



THE UNIVERSITY OF HONG KONG

Professor Amy Shuen

AI Artificial Intelligence and Global Dynamic Capabilities

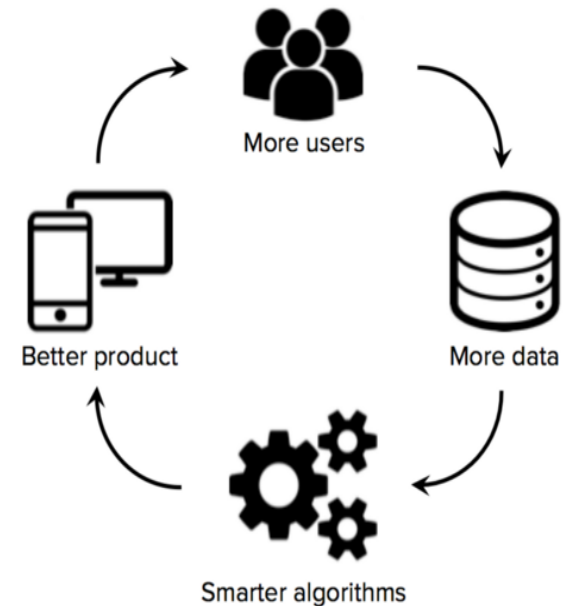
The new AI
rules for
success

Innovation in AI
Business
Models

Global Dynamic
Capabilities
Framework

What's Next

The New AI Rules for Success



Algorithms and Architecture

Recent AI innovations have been powered by combining algorithms and architecture together in novel ways to solve specific sets of problems.

Computing Power

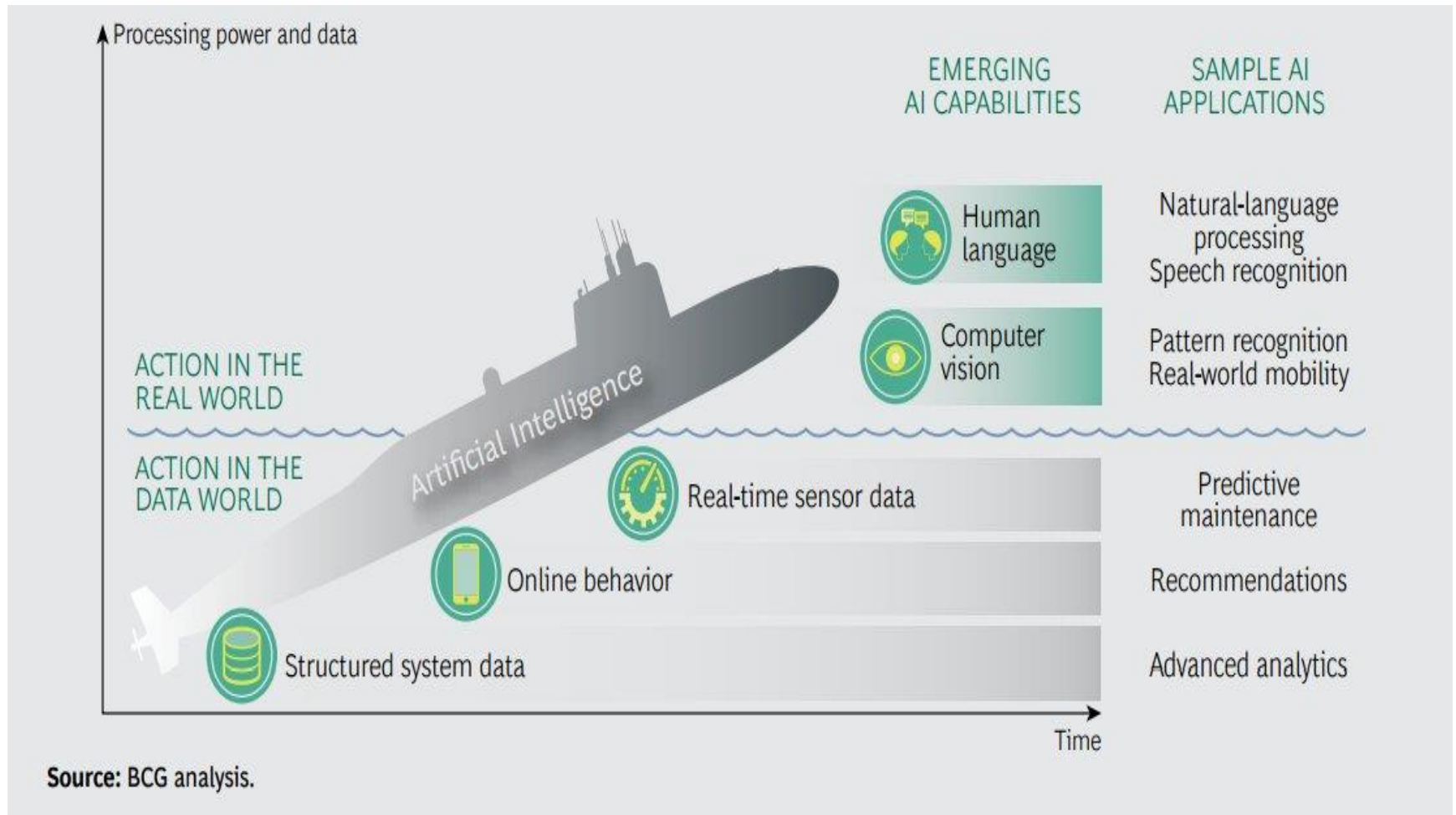
Exponential increases in computing power has meant that certain algorithms and architecture which were impractical in the past, e.g. DL, have become viable.



