwe	MotionTag
14	15:20	Crash Analysis System (CAS) – a crash data analytics and visualisation platform	William	Jones	and Peter. Rose, Orbica
15	15:40	UAV RTK-GNSS: finally a solution for forest mapping?	Stuart	Krause	Hochschule für nachh. Entwicklung Eberswalde
16	16:00	Risk Management and Business Continuity enha. approaches w. realtime spatial infor.	Markus	Müller	Head Public Sector, AED-Sicad
17	16:20	Assisted Intelligence - Mapping with support of new technologies	Felix	Delattre	Humanitarian OpenStreetMap Team
	16:40	Closing with Beer & Wine			
18	17:00	GeoIT.org Assembly			
19	18:00	Dinner: Café Hardenberg, nearby, Hardenbergstraße 10, 10623 Berlin			

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Observations

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IT/GeoIT Ages

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1985	1995	2005	2015	2025
Personal Processing	Global Transport	Mobile Processing	Near Field Transport	
			IoT: ?	
		Mobile: navigate,	2.0	
	Internet: publish, transport & integrate	2.0 or Web 2.0	3.0 or Internet III	
PC: create, edit & calculate	2.0	3.0	4.0	
Software	Service	Hardware	?	

IT/GeoIT

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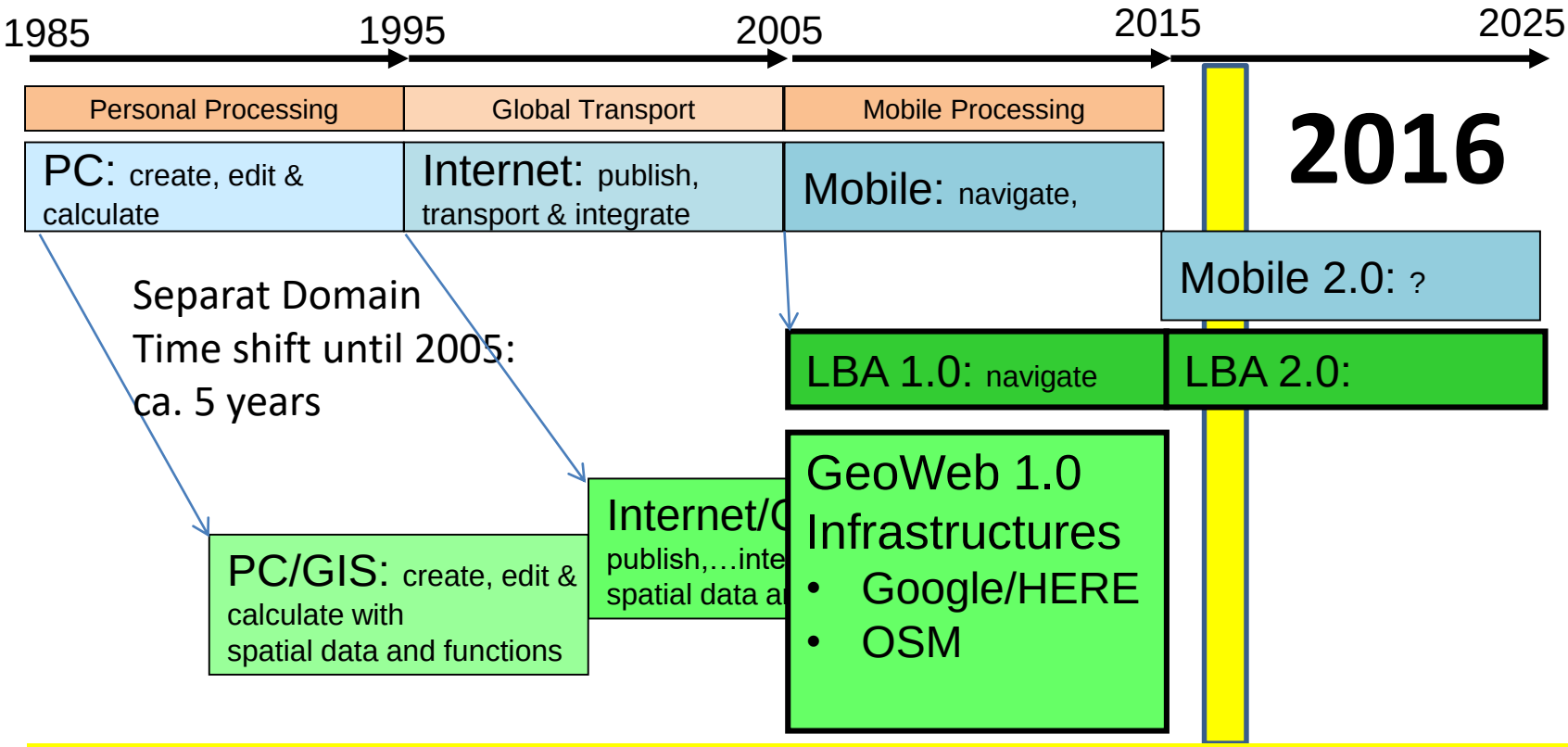
- Serve large number of customers/users, e.g. 500 Million



