Data Drives
AI Businesses

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"Why is there so much discussion about artificial intelligence these days? I think it's likely because of last year's Man vs Machine battle between world Go champion Lee Sedol and Google DeepMind's artificial intelligence programme AlphaGo. The computer won. But this wasn't the first Man vs Machine battle. In 1996 Chess Grandmaster Garry Kasparov won four out of a series of six chess matches played against the IBM supercomputer Deep Blue. What happened in the 20 years between these two events? What has caused today's big breakthroughs in artificial intelligence? I believe AlphaGo's victory is the result of a completely new deep learning algorithm.

The rise of deep learning represents the beginning of the third wave of artificial intelligence, a revolution that has seen the learning and programming done by humans transformed into autonomous learning by machines, which is a significant change. Before, when designing, for example, a search engine or a large website, programmers had to use logic and hard data to translate concrete requests into abstract mathematical models.

Artificial intelligence is not merely about technological advances, it also represents another cognitive revolution of human beings within the objective world. Logic, which required rigorous data and mathematical proofs, formed the basis of our previous cognitive revolution. Today, however, artificial intelligence is based on big data, statistics, probability, and uncertainty – things that science and engineering students like me dislike the most.

Today's artificial intelligence may be the dawn of a new era. I spend a third of every year in Silicon Valley looking at the many breakthroughs and innovations in technology. I think
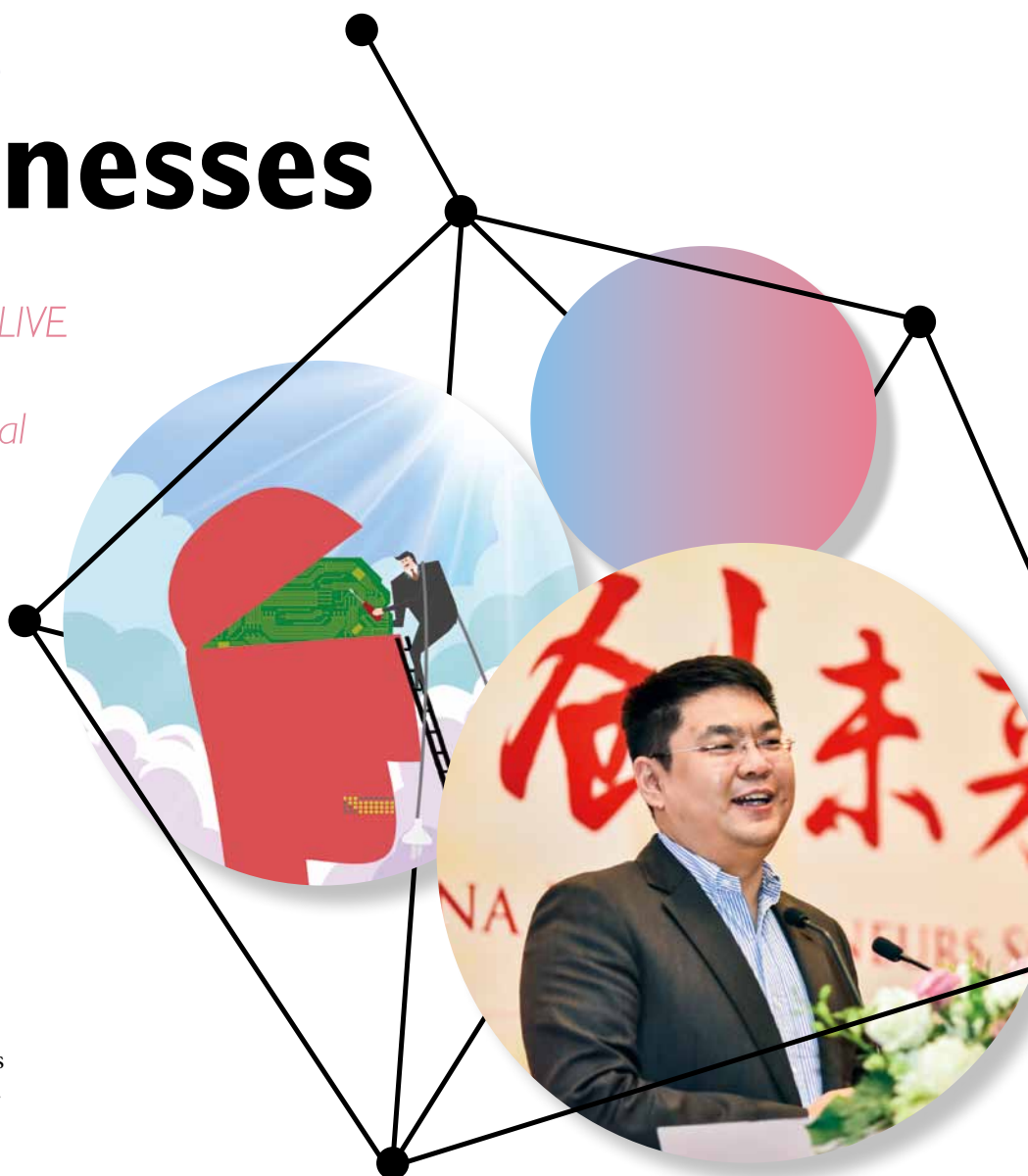
that the current technologies don't just represent the beginning of a new age of artificial intelligence and deep learning, they are the forerunners of what will soon be an explosion of many different types of technologies. For example, thanks to deep learning and artificial intelligence, computers can now outperform human beings in object recognition. We've also been amazed by the speech recognition technology of iFLYTEK (dubbed the Chinese Siri), which has developed rapidly.