Big Data

Access to large amounts of data available in the cloud, has made DNNs feasible.

The AI Breakthroughs: Language and Vision



Alibaba: Chinese photo-estimating AI handles 12 claims in 6 seconds

By John Huetter on June 28, 2017

[Business Practices](#) | [Education](#) | [Insurance](#) | [International](#) | [Market Trends](#) | [Technology](#)



Self-Driving Autonomous Cars

Look — no driver

Video camera

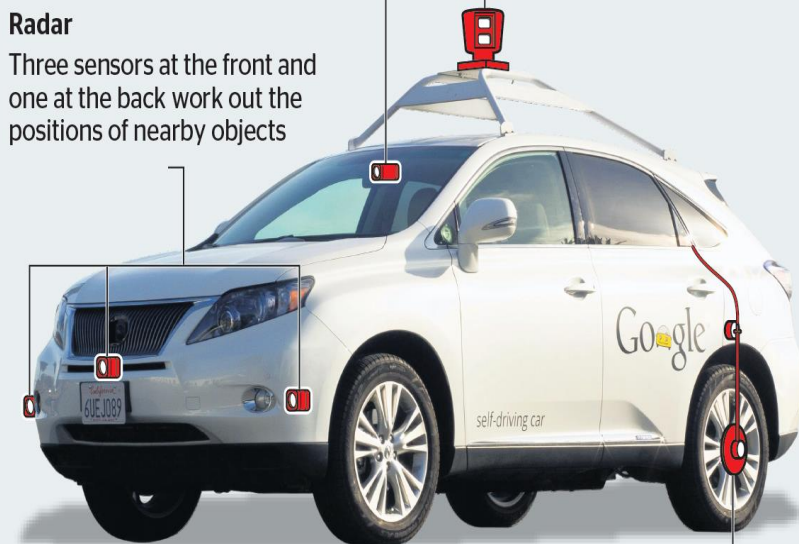
Detects traffic lights, oncoming vehicles and other obstacles

Lidar

A rotating sensor on the roof scans 200ft in all directions to create a 3D map of its surroundings

Radar

Three sensors at the front and one at the back work out the positions of nearby objects