Wherecamp 2016: LBA 2.0 Preparations

GeoIT Wherecamp Conference 2019

- Serve large number of customers/users, e.g. 500 Million

1995 → 2005 → 2015 → 2025

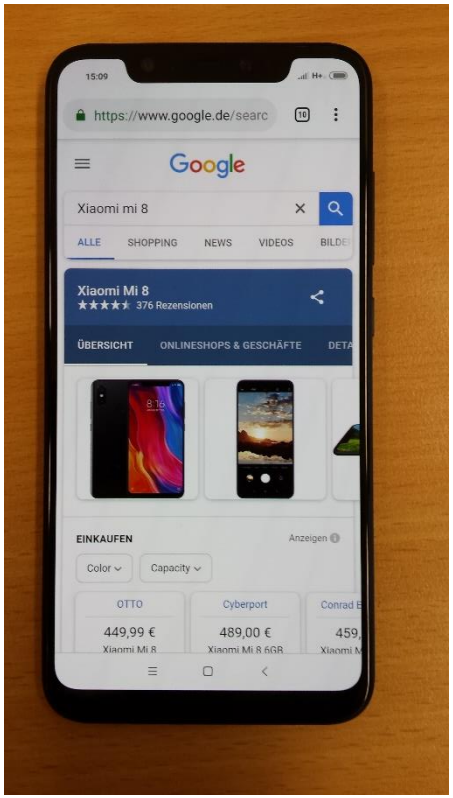
Global Transport	Mobile Processing
Internet: publish, transport & integrate	Mobile: navigate,
Internet: Web 1.0	Web 2.0

read to write (text and graphics)

Mobile 1.0: navigate,	Mobile 2.0: ?
LBA 1.0: navigate	LBA 2.0: control?

read to write (maps)

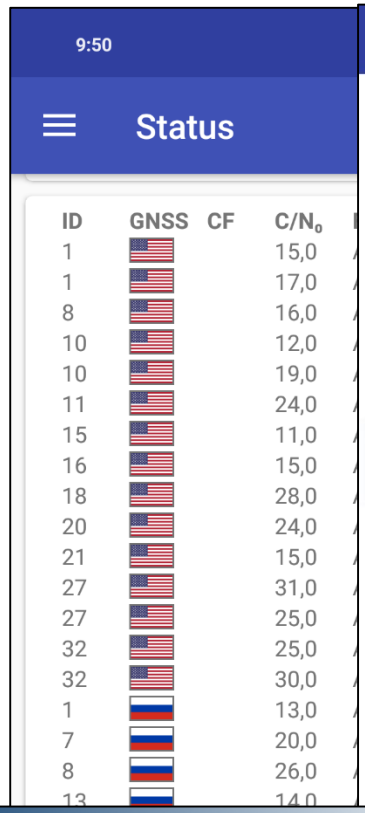
Read to write: recall web 1.0 to web 2.0

