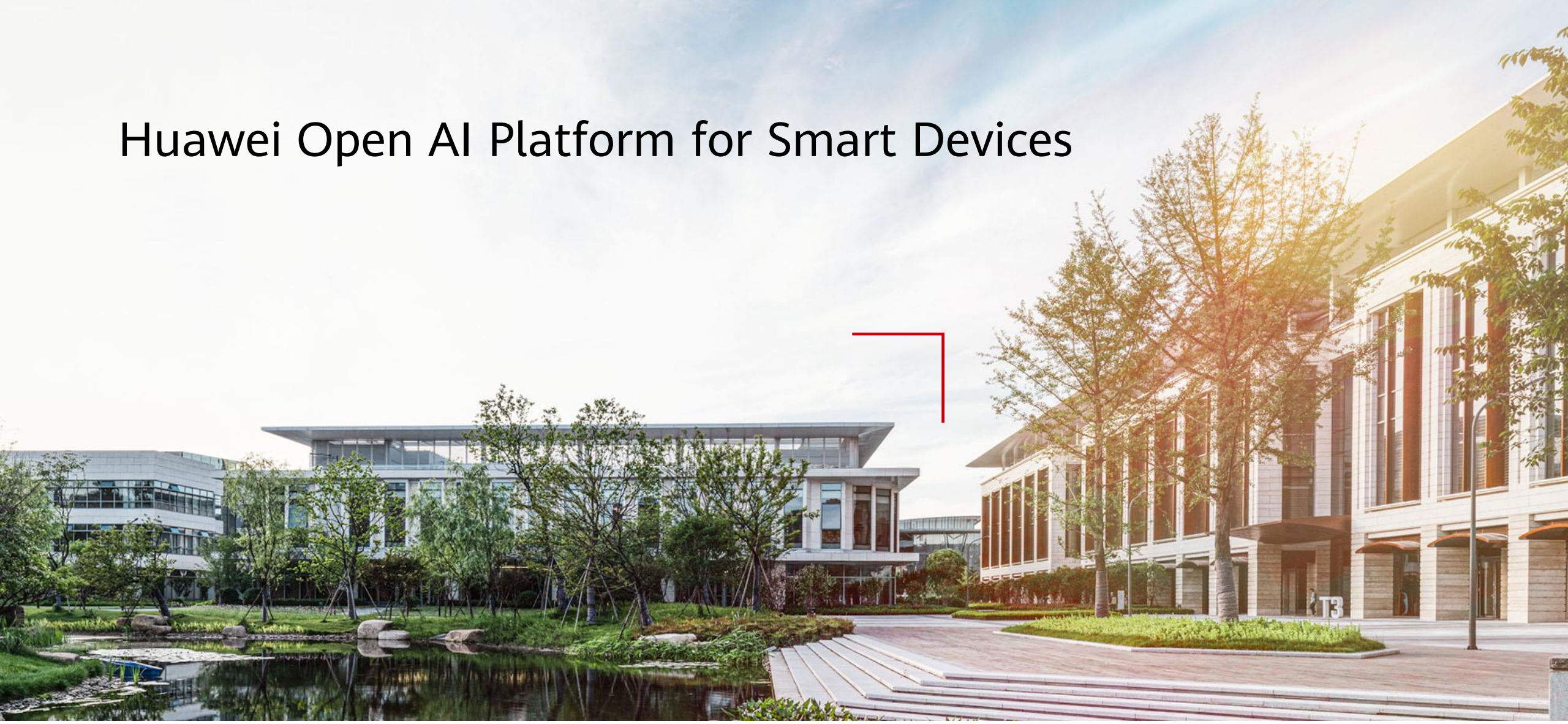
Huawei Open AI Platform for Smart Devices



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Foreword

- Huawei HiAI is an open artificial intelligence (AI) capability platform for smart devices, which adopts a "chip-device-cloud" architecture, opening up chip, app, and service capabilities for a fully intelligent ecosystem. This assists developers in delivering a better smart app experience for users by fully leveraging Huawei's powerful AI processing capabilities.

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Objectives

After this course, you will be able to:

- Master the usage of Huawei HiAI platform.
- Understand the powerful functions of Huawei HiAI platform.

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Contents

1. **AI Industry Ecosystem**
2. Huawei HiAI Platform
3. Developing Apps Based on Huawei HiAI Platform

