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Digital Leadership

Dr. Kai-Fu Lee: superpowered perspectives from an AI expert, investor, author, and influencer

An interview with

Dr. Kai-Fu Lee,
Sinovation Ventures

SINOVATION VENTURES

Dr. Kai-Fu Lee, Sinovation Ventures

Dr. Kai-Fu Lee is the Chairman and CEO of Sinovation Ventures, managing a $2 billion, dual-currency investment fund with over 300 portfolio companies across the technology spectrum in China.

He also serves as president of the Sinovation Ventures Artificial Intelligence Institute, a lab for building AI talent and promoting AI engineering and research.

Prior to founding Sinovation Ventures in 2009, Dr. Lee was President of Google China. He previously held executive positions at Microsoft, SGI, and Apple. Named one of the 100 most influential people in the world by TIME Magazine and a Wired 25 Icon, Dr. Lee was also the winner of the 2018 Asian Business Leaders Award. He has over 50 million followers on social media and is the author of seven best-selling books, with the most recent New York Times Best Seller "AI Superpowers." Dr. Lee received his bachelor's degree in computer science from Columbia University, and his Ph.D. from Carnegie Mellon University.

The Capgemini Research Institute spoke with Dr. Lee to understand more about the importance of AI to digital transformation..

AI and organizations

With the advent of new technologies, such as AI, 3D printing, blockchain, and AR/VR, do you believe that we are at an inflection point where large organizations need to embrace technology to a much greater extent than ever before?

All the technologies you mentioned will eventually be important. Right now, AI is by far the most important because it is pervasive; it will hit every industry. To my mind, AI is to be applied most immediately to businesses that have a lot of data. And that data can be used to make smart decisions, improve conversion rates and profitability, and lower cost. Soon enough, AI will have perception. Computer vision and speech and machine translation and language are just at the inflection point of becoming mature. We see things, such as autonomous stores and speech interfaces, all beginning to hit the inflection point. Looking slightly beyond is autonomous AI, that is the use of robotics in manufacturing and agriculture as well as in autonomous vehicles.

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In my book "AI Superpowers," I call them the four waves of AI: Internet AI, Business AI, Perception AI, and Autonomous AI. And, I predict that each of these will have a 10% impact on GDP and a 10% impact on jobs. It could be the biggest technology revolution in the world, larger and faster than the Industrial Revolution. It's not necessarily for everybody though. An organization must have an application scenario where there are measurable objectives as well as a large amount of data to implement AI successfully.

> ***The four waves of AI: Internet AI, Business AI, Perception AI, and Autonomous AI."***

How do you define these four waves of AI?

Internet AI is pervasive today and is fueled by user-submitted data such as clicks, likes, and comments. For example, a recommendations engine that collects your browser data and offers you customized information based on your behavior is part of Internet AI. In the future, technologies such as natural language processing and computer vision along with data analytics will take Internet AI further to fully personalize the worldwide web.

Business AI works with data recorded and submitted during interactions with financial, healthcare, legal, and business organizations. Leveraging data analytics, Business AI can predict your future health and wellness, financial status, and social behaviour – for example, predicting your capacity to repay loans.

Perception AI blends digital and physical environments using technologies such as IoT, AR, and VR combined with artificial eyes, ears, and other sensors –for example, paying by scanning your face instead of using a credit card.

Lastly, **Autonomous AI** is the final frontier. Powered by all the sensory and intellectual abilities, machines will be capable of operating on their own as separate entities. This is already in development with the development of self-driving cars from Tesla and others.

Do you believe that AI will be a critical competitive differentiator in the future?

I think it is more than a differentiator. I think it's going to be a question of life and death. Theoretically, using AI could reduce an organization's cost by half and increase conversion rates twofold. It could increase profitability margins. Those organizations that adopt it will survive and those that don't will just die.

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Leading the AI race

When it comes to AI, do you believe that there are leaders in every sector who are already adopting AI significantly and yielding the benefits?

In Internet AI, I think the leaders are clearly established, and new ones could still come up, but they'll be facing an uphill struggle. But in the other three areas – Business, Perception, and Autonomous – I think there are still plenty of opportunities for smaller companies and start-ups. For example, of the 50 AI investments my company Sinovation Ventures has funded, five are already unicorns valued at $23 billion in total. That's proof that there is no incumbent blocking the potential rise of new companies.

