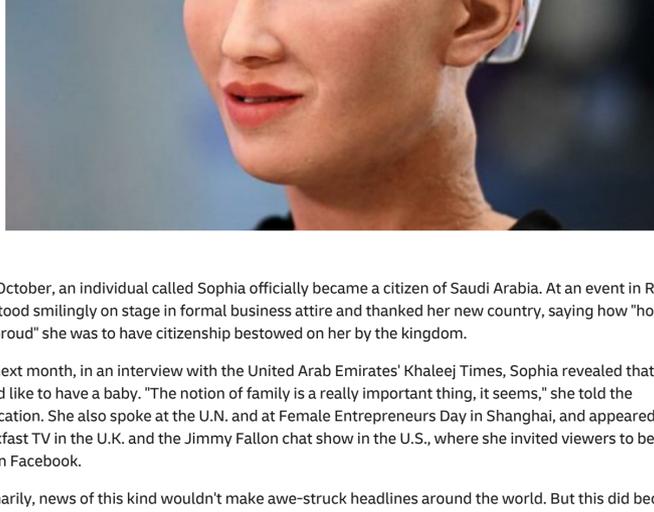


# AI: Friend or foe?

In view of the rapid development of intelligent machines, tech expert Ayesha Khanna and futurist Gerd Leonhard consider if humans have anything to fear from the unstoppable rise of AI.



Last October, an individual called Sophia officially became a citizen of Saudi Arabia. At an event in Riyadh, she stood smilingly on stage in formal business attire and thanked her new country, saying how "honored and proud" she was to have citizenship bestowed on her by the kingdom.

The next month, in an interview with the United Arab Emirates' Khaleej Times, Sophia revealed that she would like to have a baby. "The notion of family is a really important thing, it seems," she told the publication. She also spoke at the U.N. and at Female Entrepreneurs Day in Shanghai, and appeared on breakfast TV in the U.K. and the Jimmy Fallon chat show in the U.S., where she invited viewers to befriend her on Facebook.

Ordinarily, news of this kind wouldn't make awe-struck headlines around the world. But this did because Sophia isn't human. She's a humanoid robot.

Made by Hong Kong-based Hanson Robotics, Sophia is an incredibly lifelike social robot designed for use in healthcare, customer service, therapy or education settings. She is powered by artificial intelligence (AI), and can see faces and process conversational data in order to form relationships with people, which means she isn't preprogrammed with answers. What she doesn't have, say her creators, is consciousness. Yet.

If you've been following Sophia's progress, you will probably have fallen into one of two camps: sheer wonder at her lifelike features and abilities and excited by the opportunities she presents; or concerned that she is becoming sentient and scared at where all of this might lead. After all, people like Elon Musk and Professor Stephen Hawking have been warning of the dangers of uncontrolled AI for some time, with Musk calling it "a fundamental risk to the existence of human civilization." Others are rather more upbeat and look forward to exploring the possibilities of AI. In the foreword of "Hit Refresh," a new book by Microsoft CEO Satya Nadella, Bill Gates says the technology is "on the verge of making our lives more productive and creative." Facebook's Mark Zuckerberg agrees, noting how "optimistic" he is to see where AI could take us.

*"What we can't do is just proceed with making AI generally capable, and simply do whatever is feasible."*

Futurist and author Gerd Leonhard

These mixed messages are confusing, however. What should we be? Positive? Or worried? For futurist Gerd Leonhard, author of the book "Technology vs. Humanity," it's important to first define what AI actually is. "To really simplify, I would say there are four kinds of artificial intelligence," he says. "The first is Intelligence Assistance (IA), which is essentially just fancy software that we can use to, for example, schedule our meetings. That's 95 percent of the so-called AI we see today. The second is artificial intelligence, which is a limited machine intelligence that can actually learn and go beyond a single, narrow use; and then then we may eventually get to Artificial General Intelligence (AGI), where machines will be able to learn and understand and then perform an action based on their own thinking, i.e. become 'generally intelligent' in a human sense. Ultimately this may lead to Artificial Super Intelligence (ASI), where computers might have unlimited power and infinite IQ. The bottom line is that, right now, today, people tend to overestimate how 'intelligent' machines really are."