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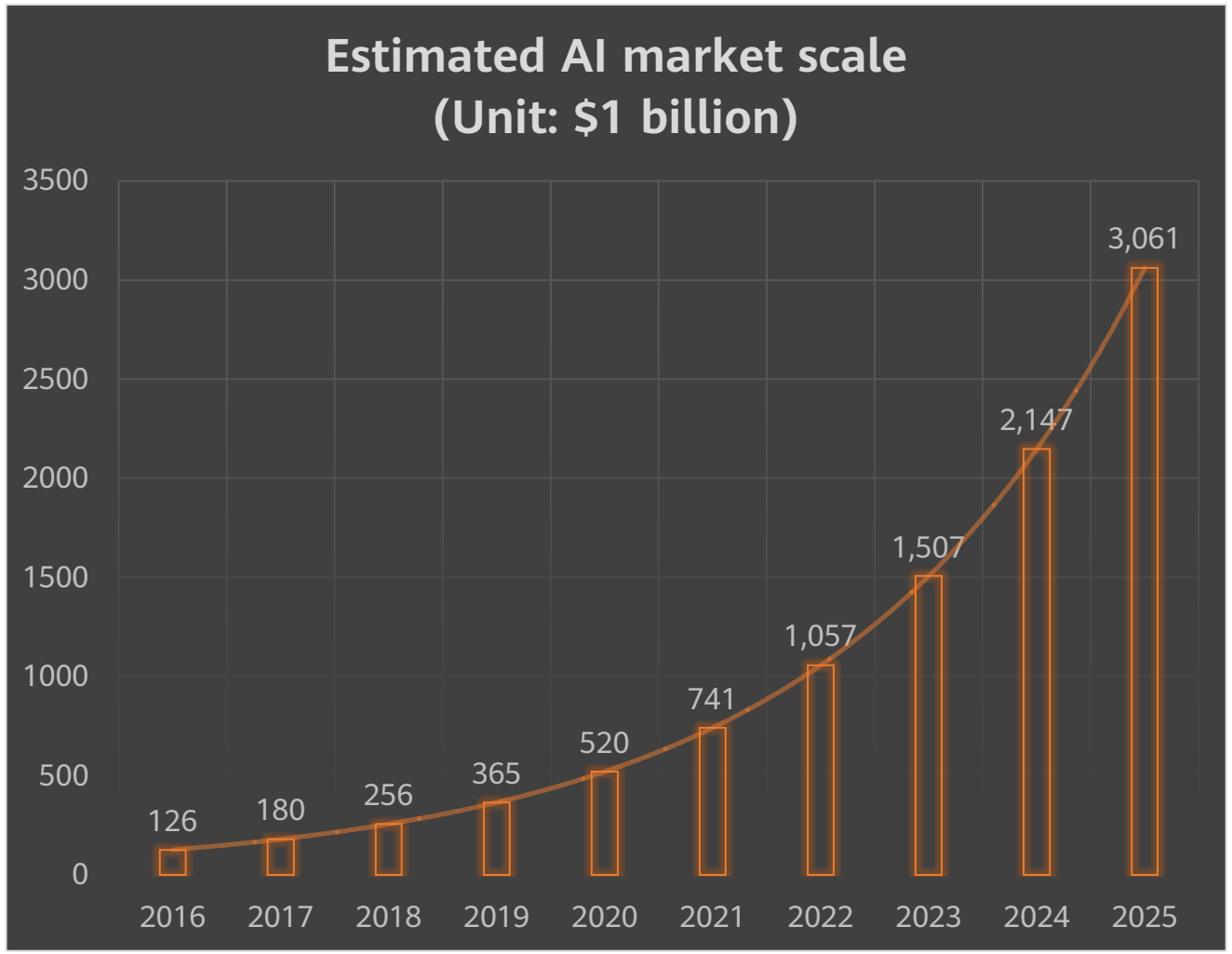
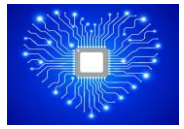
Huge Opportunities: Foreseeable AI Ubiquity in a $3 Trillion Market



Involved industries: automobile, finance, consumer goods and retail, medical care, education, manufacturing, communications, energy, tourism, culture and entertainment, transportation, logistics, real estate, and environmental protection

Computing power breakthrough



Algorithm breakthrough

Data breakthrough

Data source: Forrester, Transparency Market Research, Chinese Association for Artificial Intelligence, and Roland Berger

