

Global Artificial Intelligence Industry Data Report

Note: This piece is a joint translation by Joy Dantong Ma and Jeffrey Ding -- all credit for the original goes to the authors and the original text linked below. Joy is Associate Director at MacroPolo, the think tank of the Paulson Institute. Jeff is a Rhodes Scholar at Oxford, PhD candidate in International Relations, Researcher at GovAI/Future of Humanity Institute, and Research Fellow at the Center for Security and Emerging Technology. These are informal translations and all credit for the original work goes to the authors. Others are welcome to share **excerpts from these translations as long as my original translation is cited. Commenters should be aware that the Google Doc is also publicly shareable by link. These translations are part of the ChinAI newsletter - weekly-updated library of translations from Chinese thinkers on AI-related issues: <https://chinai.substack.com/>*

Source: China Academy of Information and Communications Technology (CAICT), Data Research Center

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Original Mandarin: <http://www.caict.ac.cn/kxyj/qwfb/qwsj/201905/P020190523542892859794.pdf>

Report summary

1. As of the end of March 2019, there were 5,386 active artificial intelligence (AI) companies in the world. The US, China, the United Kingdom, Canada, and India rank as the top 5 globally in terms of the amount of AI companies. China's AI enterprises are concentrated in the regions of Beijing, Shanghai, Guangzhou, Jiangsu, and Zhejiang, while American AI companies are concentrated in California and New York.
2. There are 41 AI unicorns globally, including 17 in China, 18 in the US, 3 in the UKJapan, and 1 each in Japan, Germany and Israel.
3. Since Q2 2018, global AI investment has gradually declined. The total amount of global investment in AI in Q1 2019 was US\$12.6 billion, down 7.3% from the previous quarter, and flat year-on-year; the number of deals reached 310, up 29.7% from the previous quarter and down 44.1% from the same period last year. Among them, China's AI financing amounted to US\$3 billion, 55.8% down year-on-year, accounting for 23.5% of total global financing, down 29% from the same period in 2018.
4. Statistics on AI academic papers in the past 10 years has the following characteristics: China ranks first in terms of the total number of papers published, while the number of highly cited papers is lower than that in the US.
5. Chinese research institutes such as the Chinese Academy of Sciences and Tsinghua University are among the upper echelon of AI academic research institutions.

6. Google and Microsoft published the most amount of papers in top AI conferences globally.

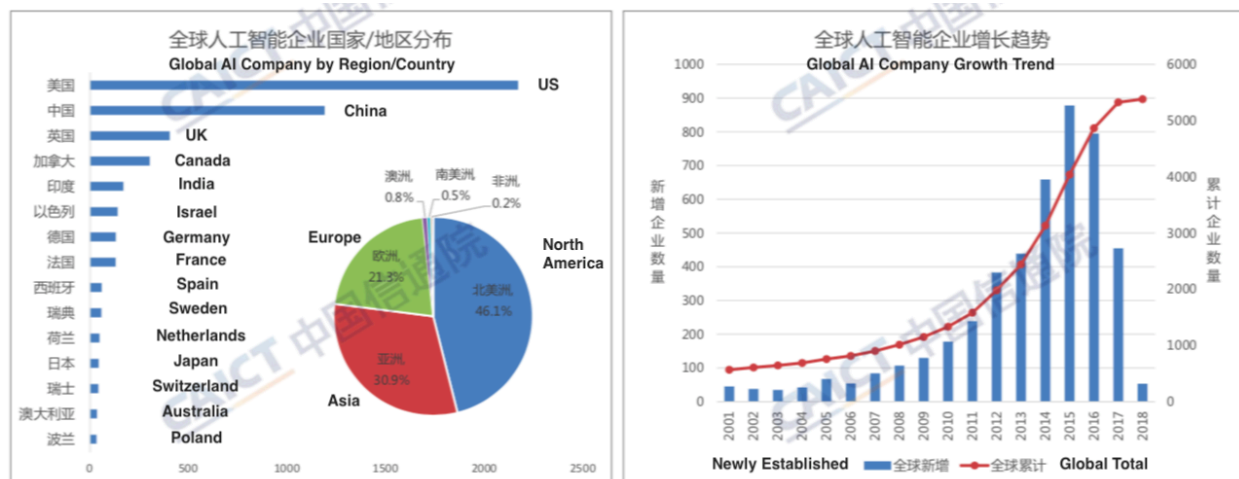
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1. Company Growth

Company growth - scale

- As of the end of March 2019, there were 5,386 active AI companies worldwide.
- Top 5 countries in terms of AI companies #: US (2169), Mainland China (1189), UK (404), Canada (303) and India (169).



Company growth - regions

- Top 5 cities in terms of AI companies #: Beijing (468), San Francisco (328), London (290), Shanghai (233), New York (207).
- The Number of Top 20 Cities (in terms of AI companies located there) by Country: there are 4 in China, 10 in the US, 3 in Canada, and 1 in the UK, India and Israel.
- Chinese AI companies are concentrated in Beijing, Shanghai, Guangzhou and Jiangsu and Zhejiang region, while American AI companies are concentrated in California and New York.