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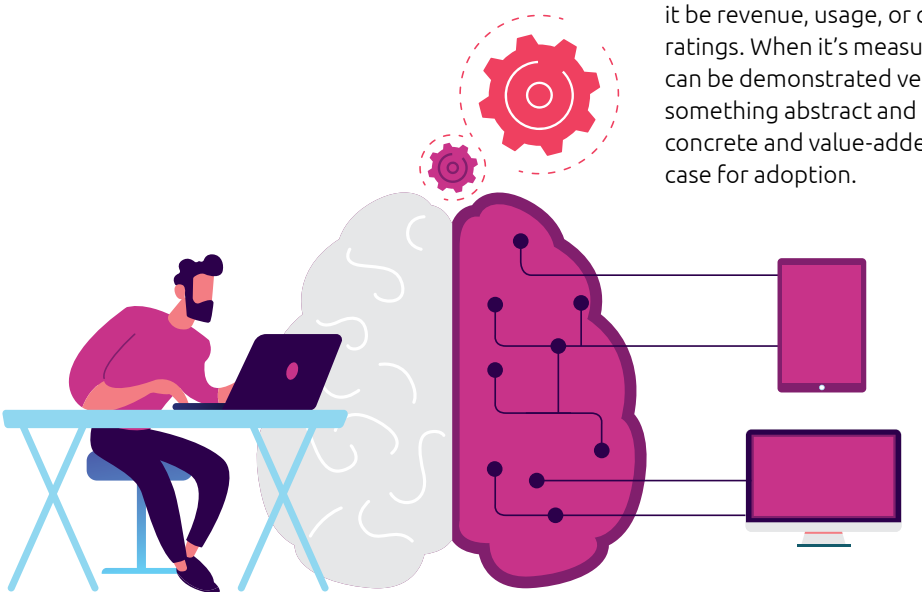
Do you believe that very large organizations understand the importance of AI?

Sure, they do. The IT consulting firms and the tool providers certainly understand it. Salesforce or Microsoft, to name just a few, are integrating AI into their products. And, of course, Google and Amazon are taking a cloud approach to AI. I think that a very important development in the AI space is that the ease of building AI into the applications has increased dramatically in the last two years. I believe technologies such as Google's AutoML and Salesforce Einstein will increase adoption because an organization does not have to hire a super AI scientist. These are packages that engineers who have some AI familiarity can start to implement and quickly see results.

How can organizations encourage adoption of AI?

The best way to encourage adoption is to demonstrate a ROI that comes directly down to the bottom line. To broaden adoption, you need to convince your organization that you are focusing on areas where there is immediate benefit to the bottom line. Take, for example, a bank. If it can demonstrate its asset allocation and how that will yield better performance, those numbers will speak for themselves. And even conservative organizations, including banks, could try AI on initiatives such as new customer prospecting tools (for example email campaigns) and see if this helps yield increases. If an organization is afraid to integrate their core products with AI, at least they can take areas where there is no risk to their core product.

> ***"To broaden adoption, you need to convince your organization that you are focusing on areas where there is immediate benefit to the bottom line."***



What do you think are some of the most important things that organizations should bear in mind before they embark on their AI journeys?

If possible, I think organizations should find partners that have the experience, so they can pick the right area to sink their teeth into. I think they should start hiring data science teams and start with some packages that are fairly easy to use, such as Salesforce or Microsoft. To get the journey underway, organizations should pick a specific area with clear metrics where they can very quickly and clearly demonstrate a benefit. Organizations should identify an area in the company where there is a specific function to be maximized, whether it be revenue, usage, or customer satisfaction ratings. When it's measurable, the benefits of AI can be demonstrated very quickly – it moves from something abstract and high level to something concrete and value-added. This would help make the case for adoption.

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Attracting AI talent

There's been a lot of research and discussion on the talent gap for AI scientists. Do you believe that there is indeed a shortage, or is this similar to other new technologies, where supply will increase over time and there is just an initial crunch?

I think this issue is being resolved on two levels. First, there are many more educational opportunities, including university programs and open courses improving people's AI competencies. Secondly, the tools are becoming easier and less complex to use. With both developments, I think that the issue of the talent gap for AI scientists will be overcome. Certainly, some companies might still believe that they have to hire a famous professor, but to my mind, that is not needed for standard enterprise applications. Of course, AI as a frontier continues to move forward. If an organization wants a complex dialogue application for an autonomous vehicle, they would still need a lot of experts.

China and the US – the AI superpowers

In your book, "AI Superpowers," you write about the geographic dimension of AI. What's your take on which country is better positioned with AI – the US or China?

I think China will be as strong as the US and that's the conclusion I write about. As I mention in my book, the two worlds exist in parallel universes. It's not very easy to cross but, at the same time, there are many very clever uses of AI in China that could be inspirational for American organizations.