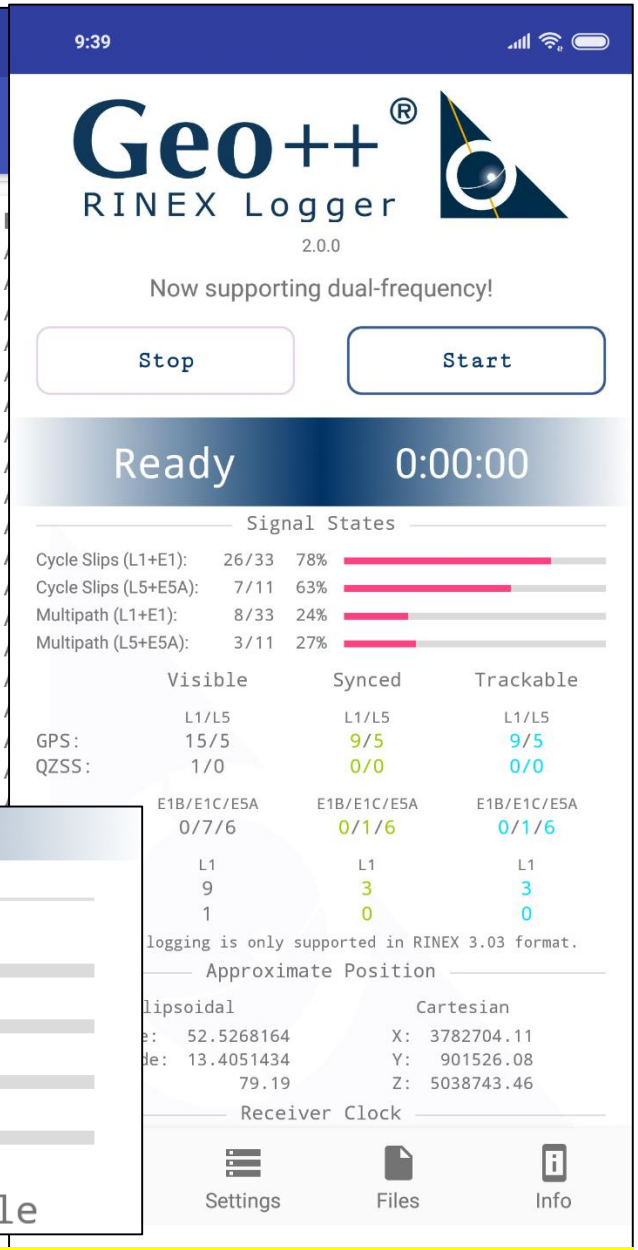


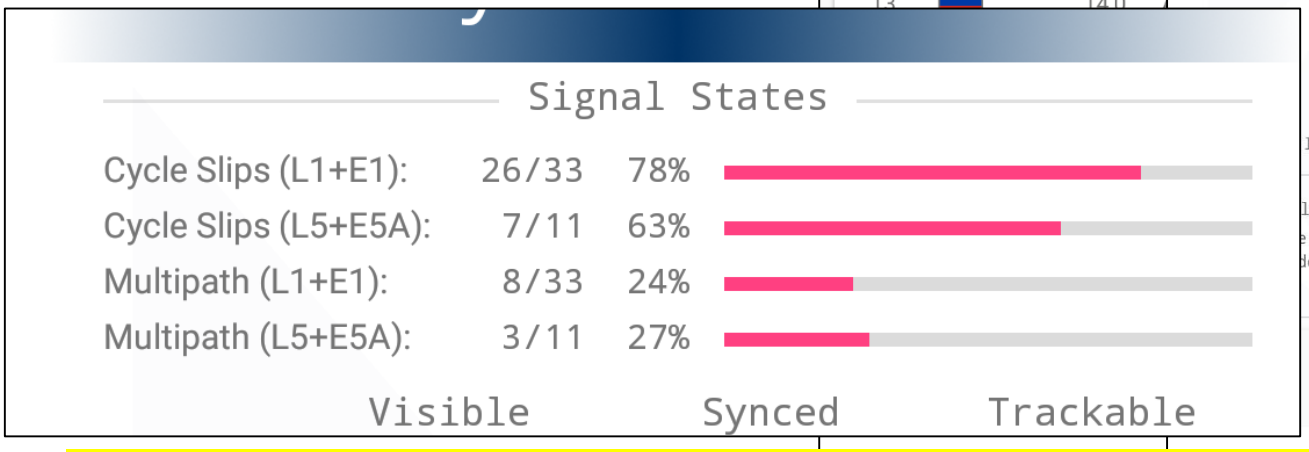
Xiaomi Mi 8
Summer
2019

“Dual GPS
Chip”

Broadcom
Chip







Wherecamp 2018: First devices on Market

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- IoT vs. GeoIoT ?