Company growth - unicorns

China:

4paradigm
Bytedance
Cambricon
Horizon Robotics
CloudWalk Technology
Megvii
iCarbonX
TuSimple
UISEE
SenseTime
UniSound
Mobvoi
UBTECH
YITU
AIWAYS
Squirrel AI
Terminus

United States:

Afiniti
Automation Anywhere
Avant
Butterfly Network
C3
CrowdStrike
Dataminr
Indigo Agriculture
InsideSales.com
Pony.ai
SoundHound
Tanium
Tempus Labs
UiPath
Rubicon Global
Seismic
Uptake

UK

BenevolentAI

Darktrace
Graphcore

Japan
Preferred Networks

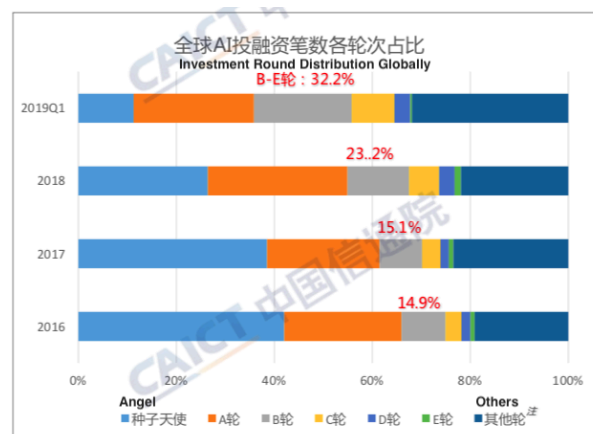
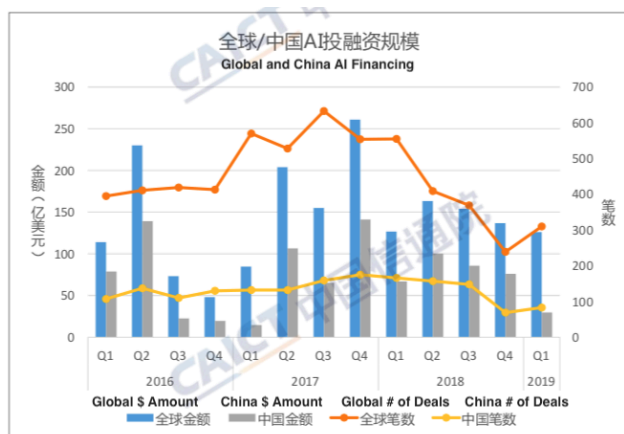
Germany
Celonis

Israel
OrCam Technologies

2. Company Investment and Financing

Investment and financing - scale and round

- Global AI investment has gradually declined since Q2 2018. Total financing of 2019Q1 was US\$12.6 billion, 7.3% down from the previous month and flat year-on-year; the number of financing deals reached 310, 29.7% up from the previous month and 44.1% down from the same period last year. Among them, the amount of financing in China's AI sector was US\$3 billion, 55.8% down year-on-year, accounting for 23.5% of total global financing, 29% down from the same period in 2018.
- The share of seed angel round financing further decreased with only 11.3% in Q12019. The proportion of B to E round financing increased from 23.2% in 2018 to 32.3%.



Investment and financing – US and China

- China and the US account for a major share of global AI financing. In Q1 2019, US and China combined account for 59% of the total amount of global financing and 60% of the total number of AI investment deals. In addition, the US ranked first both in terms of the dollar amount of investment and the number of deals, followed by China.
- Since 2016, China has received a total of 114 investments larger than \$100 million, ranking first in the world.

Investment and financing – large deal list

- in Q1, a total of 16 deals are north of \$100 million globally. Among them, Chinese companies were awarded 6, the US 4 and Israeli, Singaporean, German and Argentine companies each received one.

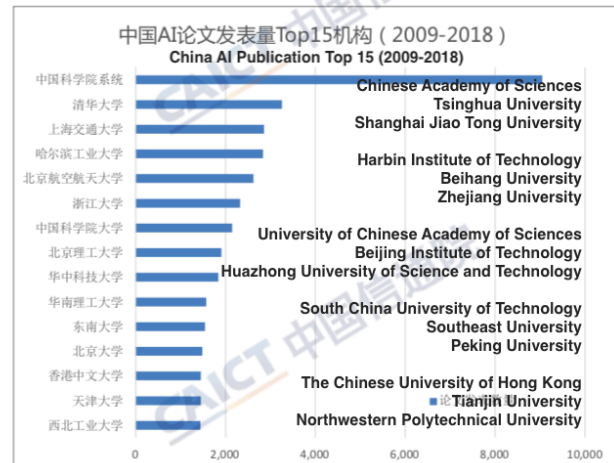
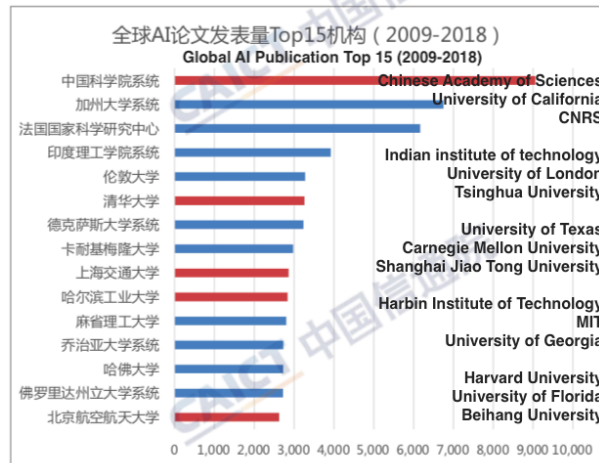
3. Academic Research