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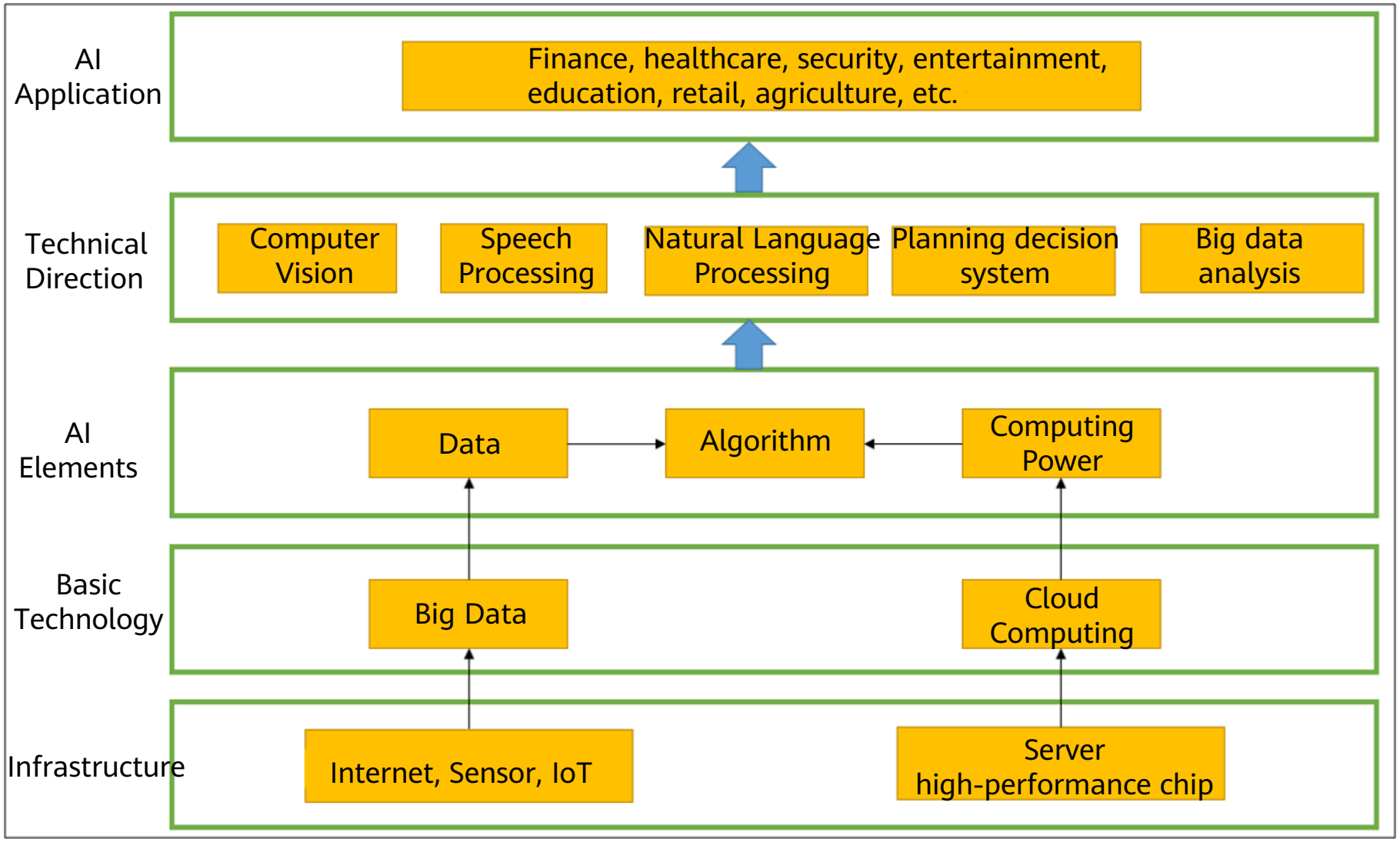
Architecture of the AI Application Platform



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Challenges in AI Capability Development and Application

High thresholds

Demanding requirements

6 months: ML & DL
2 months: Statistics
4 months: Linear algebra
3 months: Calculus

15 months

Low efficiency

Long training cycles

Data collection and cleansing
Model training and optimization
Customized experience improvement

3–8 months

Diverse requests

Fragmented experience

The entire training cycle must be repeated for each scenario.
Lack of inheritability or transferability

N-fold workload

Slow iteration

Limited capability enhancement

Difficulties in model upgrade
Difficulties in valid data acquisition

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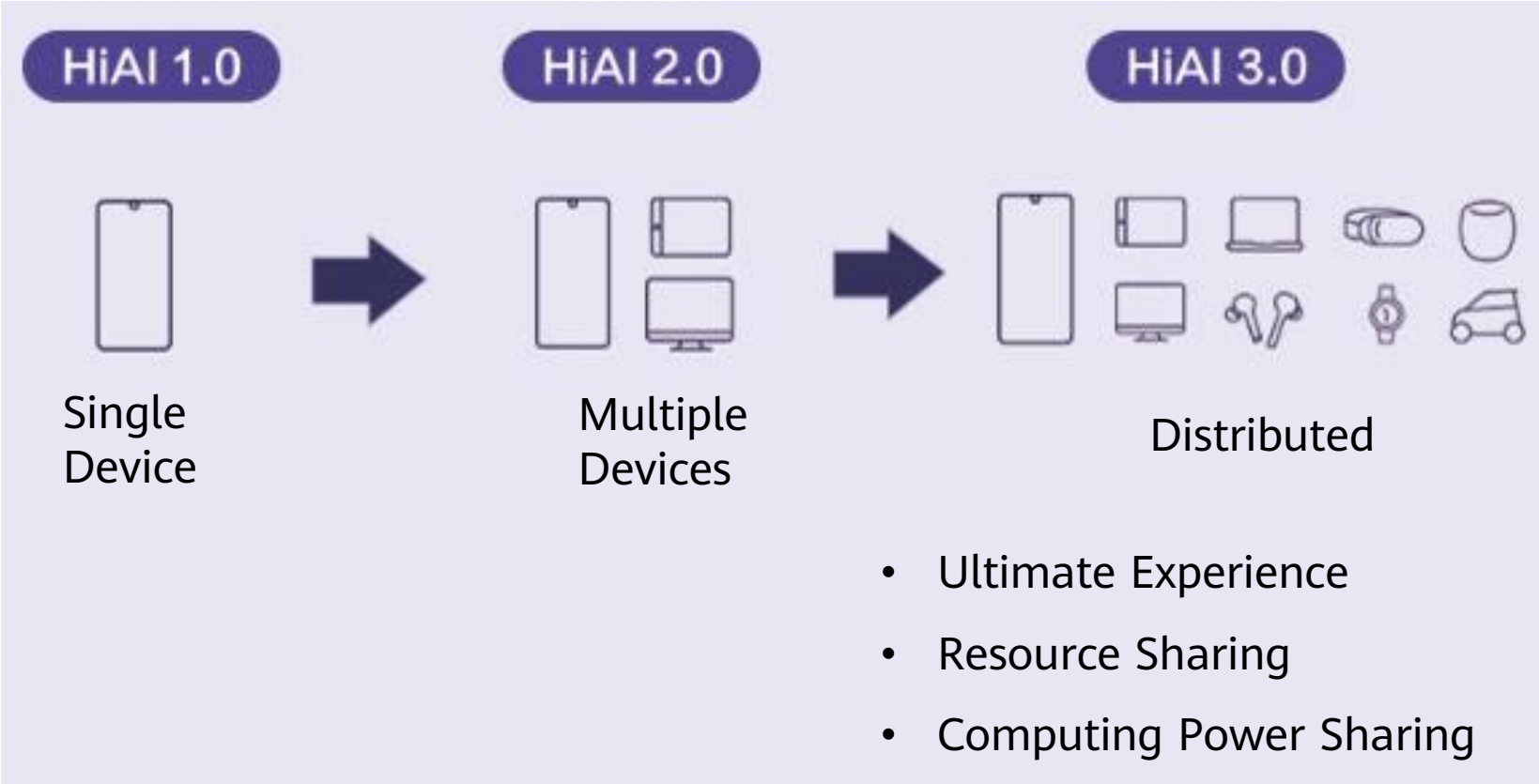
HiAI 3.0 - Enabling Ultimate Experience in All-Scenario Smart Life