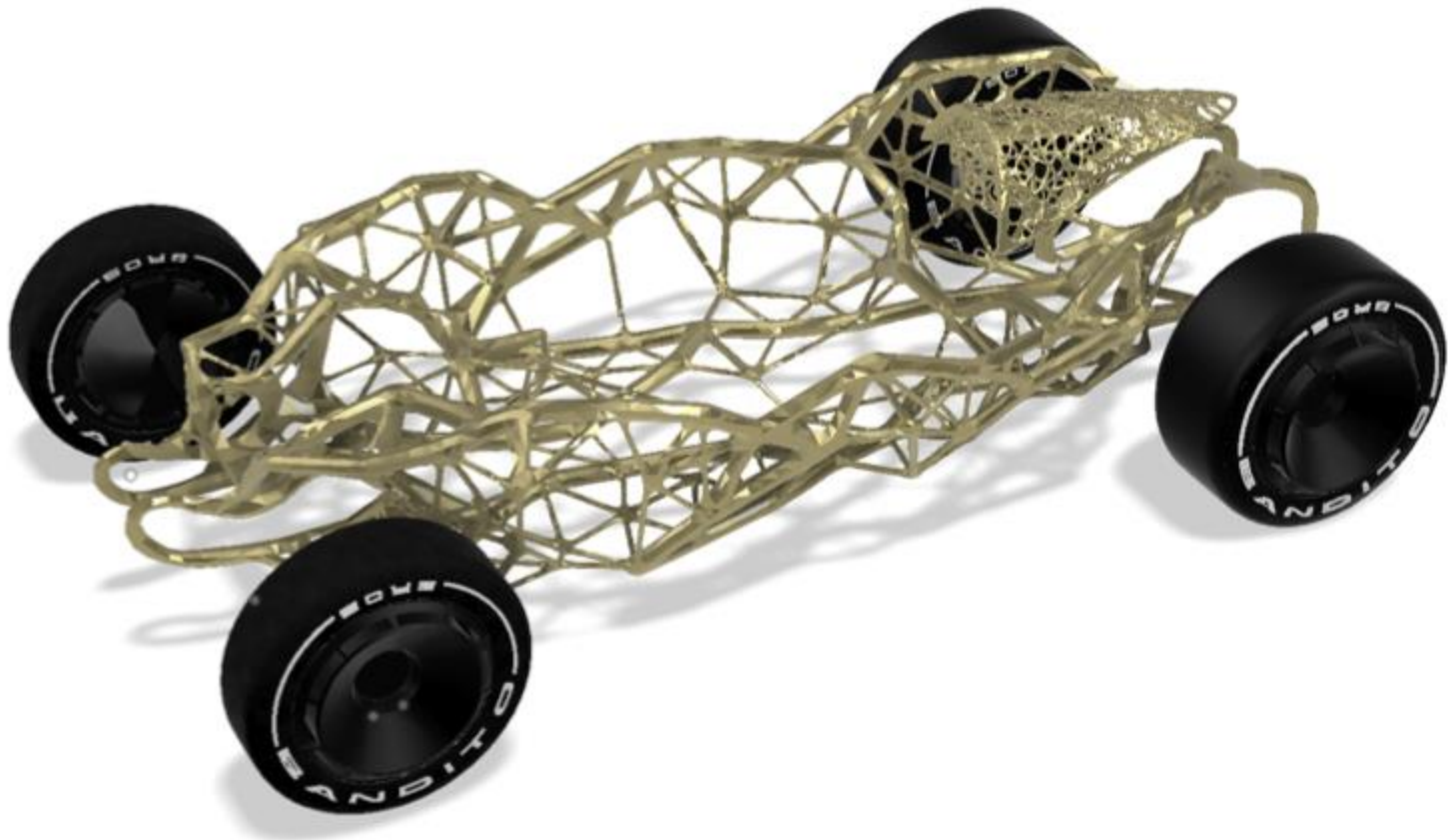
Position estimator

A sensor on the left rear wheel measures the car's movements so that its position can be mapped with accuracy