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I think China is more into revolutionary uses of AI than the US. For example, in China you can get a loan instantaneously by uploading data from your phone if the parameters say that your likelihood to default is low. It is this kind of application that's really going to wipe out a bank's traditional loan functions. There is a whole new set of smart and aggressive entrepreneurs in China who are building solutions to compete with traditional companies. These new app-based loan companies are attacking personal loans and, soon enough, they will begin to attack the commercial loan space.

> ***"I think China is more into revolutionary uses of AI than the US. For example, in China you can get a loan instantaneously by uploading data from your phone if the parameters say that your likelihood to default is low."***

What are the dominant sectors using AI and the most exciting use cases?

The uses of AI are endless and cover many different sectors. Financial services, retail, manufacturing, and agriculture are the most common industries we see. Financial services is the fastest sector to adopt AI because of the wealth of data available and because AI can provide immediate, measurable, and valuable outcomes. My view is that banks, credit card companies, and insurance companies will be eliminated unless they reinvent themselves.

> ***"Financial services is the fastest sector to adopt AI because of the wealth of data available."***

In manufacturing, AI can be used for inspection on a simple assembly line. There are AI technologies that can be used in agriculture and farming (for example, picking fruits) or in food and beverage (for example, washing dishes in restaurants). Autonomous restaurants and autonomous convenience stores that are without human participation are emerging. I believe those are coming next, but penetration might take three or four years.

Healthcare will also be a big one. AI will be used to improve healthcare in many ways, including helping with diagnosis, radiology, patient history, and drug warnings. This will take a little longer because of the impact it has on people's health and lives.

Also, AI in government is going to be very big – for example, AI used by governments to check against tax fraud and using AI in predicting criminal behavior. AI can be used in law to verify evidence or to even provide input to ensure that the judge is being fair and consistent.

Are there examples of Chinese companies that are already making rapid progress in tackling these use cases?

We have a portfolio company that's building 100 autonomous restaurants in China. Because there are no people involved, their prices are about one-third of McDonald's or Kentucky Fried Chicken. So, that will appeal to people who are cost conscious. The restaurant will be staff-free and leverage apps to provide a futuristic dining experience. When you go into the store, you scan the digital item list and menus to place orders with your phone. In just a few minutes, you see your food and drinks being prepared at robotic stations. Not just basic sandwiches or pizzas, but hot noodles and hot lunches.

> ***"We have a portfolio company that's building 100 autonomous restaurants in China. Because there are no people involved, their prices are about one-third of McDonald's or Kentucky Fried Chicken."***

We have an investment in a convenience store that will use AI for sales forecasting, inventory management, customer traffic and merchandising optimization, and restocking alerts. In a year or two, we will begin implementing sensor-based and computer-vision tracking. The face recognition technology will be able to detect customers' expressions, emotions, and eye contact to glean detailed knowledge of what each customer is thinking and feeling about specific product items in the store, and how that relates to their shopping behavior over time. The plan is to open 1,000 stores in the next three years.

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China is adopting AI a lot faster for a number of reasons. The first is the sheer size of the market, which means that there are more venture capital firms willing to invest because the rewards are larger. Second is the large amount of data that is available because of this size. Third is the fact that China happens to have an underdeveloped infrastructure in several areas where AI can help the country leapfrog. For example, in China's retail sector, you don't have such strong brands as exist in the US, such as Walmart or Costco. It's harder to disrupt these large players in the US. In China, building cost-effective convenience stores and restaurants will quickly generate adoption and even build new brands that were not there before. Similarly, China's banks and hospitals are quite behind. So, again, AI can jump in and elevate the level of service.

What is to stop these Chinese entrepreneurs who have already perfected their AI solutions from coming into other markets?

That's not likely in the near term because there are major cultural usage and language barriers preventing Chinese AI companies from going abroad. This is a giant market that is not developed today. The priority needs to be to conquer and win in the local market.

Where do you see Europe in this race?

They are not really in the race. The UK, Switzerland, and France all have very good AI talent, but what's happening is much of this talent is going to the US or working for US-based companies from Europe. I think that US companies have continued to use its magnetic pole to attract the world's smartest people. To my mind, that's a key advantage of the US and so Europe doesn't really have full control of their talent.

Secondly, Europe has fewer high-quality VCs compared to the US, China, and even Singapore. In this type of situation where there are few VCs in a fragmented market, entrepreneurs are less inclined.