- 4000+ partners
- Over 96 million daily active users
- Over 600 billion monthly calls

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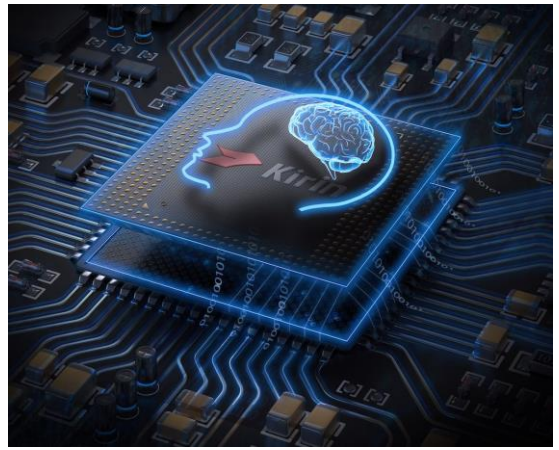
Huawei HiAI 3.0: Enabling Distributed All Scenarios by AI

Cloud 1000+ atomized services

Device 40+ application programming interfaces (APIs)



Chip 300+ operators

Huawei HiAI Service

Service capability openness for mutual benefits
Push services based on user requirements in an active manner.

Huawei HiAI Engine

AI capability openness for simplicity
Integrate multiple AI capabilities into apps simply, making apps smarter and more powerful.

Huawei HiAI Foundation

Chip capability openness for high efficiency
Quickly convert and migrate existing models to obtain optimal performance based on heterogeneous scheduling and network process unit (NPU) acceleration.

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HiAI Foundation

- HiAI Foundation APIs constitute an AI computing library of a mobile computing platform, enabling developers to efficiently compile AI apps that can run on mobile devices.
  - Leveraging high performance and high precision of Kirin chips, better device-end AI performance will be delivered by more powerful computing power.
  - Support the largest number of operators (300+) in the industry and more frameworks, greatly improving flexibility and compatibility.
  - The Honghu, Kirin, and AI camera chips enable AI capabilities for more devices.

HiAI Engine

- HiAI Engine opens app capabilities and integrates multiple AI capabilities into apps, making apps smarter and more powerful.
  - Provide handwriting recognition and dynamic gesture recognition capabilities, with 40+ underlying APIs.
  - Computer vision and speech recognition will develop toward a distributed mode, assisting developers in delivering more all-scenario smart life experience.