HOW BAIDU WILL WIN CHINA'S AI RACE—AND, MAYBE, THE WORLD'S



AI-generated Formula One Car



Children Health Advice 24/7



The Integrated AI Business Model

The Business Model Canvas




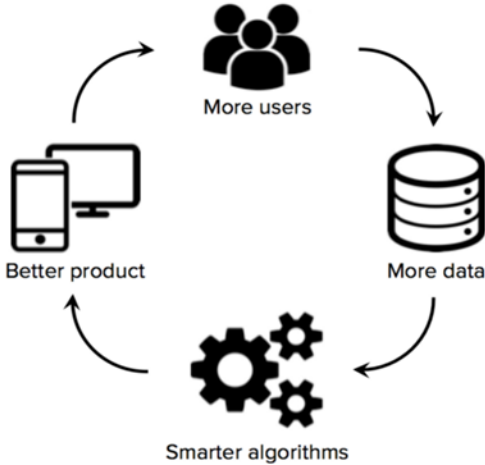





Designed For:

Designed By:

On:

Iteration:

Business Plan in a Sentence: (Company Name) is developing (definition) to help (target audience) (solve a problem).

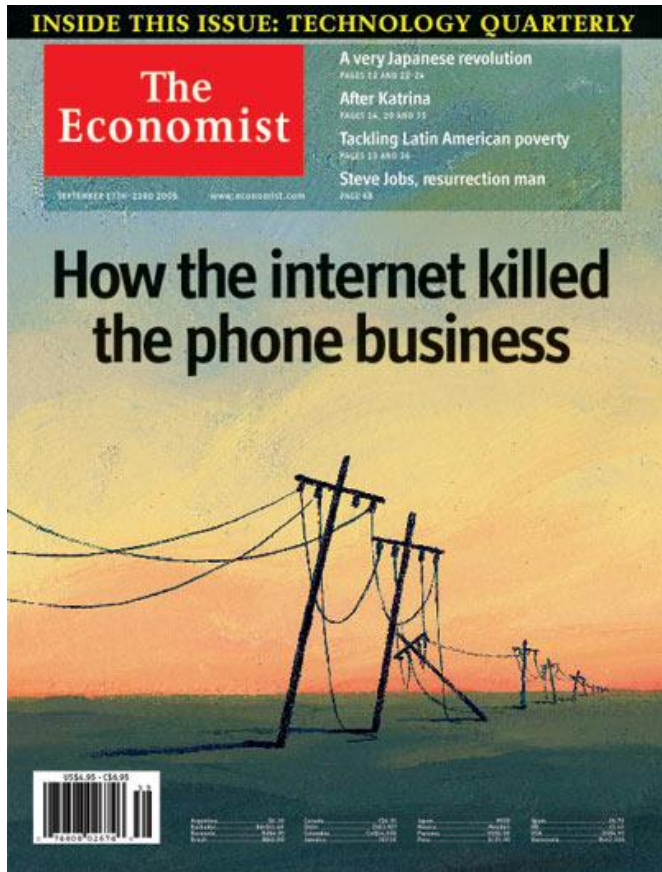
8. Key Partners 	7. Key Activities 	2. Value Proposition  	4. Customer Relationships 	1. Customer Segments 
	6. Key Resources 			
Financial				
9. Cost Structure 			5. Revenue Streams 	

Three Types of Games

- **Positive Sum:** economic, financial or social rewards are created as a result of playing the game.
- **Zero Sum:** the total rewards available from playing the game are independent of the process of play.
- **Negative Sum:** economic, financial or social rewards are destroyed as a result of playing the game.