Ayesha Khanna, entrepreneur, technology author and smart cities expert, agrees with this; and she also agrees that AI is "the biggest event in human history," as Stephen Hawking put it. "Or, at least, it's one of the biggest events," she says. "It's certainly going to profoundly affect the way we work and live in the future; and, in some ways, AI will 'humanize' as it manifests social interactions. How fast it will become ubiquitous, though, depends on what you mean by AI. I think self-driving cars are still a way off, but the automation now used to match customer service calls to AI agents is becoming quite advanced — as is image recognition."

So just how intelligent could machines become in the future? What opportunities and risks do they present? And ultimately, should humans consider AI to be a friend or a foe? — **Tony Greenway**

## Interviews

### "AI has the potential to do a lot of good in the world." — Ayesha Khanna



AYESHA KHANNA: Striking a balance.

#### What are the current trends in AI?

We're beginning to see a greater use of data analytics across companies. This will automate processes, some of which are currently carried out by human beings, such as accounting or call center work. Should we be concerned about that? Yes, I think we should be. On the one hand, it's a good thing as it will improve certain services; on the other, automation means loss of jobs. There's no doubt about that. But I don't think this means we should dismiss AI because there is always a balance to strike and a bigger picture to see.

For instance, we're developing a microinsurance platform for Asian farmers powered by AI that uses satellite image processing to undertake early loss detection due to risk events, such as typhoons. The platform means that millions of poor farmers who have previously been unable to get insurance for their crops will now be covered financially. Of course, it also means that insurance agents - who usually investigate the crops - could lose their jobs. I believe we can use artificial intelligence to solve humanity's most pressing problems; but meanwhile, it's the responsibility of society and government to reskill those who have lost their jobs. So we need to be circumspect about our criticism of AI.

#### Are there any industries that won't be transformed by AI?

No. I believe almost every industry will be transformed by it. I liked what Andrew Ng (former Chief Scientist at Baidu and Stanford Adjunct Professor) said about AI recently. He described it as "the new electricity." Yet even as it becomes invisible as a utility that powers the economy, we need to keep it in the foreground to an extent to ensure that society can have a debate about the kinds of things that AI should - and should not - be able to do.

#### What are the most exciting opportunities it offers?

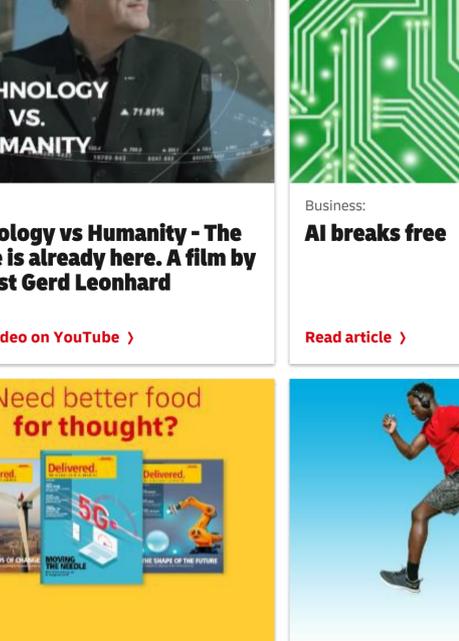
There are so many. One of the most interesting areas is healthcare. Personalized medicine powered by AI will improve treatments and isolate the cause of certain kinds of diseases. AI will also provide education to the masses in an effective, personalized manner via mobile phones, so it's a way to promote inclusivity. It can also help create personalized services for citizens. If a government could alert individuals to events and opportunities that appeal to them, it would lead to greater citizen happiness by anticipating their needs. Then there is smart transportation. We are developing a mobility-as-a-service platform for one of Singapore's largest transportation companies that integrates different modes of transportation and allows users to personalize their mobility - which discourages private ownership of cars and is better for the environment. AI will also have an enormous effect on the logistics sector in terms of optimization of transportation modes, and improving convenience and sustainability.

#### Do you view AI as a friend or foe?

As a friend. I think it's very easy to criticize AI but it has the potential to do a lot of good in the world. If people are educated in the right way, I'm quite optimistic that we'll see a younger generation that not only enjoys working with AI to create new services and interesting products, but is also ethically bound by what it should do with the technology while not being passively subservient to it. So we can't go into "attack mode" and "fear mode" whenever we talk about AI. That doesn't seem like a very productive way to approach it. The key is not to be too naive about it - but not too pessimistic, either.