Distributed AI helps sports healthy and safe driving

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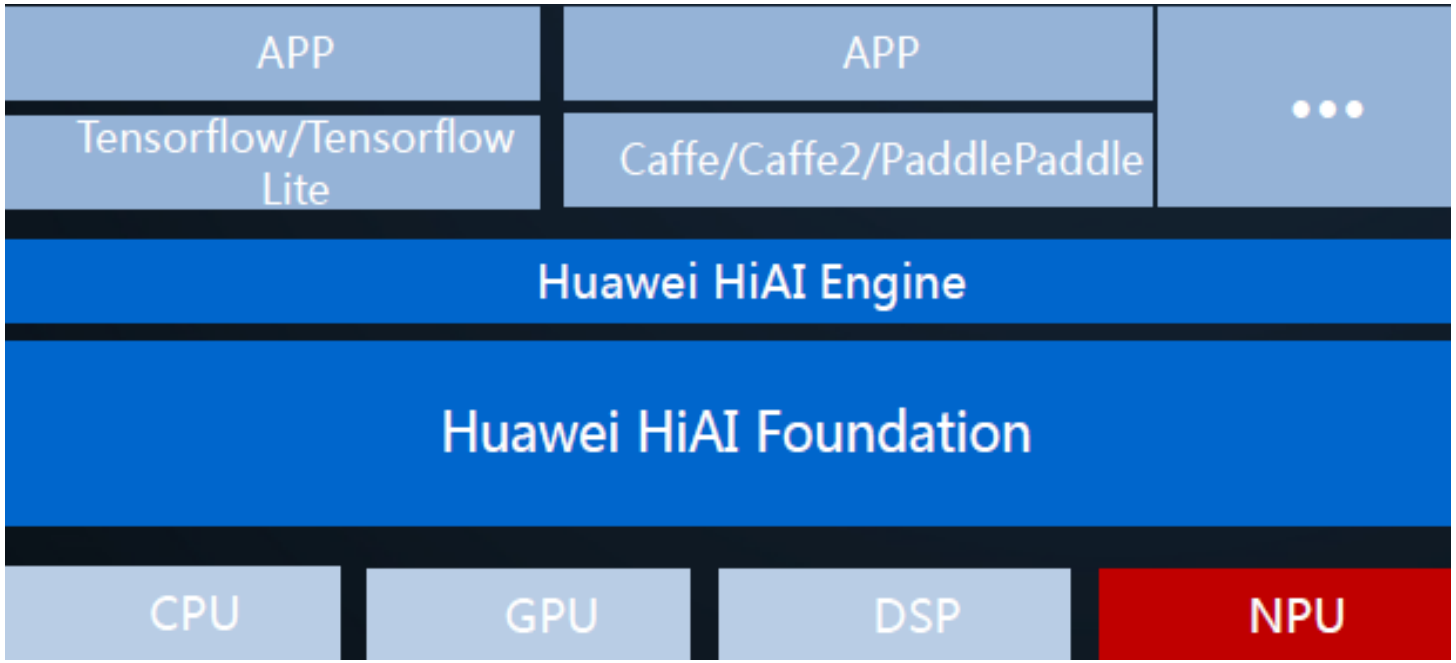
HiAI Service

- HiAI Service enables developers to reuse services on multiple devices, such as mobile phones, tablets, and large screens, with only one service access, efficiently implementing distribution.

Architecture of the HiAI Mobile Computing Platform



Supports diverse mainstream front-end frameworks.

Provides various upper-layer function service APIs to ensure efficient running on mobile devices.

Allows flexible scheduling of heterogeneous resources, meeting developers' demand to accelerate neural network model computing and operator computing

Tool chain

Comprehensive documents

Different types of APIs

Source codes enabling quick start

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What can apps benefit from Huawei HiAI?

Real time

Ready-to-use

Stability

Security

Lower cost

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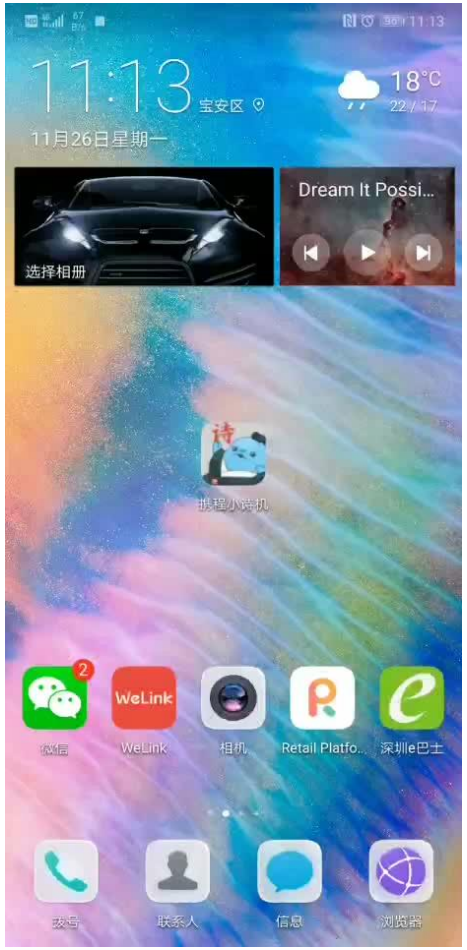
Huawei HiAI + Ctrip Help You Take Poetic Photos



