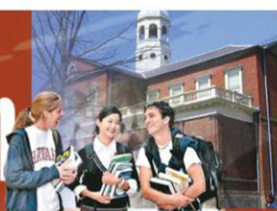


Overseas Education



Andrew Ng is widely recognized as a world leader in artificial intelligence and deep learning.



Out of the Box

Tony Chan Fan-cheung is president of the Hong Kong University of Science and Technology. He has spent his life pursuing his dreams relating to teaching and research, and has unique views on education, scientific and technological development, and nurturing the young.



A beautiful mind

THE NEWS OF Andrew Ng, world-renowned leader in artificial intelligence and deep learning, leaving Chinese giant Baidu recently caught the world by surprise. Ng was a founder of Google's Brain Project, which developed large-scale artificial neural networks using Google's distributed computer infrastructure. Where he is heading next is a million dollar question.

Ng has been the leader of Baidu's AI group since he joined in 2014, and I have known him for some time.

Born in Hong Kong and raised in Singapore, Ng went to college in the United States, where he made a name for himself. I know his mother; his parents have always kept an open mind on his education, and his father even brought him a computer at six as a gift, which he would use to learn how to write programs.

Ng and I both share roots at Stanford's computer science department; I got my PhD there in 1977, and he has been a professor in computer science at Stanford since 2002 (he is still an adjunct professor now).

Our research interests overlap on deep learning and image processing. I first noticed him because of Coursera, the massive open online course company that he and Stanford colleague Daphne Kohler started. Both have since left the company and handed over the position of CEO to Rick Levin, who joined Coursera after he stepped

down from his presidency of Yale. Ng gave a talk at HKUST several years ago, and I have met him twice at the Baidu AI Lab in Silicon Valley. He is widely recognized as one of the handful of world leaders in AI and deep learning, and he has attended and taught at the very best schools of computer science in the United States, including Carnegie Mellon, MIT, UC Berkeley and Stanford.

Partially because of his unique background, his view of career development for young people is a bit "maverick," with unconventional thinking.

Ng is interested in revolutionizing the traditional way of education; he thinks the current way (university and high schools, based on lectures, etc) is not efficient or effective.

He wants to experiment with new ways of putting students together in an intensive interactive setting and directly teach them all the "soft skills" — such as critical thinking and entrepreneurship.

For him, innovation and creativity are teachable processes. As he said in a recent media interview, "there are ways by which people can systematically innovate or systematically become creative."

Recounting how he did what he did, Ng said: "I would go and learn a lot, read a lot, talk to experts. I don't know how the human brain works but it's almost magical: when you read enough or talk to enough experts, when you have enough input, new ideas start appearing."

This may sound very simple, but yet is so true.

Passion alone, to him, is not enough to decide one's career; in his view, we have to be good at the something we do, before we become passionate about it.

He also looks at two criteria when he wonders what to do next. "The first is whether it's an opportunity to learn. Does the work on this project allow me to learn new and interesting and useful things?"

"The second is the potential impact. The world has an infinite supply of interesting problems. The world also has an infinite supply of important problems. I would love for people to focus on the latter."

Our young would do well to heed his advice.

I once asked him why AI is having such a big impact now, even though it has been around for at least 50 years. His answer was that it was a combination of different factors: the enabling technologies (eg cheap sensors, fast algorithms, fast computers, etc) have reached a point where a real impact can be made and demonstrated; and industries with deep pockets and bold visions (eg Baidu, Google, etc) now have the capacity and capability to make AI have a real impact.

I think there is a third factor: we are witnessing the advance in AI we see today because we have beautiful minds like Ng leading the charge.

The big task for us educators is to keep unearthing and nurturing the beautiful mind.