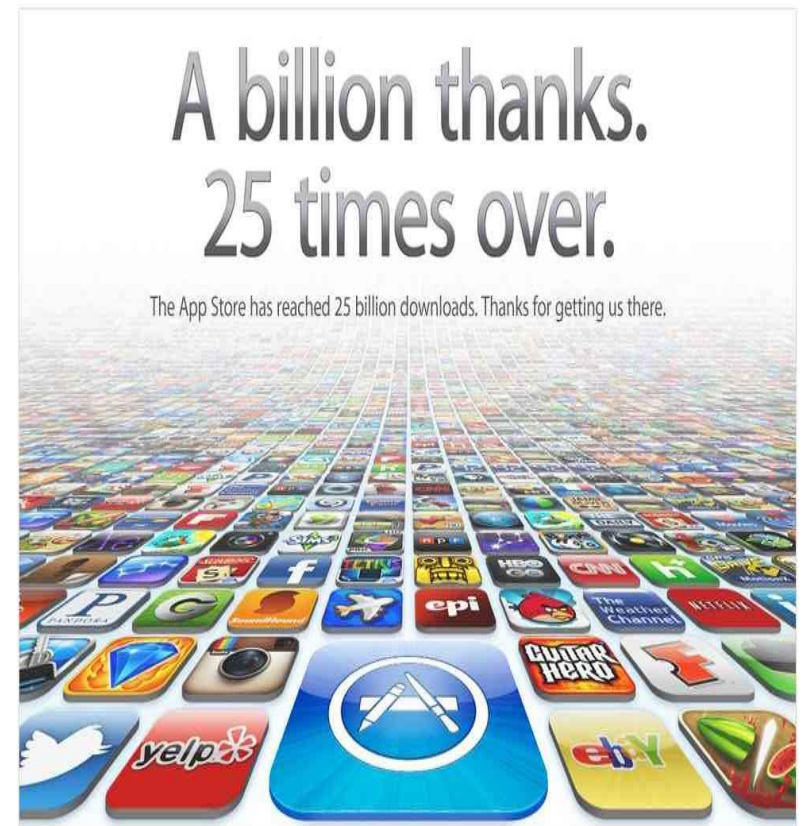


Disruption

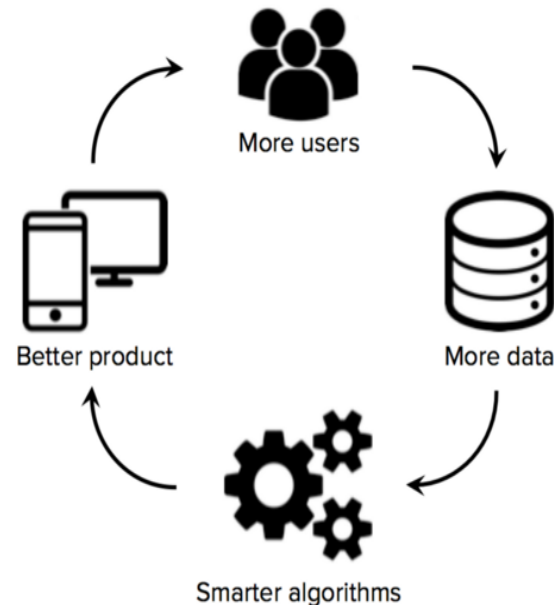
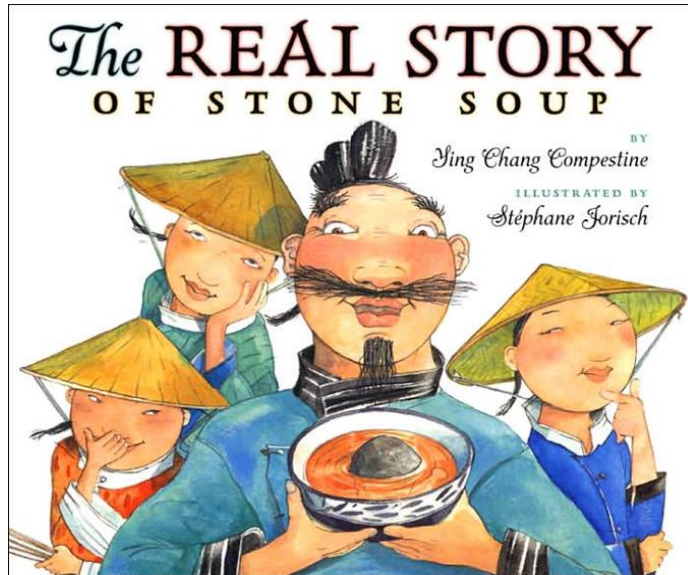