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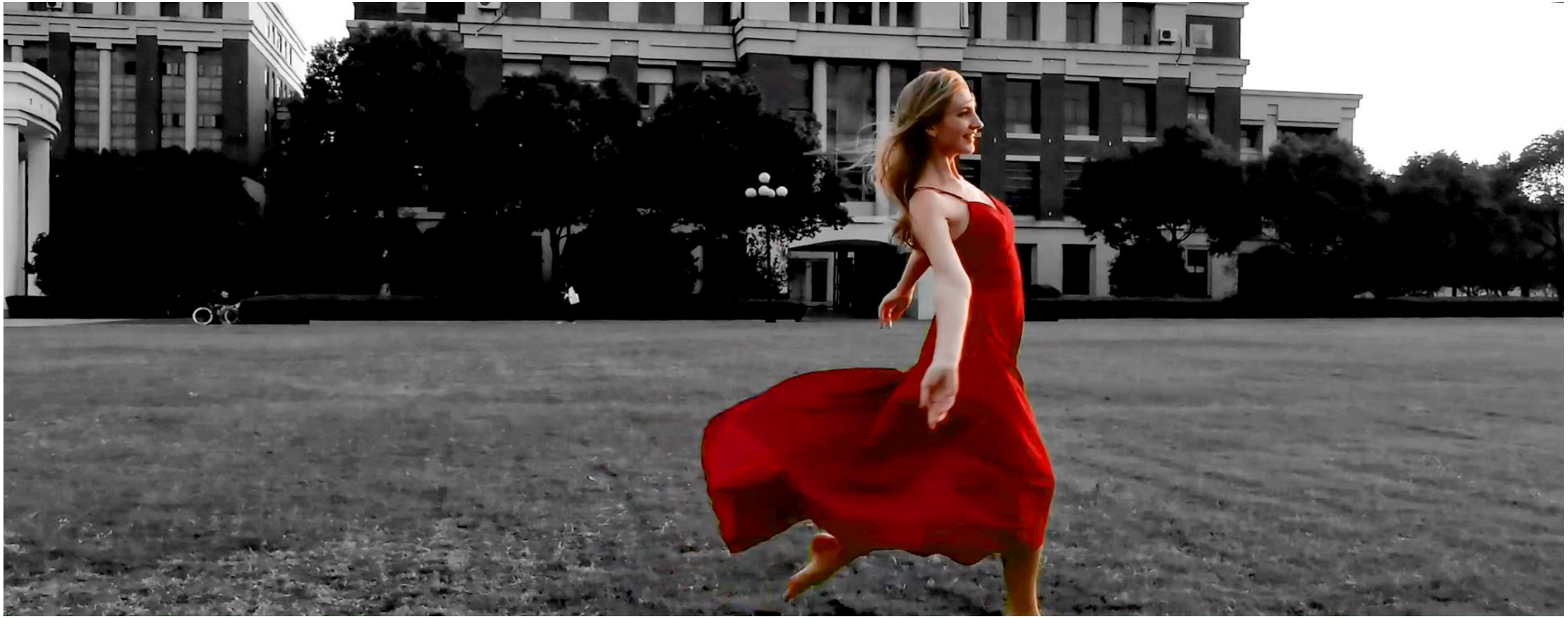
Real-time NPU AI Image Segmentation



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NPU+AI Human Image Matting for Flexible Switchover in Multiple Scenarios

- https://www.bilibili.com/video/av66898567/

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AI Capability Provider, Accelerating Application Development

Short video and live streaming	Social media	Augmented reality (AR)	Photo taking and retouching	Shopping	Translation and text processing
Facial recognition Gesture recognition Portrait segmentation Posture recognition Video style Voice control Intelligent depth of field control Image scene recognition	Photo categorization Image recognition Image super-resolution (SR) Sensitive data recognition	Contextual awareness Voice control Depth estimation Light estimation	Beautification Image enhancement Aesthetics scoring Album generation Photographing by voice Photographing by gesture	QR code scan Direct service delivery and recommendation ID card recognition Bank card recognition Product identification	Translate by taking a photo Optical character recognition (OCR) Word splitting Named entity recognition Text emotion recognition Intelligent text reply Text and image SR
Computer vision (CV), automatic speech recognition (ASR)	CV, natural language understanding (NLU)	ASR, CV	CV	CV	NLU, CV, ASR

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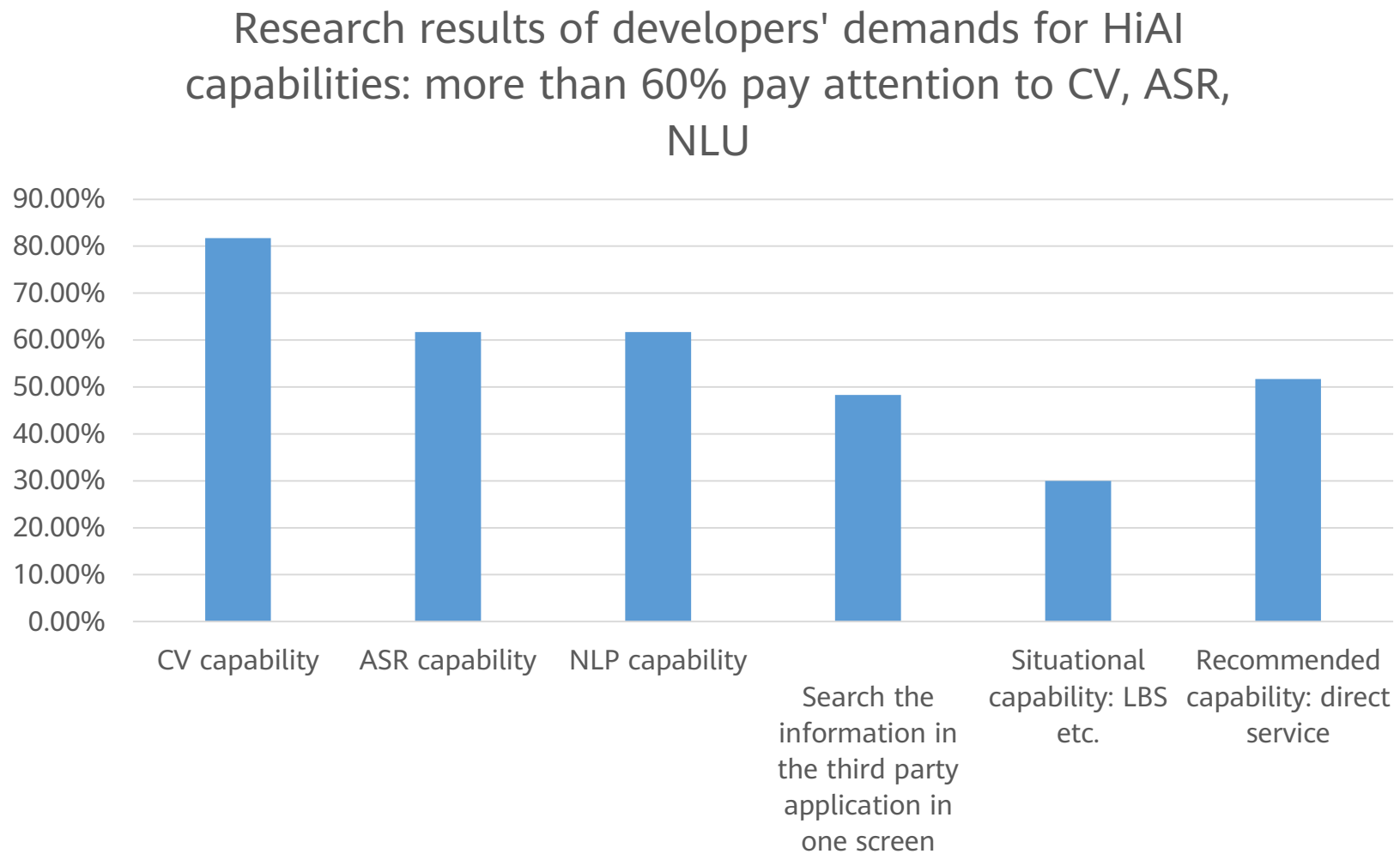
AI Capability Provider, Accelerating Application Development