When I attended the annual Consumer Electronics Show in Las Vegas this year, I found that information could be exchanged between almost all devices without using wireless cloud computing technology. It lets you communicate directly with your car, as well as items in your house – such as the lights and television – to control them. There are a growing number of devices that utilise this technology and I think voice control will be increasingly used.

Each technological advance gives birth to many new devices. In 2009 there were 250 million mobile phones around the world that were able to connect to the internet. By 2014, the number of internet-connected devices, including mobile phones, household electrical appliances, and smart home equipment, numbered nearly 10 billion. By 2050, this number may be hundreds of billions. It will lead to entirely new innovations, technologies and challenges.

We are quite probably witnessing the beginning of a new era. Every technological leap forward is supported by swift and vigorous developments in three areas: computing, information interchange and connection. The essence of computing is how to process the data being collected; the essence of connection is how to mine data out of the users and devices connected, while information interchange means how to effectively use the data.

If you began your internet business 15 years ago, 'flow' was the first concept you needed to know; eight years ago it would have been 'user'. But when it comes to the era of Internet of Things (IoT), virtual reality and artificial intelligence, the most important business capability you need to know is 'data'. Data capabilities and deep learning created by big data may be the most basic and essential components of this new age.

Data will be used in many industries to make predictions and drive decision-making. However, before data analysis can reach its optimal usefulness, we need to put the right infrastructure in place, i.e. computation, exchange and connection. Though artificial intelligence is very popular now,