Zero Sum Game





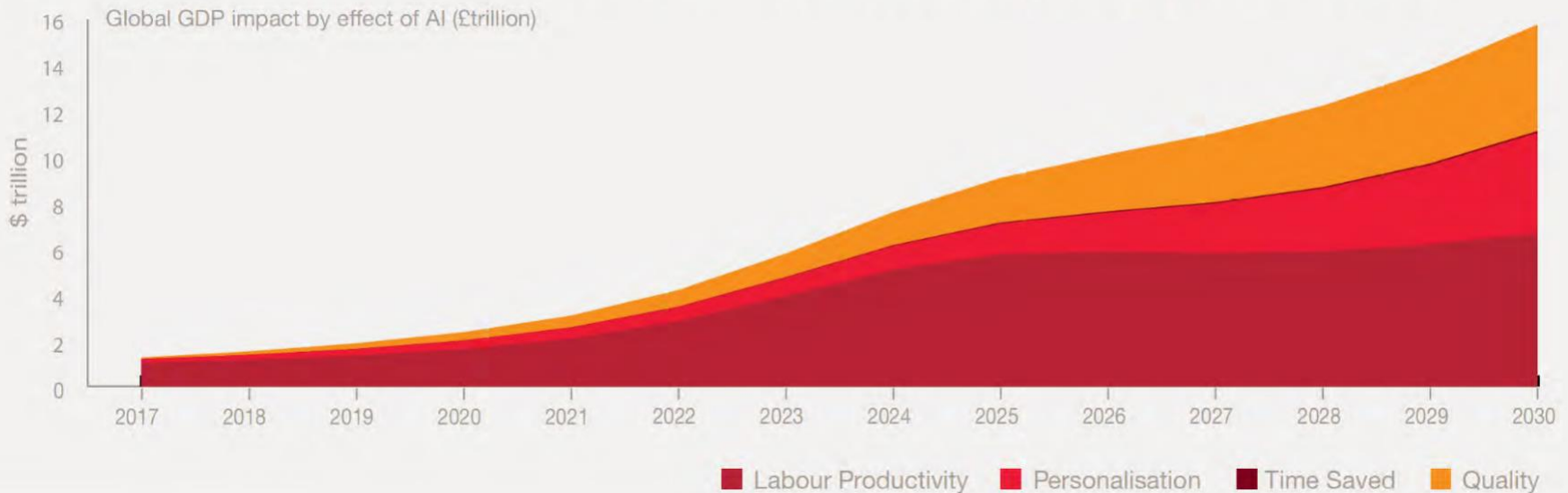
The AI-enabled Global Digital Stone Soup—millions of co-creators...



- **Positive Sum:** economic, financial or social rewards are created as a result of playing the game.

AI will add \$16 T to the global economy in better products, services & efficiency

Sizing the prize – Where will the value gains come from?



► China – a perfect storm for innovation



Mass market of early adopters

Chinese consumers are impatient and sophisticated mobile gadget enthusiasts always ready to try out new tech

700+ million mobile internet users

Huge China market spans super-rich elite consumers and third-world mass market, mirrors global market

China market size and diversity challenge its highly competitive tech companies to adapt, creating world-class competition

Chinese consumers are relatively forgiving of mistakes, allowing firms to experiment and learn, accelerating innovation

“I have a hard time thinking of an industry we cannot transform with AI.”

Andrew Ng, former chief scientist at Baidu, and Google Brain, the company's deep learning project

► Facial recognition in the real world



China has a large centralized database of ID card photos that can drive unprecedented real-world applications of facial recognition technologies, including scanning for criminals across surveillance camera networks

Baidu, which cracked a 20+ year kidnapping case using facial recognition, is trialing a system that identifies people before picking up train tickets.