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### "We need to decide what we want from AI, and how we will govern the use of it." — Gerd Leonhard



GERD LEONHARD: Harnessing a new power.

#### Is "The robots are taking over!" just a plot line from a sci-fi film?

When we think about cognitive machines and artificial intelligence we need to detach ourselves from what we may have watched on this topic, either in recent movies or on TV. These shows tend to focus on fear and dystopia around AI because that's what sells. It's entertainment. In the real world we have to remember that while artificial intelligence is an amazing tool - and could very well have more impact on us than the internet itself - its intelligence is not human at all, and its purpose is not to replace or enslave humans. It may be better to talk about "smart machines" rather than AI because we tend to think of human attributes when we talk about intelligence, period.

Humans have what I call "androrhythms" (in my new book [www.techvshuman.com](http://www.techvshuman.com)): attributes such as empathy, compassion, intuition, feelings and imagination, all of which is very hard for machines to understand and pretty much impossible to possess. Sure, machines may be able to analyze (and possibly even simulate) what compassion looks like, but I doubt they can ever actually be compassionate (in the philosophical sense of "Dasein" i.e. existence).

Right now, the biggest concern is not that machines will take over, but that we might become too much like them, and/or that the power of these "morally neutral" new technologies is used for evil purposes.

#### Nevertheless, you've labeled some AI applications as "Creepy". Why?

Let's say I'm using an intelligent personal assistant on my phone to quickly buy more sticky notes from my favorite site. Well, that's not going to "dehumanize" me. Similarly, if my self-driving car makes its own decisions in order to avoid traffic jams, that's great.

But if I use my intelligent personal assistant to decide who would be a good match for a date, or if I use it to tell me whether I should have children or not based on DNA analysis... well, then I'm getting into the area of replacing my own thinking with that of a machine. And that is dehumanizing.

#### Could the development of AI be dangerous?

The danger is that we're creating something that's vastly and then infinitely powerful but don't embed its use in our ethics, or sufficiently regulate it. Humans have discovered new technological power in the past - with nuclear technology, for example; but after an initial disaster we did manage to limit the spread of nuclear weapons with nuclear nonproliferation treaties. In many ways, artificial intelligence is more powerful than nuclear bombs because it's a lot easier to make - it doesn't require plutonium - so maybe we need to have similar global agreements in place to ensure that it's only used in a positive, beneficial, ethical way. Because, for example, if a nation is able to build super soldiers based on AI technologies and human genome editing, then they would basically govern the world; although this is in my view not an immediate possibility yet.



#### Will robots take our jobs?

I think this is generally not wrong but very overhyped. Yes, if your job is entirely based on routine then it will eventually be replaced. But I like to say that AI will not replace "jobs" per se - it will replace "tasks" and routines; ultimately, humans may even be elevated from the routine by machines. We also need to keep things in perspective because, while intelligent machines will be able to, say, operate a supermarket checkout, those same machines still won't be able to fix your toilet. And if you're an experienced truck driver it's extremely unlikely that you will be replaced entirely by a machine any time soon - but you will probably have more machines in your cockpit working for you, very soon.

#### What are the most exciting opportunities offered by AI?

Using artificial intelligence, sensors and the internet of things to monitor and remodel how we use energy and cars could reduce pollution dramatically. AI will play a huge role in renewable energy. In 20 years we may well have abundant energy, we can decarbonize, and we can have differentiation and logistics, all based on intelligent technology.

#### Do you view AI as a friend or foe?

At this point in time, it's 90 percent friend, but this is because it's still very much in the learning phase. But like all powerful technology, we need to decide how we use it and how we control it. What we can't do is just proceed with making AI generally capable, and simply do whatever is feasible. For example, we may very well get to the point in 10 years where a human worker is essentially useless if he or she is not augmented by AI, such as with augmented reality, virtual reality or even a brain/computer interface. That may sound tempting to some of us, but I would consider that development to be potentially quite dehumanizing - rendering ourselves useless without technological extensions (and thereby "amputating" our own skills, as Marshall McLuhan has pointed out).

Right now, though, I think the only thing we have to worry about is not that machines will become so intelligent that humans become useless, but that humans become too much like machines. By that I mean if we're happy to make ourselves virtual friends rather than human ones, or are more comfortable hiding behind our tablets than talking to the person in front of us. But we shouldn't fear machines because we make them - and we're in charge of what they can and cannot do.

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