1985 → 1995 → 2005 → 2015 → 2025

Personal Processing	Global Transport	Mobile Processing	Near Field Transport
PC: create, edit & calculate	Internet: publish, transport & integrate	Mobile: navigate,	IoT:

- Wearable
- Smartwatches
- GeoIT AI
- Smart Home
- AutoDrive?

- Main Methods?
- GeoIoT Methods?

IoT/GeoIoT

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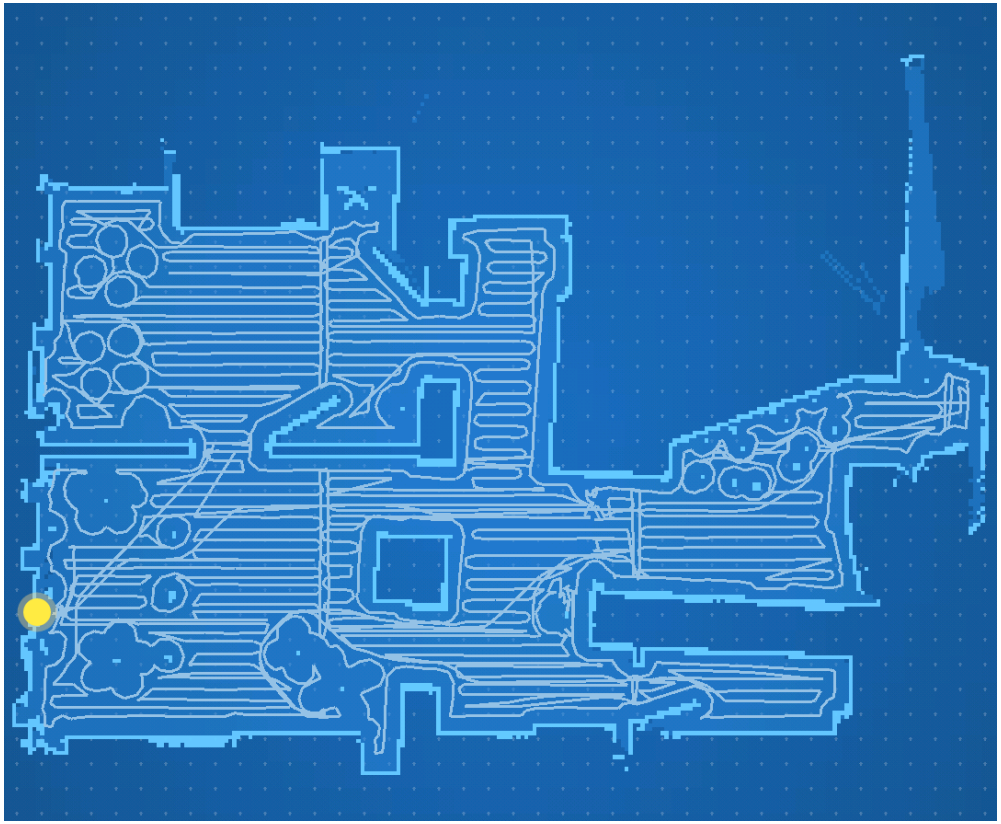

Vacuum robot in our GeoIT-Lab:

- Scanner
- SLAM
- Navigation => Control

IoT/GeoIoT: Technology mapped to usefulness

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- ...