Academic Research – AI publication figures

- since 2009, the volume of AI research papers has increased year by year, and China's share has increased every year, reaching 27.4% in 2018.
- China publishes the most amount of AI papers. It has published more than 90,000 papers in the past decade, accounting for 22.7% of global total volume.
- The US ranks second in terms of publication volume, followed by India, Germany, and Japan.

Academic Research - Top Publishing Institutions of AI Papers

- Of the world's top 15 publishing institutions in the AI domain, the Chinese Academy of Sciences system ranks as number one globally. Aside from this, China also has Tsinghua University, Shanghai Jiaotong University, Harbin Institute of Technology, and Beihang University in the top 15.
- Of the world's top 15 publishing institutions, China has five, the U.S. has seven, and England, France, and India each have one.



Academic Research - Highly Cited Papers

- In the past 10 years, the number of highly-cited AI papers from China has increased significantly. In 2018, the number of highly-cited papers from China accounted for 45% of the global total.
- The US has the world's largest number of highly cited papers, followed by China, the United Kingdom, Germany, and Australia.
- The Chinese Academy of Sciences ranked No.1 globally in terms of the number of highly cited papers. It is the only research institutions in mainland China that has entered the global TOP10.

4. Top AI Conferences

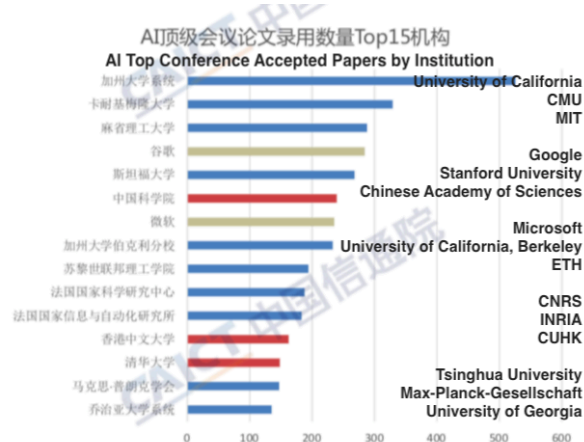
AI Top Conferences - Paper Acceptances

- The number of submitted and accepted papers to top AI conferences are increasing year by year.
- The acceptance rate of top conferences is usually below 30%, and there is a downward trend in 2018-2019.

Top AI conferences – Institutions and Countries of Accepted Papers

- Based on 3-year data from four top AI conferences – CVPR, ICCV, NeurIPS and ICRA – authors of accepted papers are mostly from the US, China, the United Kingdom, Germany and France. Among all the accepted papers, the number of papers published by American authors accounted for 52%, and the papers published by Chinese authors accounted for 18%.

- Among the 15 institutions that published the most amount of papers, three are located in China - the Chinese Academy of Sciences, the Chinese University of Hong Kong and Tsinghua University, ranking No. 6, 12 and 13.
- Google and Microsoft are the only two enterprises on the list, ranking 4th and 7th respectively.



Methodology

- Overall research method

Unless otherwise specified, all industry data in the report is from the global ICT industry monitoring platform and industry research at CAICT's data research center. Under the management of data experts, the monitoring platform can monitor and collect multi-source disparate data such as media reports, mainstream investment and financing databases, venture capital websites and business intelligence databases in ICT. The platform also tracks industry trends, generates enterprise information database, and supports industry experts with statistical and analytical research.

- AI enterprise scope

The AI enterprise described in this report generally refers to enterprises that provide AI products, services and solutions. Enterprises can be divided into two camps: technology and product/solution. The technology camp includes providers and manufacturers of general-purpose technologies such as algorithm platforms, foundational hardware, voice and vision. The product/solution camp include manufacturers and solution providers for various types of AI products, as well as solutions providers for vertical industries.

- Investment and financing data

The investment and financing data in this report comes from venture capital databases and media such as CB Insights, Crunchbase, IT Juzi, Newseed, and PE Daily. The amount and industry of the investment are based on the geographical and industry classification of the target AI enterprise. The enterprise information is derived from the global AI enterprise database at CAICT's data research center

- Paper data

Paper data in this report is based on the Web of Science database, and the search scope is limited to the core collection of WoS. Search keywords include artificial intelligence, machine learning, deep learning, major neural network algorithms, visual technology, speech technology, human-computer interaction technology, autonomous driving, intelligent robotics, among others.