

# Andrew Ng, chief scientist, Chinese search giant Baidu

March 16 2016, by Pete Carey, San Jose Mercury News

---

Artificial intelligence whiz Andrew Ng hangs his hat these days at a nondescript building in Sunnyvale that serves as the Silicon Valley outpost of the Chinese search giant Baidu.

The modest digs belie Baidu's big Asian footprint. With more than 600 million monthly active mobile users, it's often referred to as "the Google of China."

Like Google, Baidu has been exploring [artificial intelligence](#) for use on its servers and other applications. AI is deemed so important by Baidu that two years ago it hired Ng, who founded Google's Brain Team, to be its chief scientist.

Ng developed some of the underpinnings of "deep learning," a computer programming technique that uses powerful [neural networks](#) of processors to imitate some of the human brain's functions. The technique has achieved astonishing results and is becoming a mainstay of companies like Microsoft, Google, Facebook and, of course, Baidu. The Baidu Silicon Valley AI Lab's [speech recognition](#) system, Deep Speech, was named as a "breakthrough" technology by MIT Tech Review in February.

In an interview at his Sunnyvale workplace, he recently spoke to the San Jose Mercury News about computers that learn, respond to spoken speech, or recognize images in photos, and about his current passion, [self-driving cars](#).

Q: A lot of what I've read about deep learning involves search.

A: Yes, our search system is powered by deep learning, but a lot of things at Baidu are powered by deep learning. One of the things Baidu did well early on was to create an internal platform that made it possible for any engineer to apply deep learning to whatever application they wanted to, including applications that AI researchers like me would never have thought of. So today, some of our anti-spam systems and malware detection programs, and a way to detect a day in advance that a hard disk in our data center is going to fail, are powered by deep learning.

Q: What's something that deep learning and artificial intelligence can't do?

A: Most of the value of deep learning today is in relatively narrow domains where you can get a lot of data. Here's one example of something it cannot do: have a meaningful conversation. There are demos, and if you cherry-pick the conversation, it looks like it's having a meaningful conversation, but if you actually try it yourself, it quickly goes off the rails.

Q: What are some things that it can do?

A: We're making a lot of progress using audio, and other things. Input a picture, tell me if this picture is a good image or spam. There are a lot of functions like that. Or, for a self-driving car, input a picture and tell me where the other cars are. I feel like there are hundreds of applications of deep learning.

Q: What do you see it doing in the future?

A: The two things I'm most excited about right now are self-driving cars

and speech. Speech doesn't sound like that much, but it's one of those technologies with the potential to change everything. Steve Jobs didn't invent the touch screen. He just made it work very well, and that's changed everything. Today, speech recognition isn't reliable enough for you to use all of the time but I hope in the near future we can have this new way of interacting with all your devices.

Q: And self-driving cars?

A: We're doing lot of work on self-driving cars. We do not currently have cars in the United States, but we plan to, for development and testing. I think we are within striking distance of making self -driving cars a reality, and these would be powered by [deep learning](#).

Q: Are people ready for self-driving cars?

A: An analogy is that once upon a time the United States had to move from horseback transportation to trains, and had to learn new ways of behaving around trains that were different from the way they behaved around horses. What I see today is that computer-driven cars are a fundamentally different thing than human-driven cars and we should not treat them the same.

Q: For example?

A: Outside of our offices we have bunch of construction workers. The construction worker waving at you to stop is fundamentally different from one waving at you to go. A person can look at this and tell what to do. This is beyond what self-driving cars can do, so it seems that cars are really stupid. On the other hand, we can design a car that doesn't have any blind spots, so cars can be much smarter than people in some respects ... This is why I think, if we can shift regulation just slightly and change our expectations of how to behave around these things slightly,

we are very close to having them on the road and safe. Self-driving cars should be distinctive. If people recognize self-driving cars for what they are, which is different from human-driven cars, we can all learn to behave sensibly around them.

Q: What led you into AI?

A: I have been interested in AI since I was in high school. My father is a medical doctor. In the very early stages of his career he wrote some software using AI to do medical diagnosis. So I started learning it in my childhood home, and started building up neural networks.

Q: Why does it continue to fascinate you?

A: We spend much of our lives in drudgery, doing things that are not our highest calling, and if I can automate them, maybe we can all spend more time in meaningful activities and less on driving ourselves to work every day or doing uninteresting paperwork. I felt back then, when I was in high school, that if we could have AI systems do a lot of this work we could spend more time with loved ones, pursue higher callings and make better use of our brains - all of humanity.

Q: But I hear fears of the robots taking over. What do you tell people who fear that?

A: The reason I'm passionate about getting the AI story straight is that I think AI will be the next big thing in technology. There will be a lot of impact on a lot of jobs, but the next decade will be a lot better through using AI. A lot of people don't understand that this technology is going to change a lot of things, and I think society will be better off if people can think in an informed way about this.

---

ANDREW NG

Born: London, U.K.

Age: 39

Career: Baidu, chief scientist, May 2014 to present; Coursera, chairman and co-founder with Daphne Koller in 2012; Google Brain, project founder and leader, 2011-2012; Stanford University, associate research professor of computer science and faculty member since 2002.

Education: Ph.D., University of California at Berkeley; Master's, MIT; Bachelor's, Carnegie Mellon University

Family: Married

Home: Mountain View, Calif.

---

## FIVE THINGS YOU DIDN'T KNOW ABOUT ANDREW NG

He began coding neural networks when he was 16 years old.

He met his wife at a robotics conference.

There are more than 1,000 books on his Kindle

In the early days of his online university Coursera, he shot all the videos in his home.

He believes that "almost anyone can learn to do almost anything."

©2016 San Jose Mercury News (San Jose, Calif.)  
Distributed by Tribune Content Agency, LLC.

Citation: Andrew Ng, chief scientist, Chinese search giant Baidu (2016, March 16) retrieved 11 July 2024 from <https://phys.org/news/2016-03-andrew-ng-chief-scientist-chinese.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.