1985	1995	2005	2015	2025
Personal Processing	Global Transport	Mobile Processing	Near Field Transport	
PC: create, edit & calculate	Internet: publish, transport & integrate	Mobile: navigate,	IoT:	

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Auto-drive

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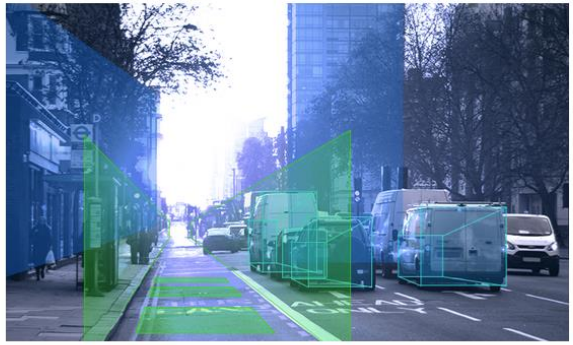
- Autonomous Driving: Open Source Project Baidu Apollo

apollo | Apollo Enterprise | Open Platform | Developer Center | Safety Fist | 中文

Apollo Components



Accurate Perception

Various sensors, such as LiDAR, cameras and radar collect environmental data surrounding the vehicle. Using sensor fusion technology perception algorithms can determine in real time the type, location, velocity and orientation of objects on the road.

This autonomous perception system is backed by

Simulation

Simulation provides the ability to virtually drive millions of kilometers daily using an array of real world traffic and autonomous driving data. Through the simulation service, partners gain access to a large number of autonomous driving scenes to quickly test, validate, and optimize models with comprehensive coverage in a way that is safe and

HD Map and Localization

Baidu pioneered the extensive application of deep learning and artificial intelligence technology to map creation and is one of the few Chinese firms capable of producing HD mapping data on a large scale.

The localization system is a comprehensive positioning solution with centimeter level accuracy

Übertragen der Daten von apollo.auto...

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- Autonomous Driving: Education

apollo | Apollo Enterprise | Open Platform | Developer Center | Safety Fist | 中文

Lesson Structrue

Through this course, you will be able to identify key parts of self-driving cars and get to know Apollo architecture.
You will be able to utilize Apollo HD Map, localization, perception, prediction, planning and control, and start the learning path of building a self-driving car.

01

Self-driving Overview

Identify key parts of self-driving cars, and get to know Apollo team and architecture.

02

HD Map

Get to know how high-definition maps work, which underpin almost every other part of the software stack.

03

Localization

Learn how the vehicle localizes itself with single-digit-centimeter-level accuracy.

04

Perception

Identify different perception tasks such as classification, detection, and segmentation and learning convolutional neural networks which are critical to perception.

