

# China's supremacy in Artificial Intelligence may be greatly exaggerated

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In today's geopolitical landscape it is very easy to become wrapped up in the "China vs. US" narrative. The most visible manifestation of this tension lies in global trade, where discussions between the two countries have been ongoing amidst some "political theatre." None of us knows today where the result of these discussions will go, but there is no question that there will be many headlines to come.

## **Data is the new oil<sup>1</sup> —and China has a LOT of data**

When people consider the burgeoning field of artificial intelligence, an initial step usually concerns data—the fuel for many of these machine learning processes and algorithms. Simply put, more data allows for more training of these different processes, which can then be made to perform their specific tasks with both greater efficiency and greater accuracy.

At this point, people usually think about China and the sheer number—more than 1.4 billion<sup>2</sup>—of people that represent its population. Even if a mere subset of this number is generating significant amounts of data, the scale can get very large, very quickly. Additionally, China's government structure is different from the traditional "western democracy." Many citizens and leaders within western democracies perpetuate a narrative that China's government is less sensitive to privacy concerns—another factor that could aid in China's massive data generation and collection.

All things considered, it must therefore be true that China is a force when it comes to artificial intelligence and machine learning, possibly ahead of all other countries including the US.

Only it might not be that simple.

## **Many of China's top AI companies are privately held**

China's companies have made a lot of progress when it comes to facial recognition technology. However, the top four firms in China pursuing this branch of machine learning (Sensetime, Cloudwalk, Face++, and Yitu) are not publicly traded<sup>3</sup>, making them much harder to gain access to as investments.

We found this interesting, and upon further investigation it became clearer why many of China's AI companies were not publicly traded.

- **Companies receive frequent capital injections:** Within China's market, it is easy for larger firms like Baidu, Tencent or Alibaba to inject capital into smaller, developing AI companies. The smaller companies benefit, as this provides for their working capital needs. The larger companies receive equity stakes in the smaller companies. A main driver of the desire to engage in an initial public offering—to gain working capital—is therefore alleviated. Additionally, once companies represent a mixture of equity stakes (i.e. a smaller company might have a percentage of its equity owned by a larger one), then China's current law makes it challenging for the smaller company to engage in an IPO prior to unwinding that equity interest.
- **Companies required to demonstrate profitability:** China's securities regulator currently requires companies that are applying to IPO to demonstrate a few quarters of profitability prior to gaining approval. This can be quite difficult for newer AI companies, since a lot of their earnings needed to be put back into the firm in the form of research and development costs and capital expenditures.

### The self-driving car example

One of the areas of AI that generates a large amount of attention regards self-driving cars. For progress to be feasible in this field, roads need to be mapped to centimetre-level detail. It's not enough for a car to know it is on a particular road—the car must know exactly where it is on that road relative to all other cars whether or not lane markings exist or are obscured. For reasons that we assume concern national security, China has been slower than the US to develop these maps and currently only fourteen licenses exist for companies to engage in this mapping. These licenses are only given to Chinese firms—any foreign companies wanting to get involved must have a Chinese partner. Baidu represents the furthest-along firm involved in self-driving cars that is also publicly listed. We expect future progress without question, but we use this example as a caution to anyone just assuming that China is far ahead of all other countries in this field.

### China will make Future Progress

We believe that China's future in AI will actually be very strong, and it's an area of the market that we monitor quite closely. However, for the time being, any declarations about China as the world's "AI leader" might be premature.

1 Quote attributed to Clive Humby, UK mathematician and architect of Tesco's club card, in 2006.

2 Based on United Nations Estimates as of February 2019.

3 Bloomberg, as of February 2019.

4 Yan Zhang et al. "Hyperdrive: Wanted in China: Detailed Maps for 30 Million Self-Driving Cars." Bloomberg. 23 August 2018.

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