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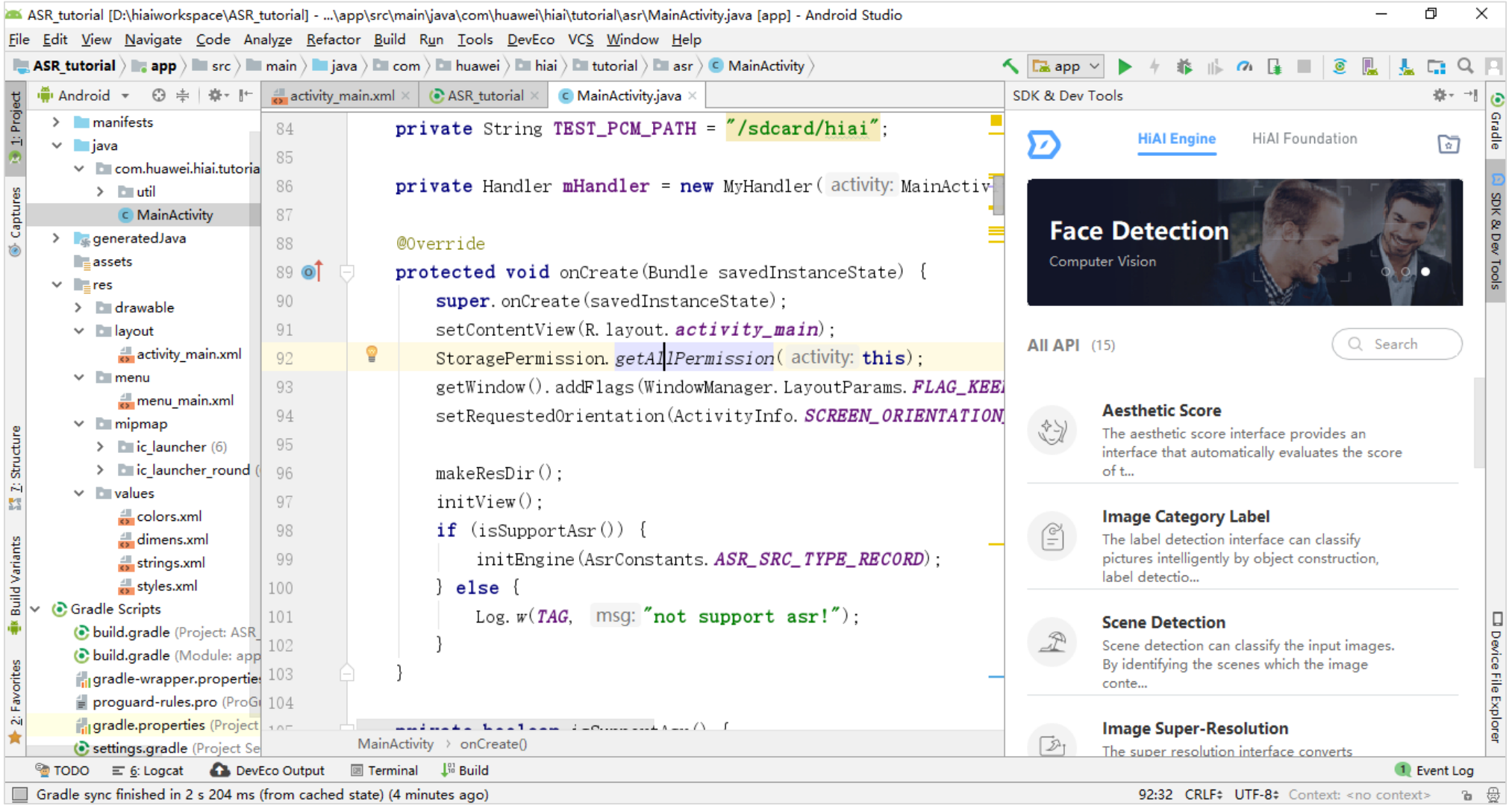
Comprehensive Tools for Developers