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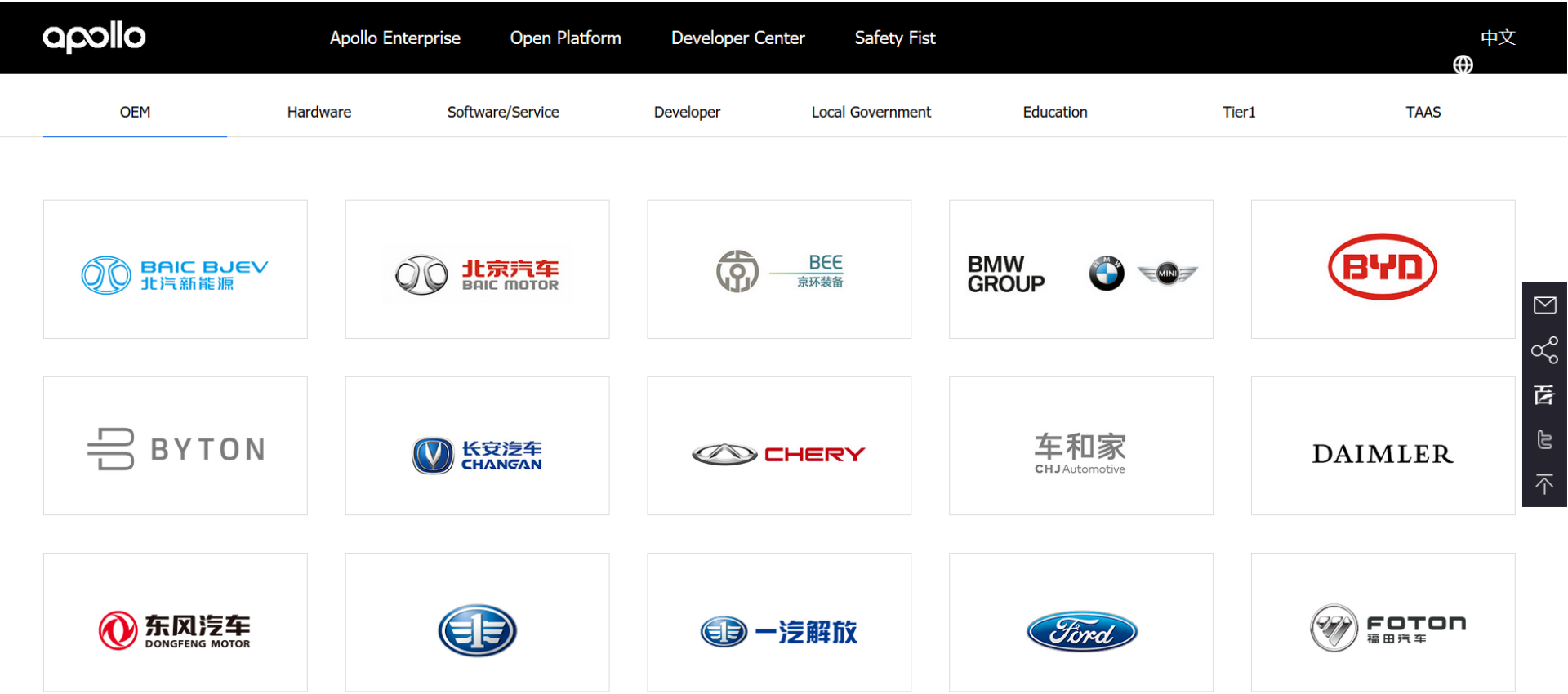
- Autonomous Driving: Open Source Project Baidu Apollo



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- Autonomous Driving: ….

apollo Apollo Enterprise

MAP Engine

The MAP Engine manages and protects the HD-Map data, as well as provides a unified data query interface. The MAP Engine includes core capabilities such as:

- Element retrieval
- Spatial retrieval
- Format adaptation
- Cache management

The MAP Engine provides a modular, hierarchical,

- Autonomous Driving: Open sourced and managed

https://github.com/ApolloAuto/apollo

Suchen

ApolloAuto / apollo

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Code | Issues 478 | Pull requests 7 | Projects 0 | Wiki | Security | Insights

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An open autonomous driving platform

apollo | autonomous-vehicles | autonomous-driving | autonomy | self-driving-car

14,526 commits | 16 branches | 7 releases | 228 contributors | Apache-2.0

Branch: master | New pull request | Find file | Clone or download

JasonXu12 Planning: record optimal speed information in DP search — Latest commit f2fa04c yesterday

.github/ISSUE_TEMPLATE — New issue template — last year

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- ...

1985 — 2015 — 2025

Personal Process	Near Field Transport
PC: create, edit & calculate	IoT:

Elon Musk @elonmusk · 13. Nov.

Congrats to Tesla team on Model 3 winning best midsize car in Germany! 🇩🇪🇩🇪🇩🇪

"Mobility requires freedom": THE GOLDEN STEERING WHEEL 2019: BILD am SONNTAG ...

axelspringer.com

732 1,9 Tsd. 23,1 Tsd.

Elon Musk @elonmusk · 12. Nov.

Will build batteries, powertrains & vehicles, starting with Model Y

799 1,6 Tsd. 33,7 Tsd.

Diesen Thread anzeigen

Elon Musk @elonmusk · 12. Nov.

🖤❤️💛 GIGA BERLIN 💛❤️🖤

2,5 Tsd. 6,1 Tsd. 65,6 Tsd.

IT

Auto-drive

Tesla & Berlin-Brandenburg

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And your thoughts?
Let's talk about that at the Wherecamp!

President of the Association for Geoinformatics, GeoIT and Navigation e.V.
Prof. Dr. Roland Wagner