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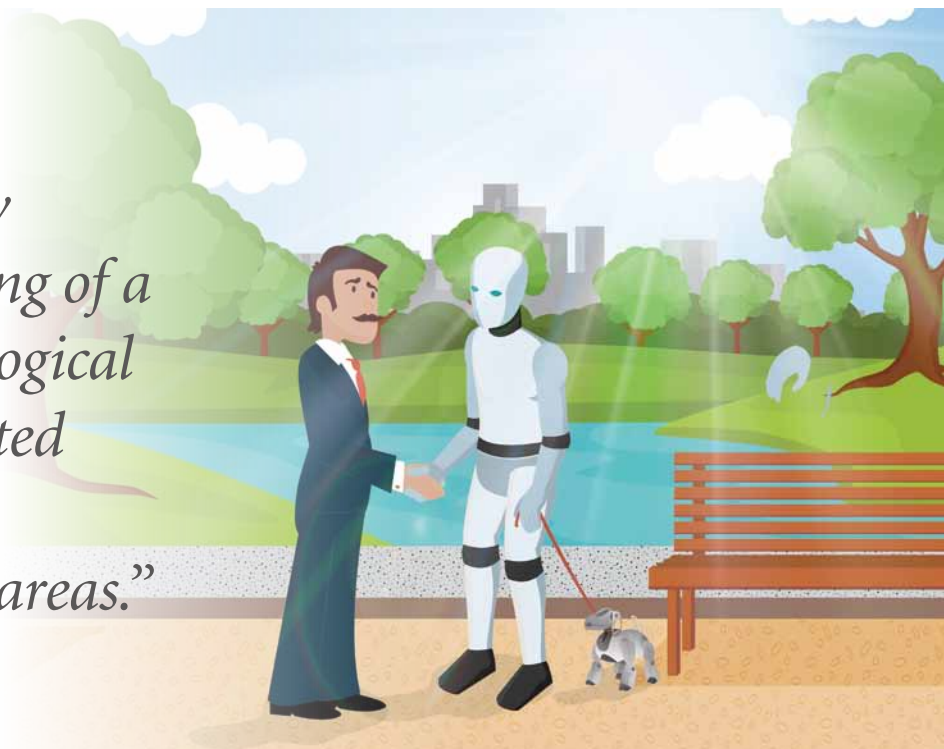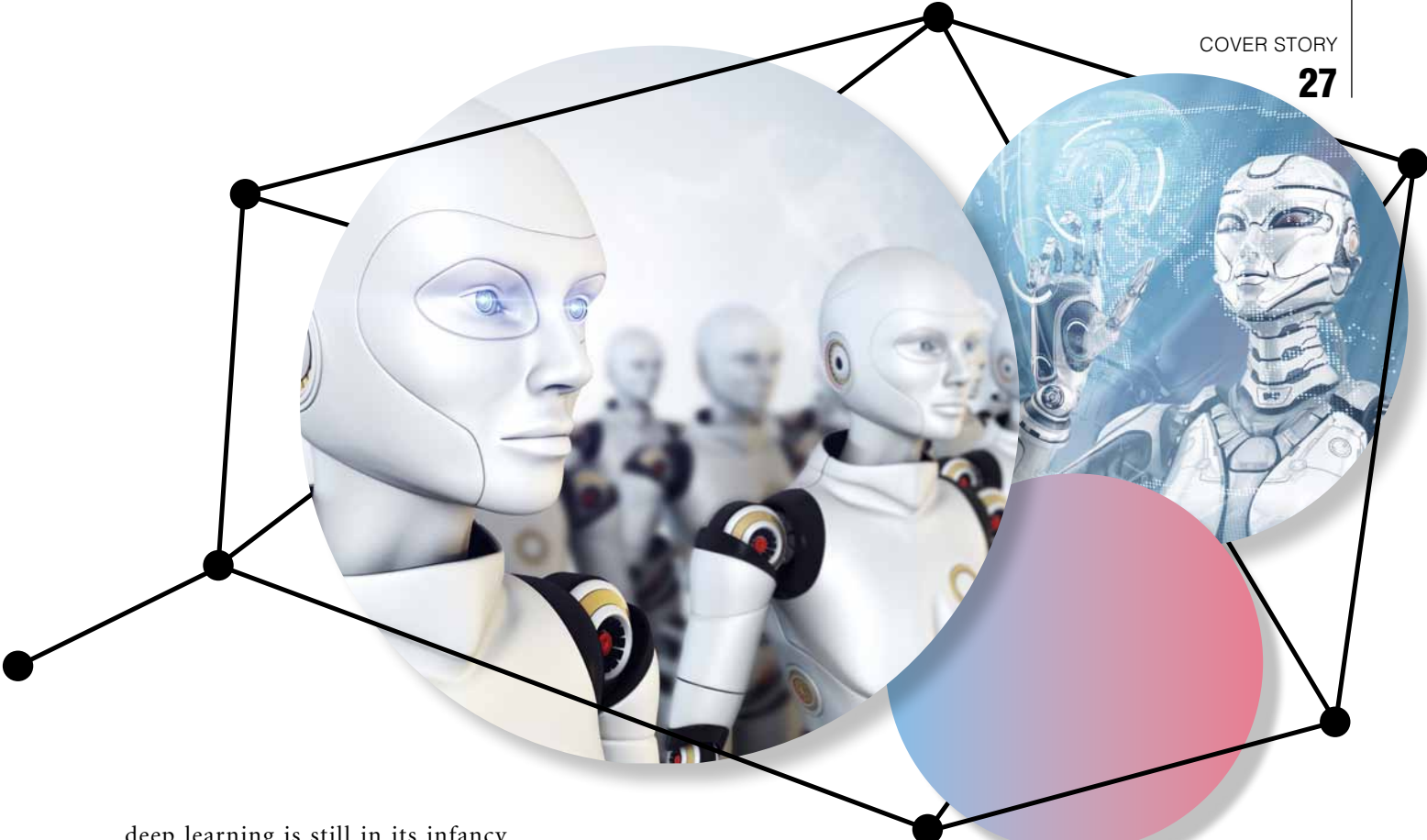
deep learning is still in its infancy. The reinforcement learning used by AlphaGo, which was on display when the computer beat Lee Sedol at Go, is only just beginning to have practical applications in industry. Similarly, the new methods of communication we are seeing now will continue to progress over the coming two or three years, while changes to connectivity will ultimately bring change to business models. During the PC internet age people often talked about 'flow'. During the mobile internet age people talked about 'connection'. During the data age, which may also be the age of the sharing economy, the right to use certain items will increasingly be separate from their ownership. The internet will mobilise our resources so we can make full use of them. The data age will be even more exciting than what we have seen with the PC and mobile internet. It will probably far surpass what we see today with Internet Plus, bringing great breakthroughs in many industries and changing our lives in many ways.

Last year, the American television series Westworld explored how people might experience artificial intelligence and virtual reality. Though fictional, it utilised many real advanced technologies and ideas that exist today. I believe many scenes depicted in the series will become reality in the years ahead. However no matter how incredible our imagination, real life will be different. Science-fiction-based shows such as Westworld can inspire our imagination, but when we really begin to invent things we need to think pragmatically. It is impossible for our academics and technologies to make huge leaps ahead; it will instead be a process of gradual progress. People's short-term expectations are always too high, and they are always too pessimistic about long-term possibilities.

Artificial intelligence is certainly a hot topic today, but it all boils down to the fact that data drives business. As the data age arrives, it's worth thinking about how to deal with the ensuing wave of opportunities. When human beings began to try to figure out how to fly more than 100 years ago, the earliest attempts were simply an effort to imitate birds in flight. Many people fell to their deaths when they failed. Eventually, based on the objective laws of aerodynamics and hydrodynamics, people designed large airplanes and flew through the sky; but in a way that was entirely unlike what birds do. This may be a useful lesson for pioneers in artificial intelligence."

Read more about entrepreneur Yao Xin at:
http://www.ceibs.edu/20-million-lesson