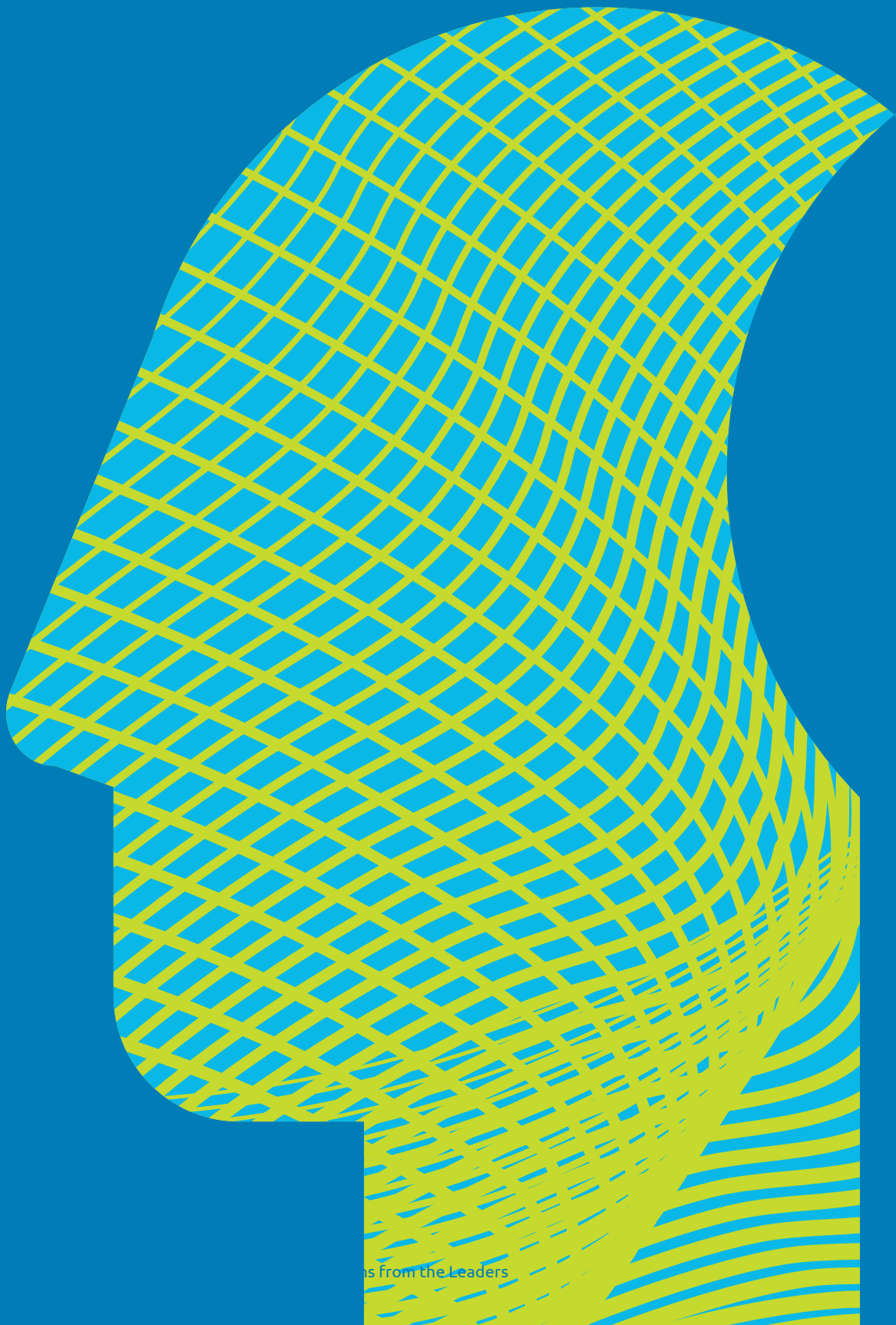
Looking to the future of AI

Do you see any company that will come in and dominate the AI space as Google has done in search?

No, I do not. I think the strongest company is clearly Google. Google's advantages are leverageable in the internet and cloud space, but they are not as leverageable in many vertical domains. We talked about healthcare and manufacturing and retail. Those are areas in which Google's advantages are weaker. There is opportunity to have many giants, several per vertical domain. I would expect Google to be very successful, but I wouldn't expect them to be dominant.

So, AI is still open for a variety of startups and other companies to compete?

Right, it is. As I mentioned, our top five investments in AI are valued at $23 billion – and that's just in three years. Imagine the next 10 years at that valuation. Plus, there's more than China, there is the US. I think the opportunities are huge and I definitely wouldn't say that it's at all closed off.



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