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Huawei HiAI Helps Deaf and Mute People

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Next Generation Mobile Experience with Huawei HiAI

Fast Simple Mutual Benefit

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Connecting Developers and Stimulating Innovation to Achieve Win-Win ecosystem

Offline connection for in-depth communication

- Salons in cities
- HiAI open courses
- Technical symposiums

USD1 billion investment, stimulating innovations in all scenarios

- Openness and innovation of device capabilities
- All-scenario digital service innovation
- Cloud service ecosystem co-construction

Innovation competition for continuous development

- AI application innovation contest
- Creativity contest for future application
- AR application innovation contest

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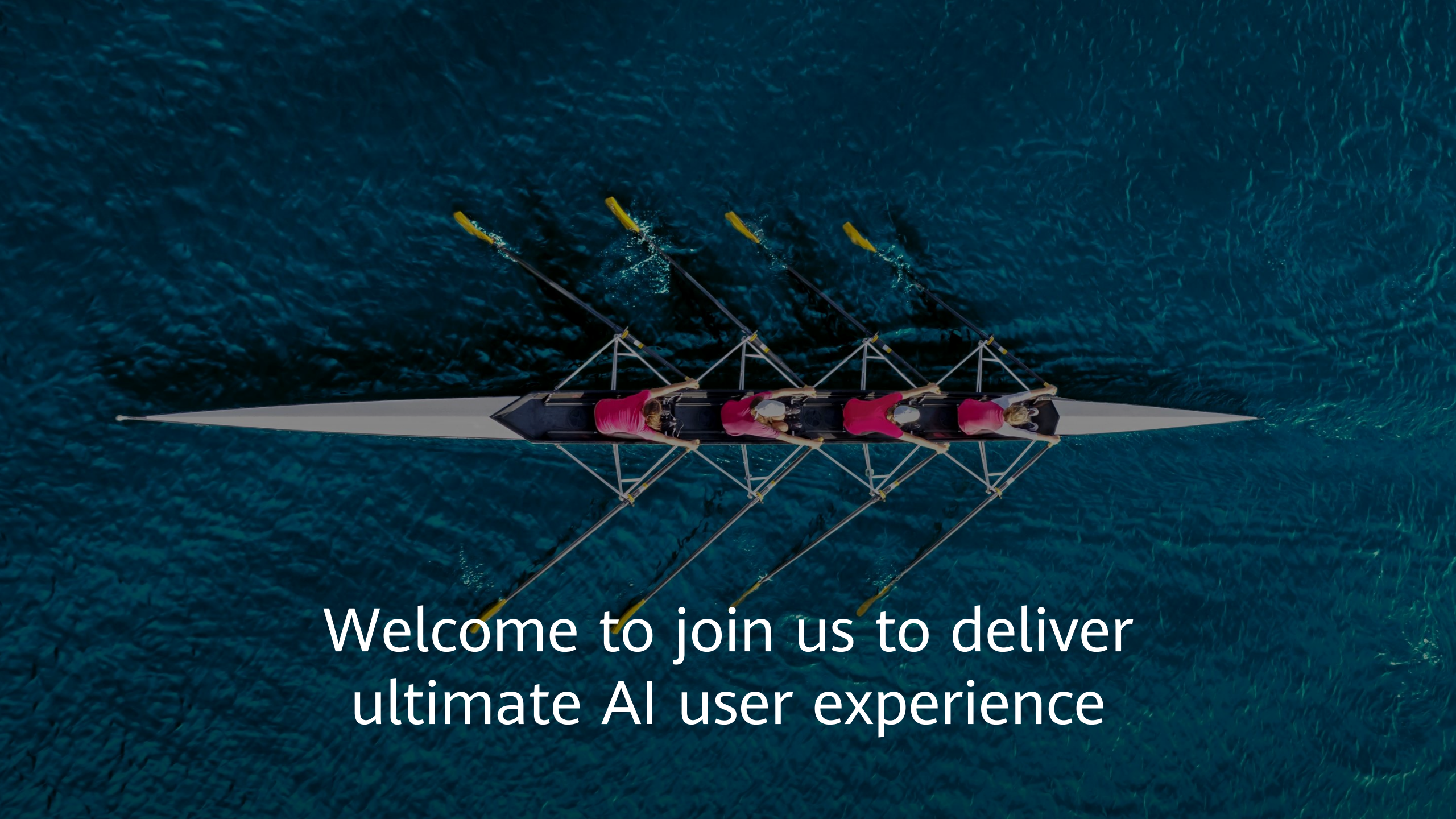
Welcome to join us to deliver
ultimate AI user experience

Summary

- We believe that AI can make life better by bringing unprecedented convenience for both back end and devices. However, this requires actual application scenarios that allow more enterprises and developers to play a part in improving user experience substantially. Huawei is willing to work with partners to jointly promote intelligent transformation of industries with more developers and enterprises based on the HiAI3.0 platform.

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