Beijing-based Face++, which analyzes the distances between 83 points on a face, is being employed by Alipay and Didi to verify ID for payments and to verify drivers, and has a \$1 billion valuation

Other projects include scanners in coffee shops that identify customers and buying habits to staff, as well as security systems for female dormitories

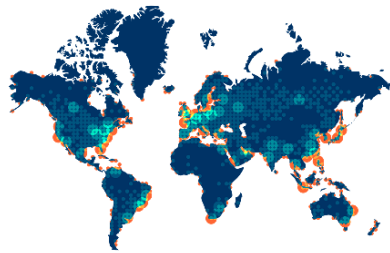
► Infervision uses AI to detect cancer



Beijing-based Infervision uses sophisticated image recognition to detect early-stage lung cancer in CT scans that humans may miss. Infervision has installed programs in 20 hospitals across China, and is expanding to the US and Japan and developing programs to help doctors analyze images of the heart, brain and stomach.

5 USE CASES OF AI + ROBOTICS IN AGRICULTURE

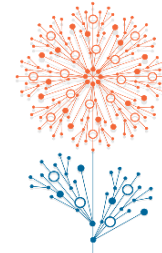
ANALYZING SATELLITE IMAGES



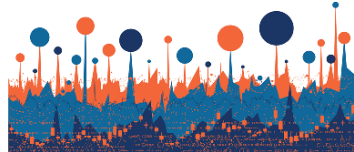
IN-FIELD MONITORING



ASSESSING CROP/SOIL HEALTH



PREDICTIVE ANALYTICS



AGRICULTURAL ROBOTS



CBINSIGHTS

► 3 Top AI Labs: Tencent a waking giant

Tencent 腾讯

Making up lost ground, over the past year Tencent has established AI labs in Shenzhen and Seattle, poached Baidu big data head Zhang Tong, and partnered with AI university labs like one at HKUST providing funding and data in return for access to research and talent

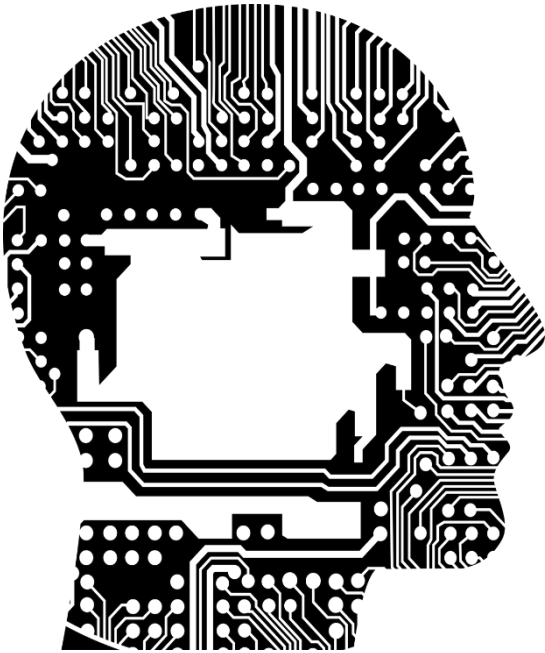
Baidu 百度

Despite losing AI kingpin Andrew Ng in March, Baidu has invested more than \$1 billion with over 1,700 people dedicated to the field, as well as a joint lab with the government's NDRC. Baidu is an established global leader in voice recognition

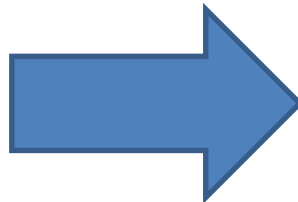
滴滴
滴滴一下 美好出行

Didi, the \$50 billion ride-hailing service that last year acquired Uber in China, will drive AI frontiers through its recently opened AI lab in Mountain View focused on self-driving cars,

What's Next



AI Technology



Applied AI for People