

AI technology development and applications in healthcare by Tencent

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Tencent AI Lab focuses on both fundamental AI research and applications in industry

Our journey



Tencent AI Lab

2016.4

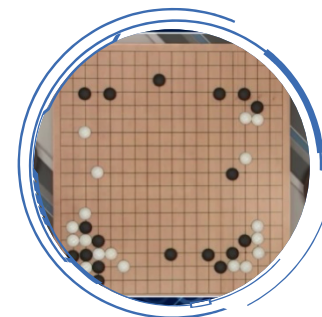
Tencent establishes its corporate-level AI Lab



2017.3

Tencent announces leading AI researcher Dr Tong ZHANG as the Director of Tencent AI Lab

2017.3
"Jueyi" wins the UEC World Cup



2017.3

"Jueyi" wins the UEC World Cup



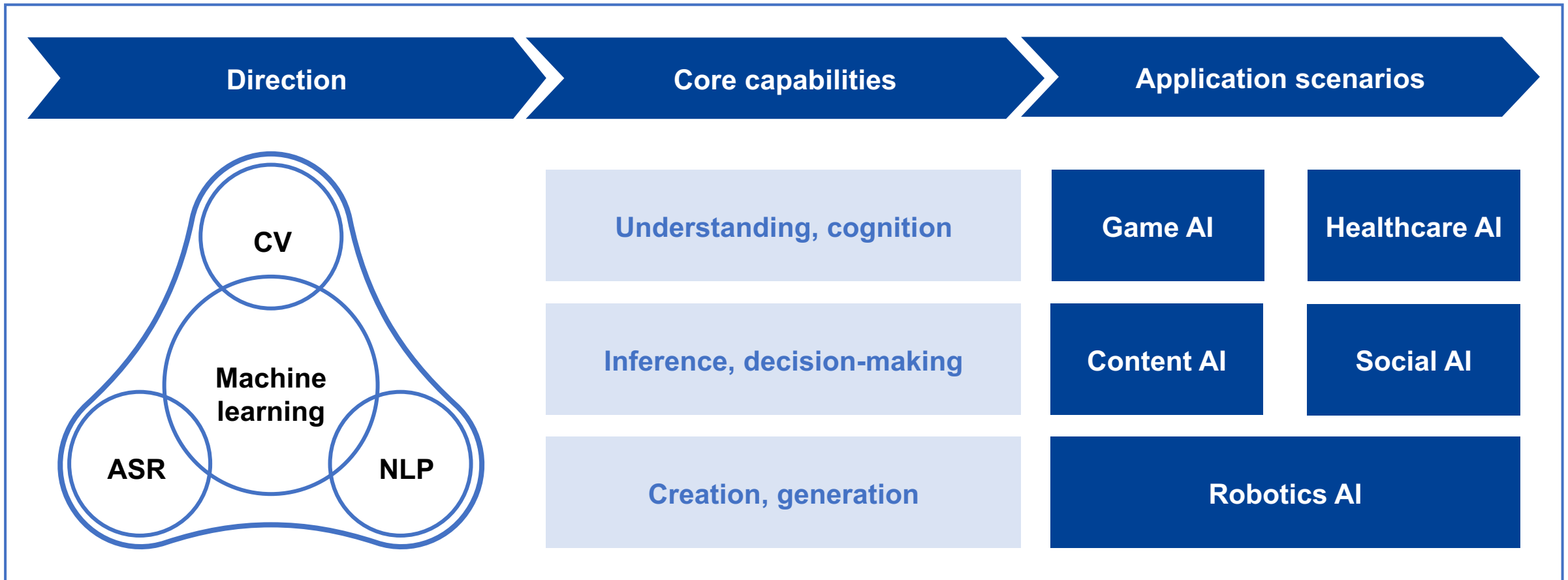
2017.5

Tencent establishes its Seattle AI Lab and announces leading Speech Recognition expert Dr Dong Yu as Deputy Director

Today

Our team consists of 70 world-class AI research scientists and 300 application engineers

- To drive innovative research
- To empower business scenarios
- To build fundamental AI capabilities
- To deliver impacts in industry



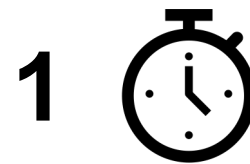
4 major pain points in healthcare...

In light of “Healthy China” initiative, ongoing efforts are in place to tackle challenges in:

- **[Resource]** Increasing gaps between patients and physicians
- **[Quality]** Centralized healthcare resources (mostly in big cities)
- **[Complexity]** Complicated disease diagnostic and treatment processes
- **[Cost]** Healthcare spending 3.5x during the past 10 years

...are being addressed with recent progresses in AI

AI can help physicians to:



Increase efficiency in routine clinical works



Improve precision in diagnosis and treatment



Unlock new capabilities along the clinical process

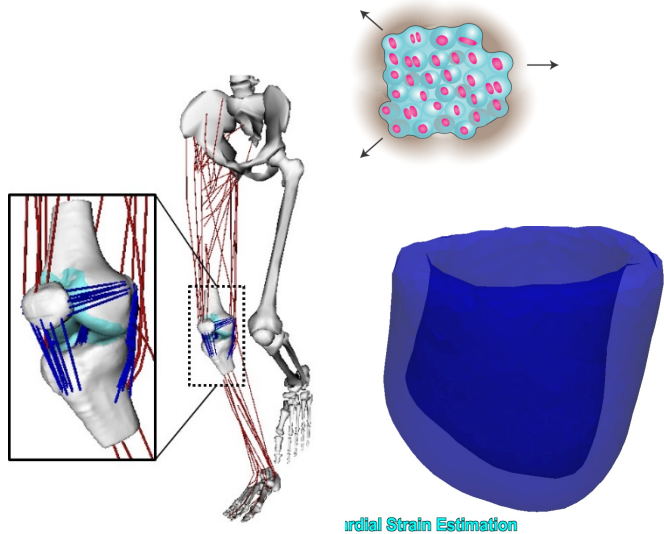
1. Total healthcare spending (THE) has increased from 1.5 trillion RMB to 5.2 trillion RMB from 2008 to 17

Source: World bank

Our core approach to bridge AI with healthcare

Models

Mathematical model
Biodynamic model
Probability model



radial Strain Estimation

Feature engineering

Image histology
Histopathology
Genomics

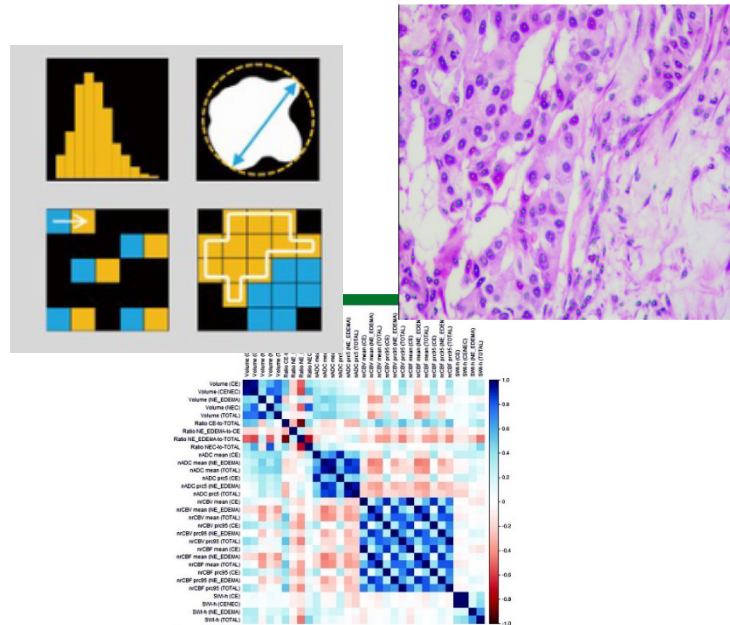
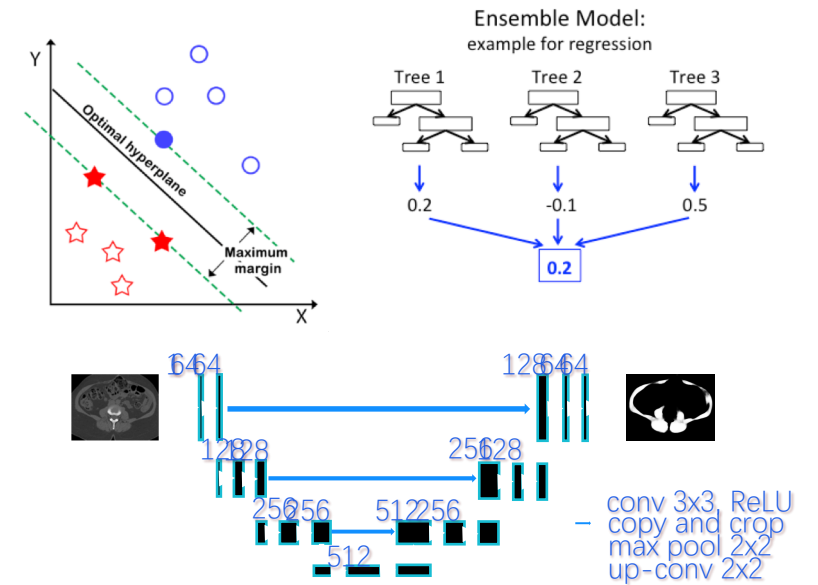


Figure 2. Feature correlation matrix of enhanced MRI imaging parameters. CT - contrast enhancing tumor volume segmentation, OASIS - cortical thickness, brain atlas region segmentation, MIP - maximum intensity projection, ICB - hippocampal volume segmentation, ACC - anterior cingulate cortex, p - probability, DAB - fraction of hippocampal signal (percentage) on susceptibility weighted images.

Machine learning

Support vector machine
Random forest
Deep learning





1

Medical data

- Non-standard data format
- Lack of high-quality data with accurate annotations



2

Difficulties in integrating into existing diagnosis process and physicians' routine practices



3

High performance requirement of AI-powered medical products

Thank you