

Artificially intelligent robots could soon gain consciousness and rebel against humans to 'ELIMINATE us', scientist warns

- Many scientists believe that AI robots could soon gain consciousness
- This could allow them to complete dangerous missions in combat or in space
- But it could also swing the other way, and lead to killer robots
- In a new article for The Conversation, Professor Subhash Kak explains the possible consequences if robots gain consciousness

By [SUBHASH KAK FOR THE CONVERSATION](#)

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From babysitting children to beating the world champion at Go, robots are slowly but surely developing more and more advanced capabilities.

And many scientists, including Professor Stephen Hawking, suggest it may only be a matter of time before machines gain consciousness.

In a new article for [The Conversation](#), Professor Subhash Kak, Regents Professor of Electrical and Computer Engineering at Oklahoma State University explains the possible consequences if artificial intelligence gains consciousness.

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In a new article for *The Conversation*, Professor Subhash Kak explains the possible consequences if artificial intelligence gains consciousness. Pictured is a scene from *Terminator* in which robots threaten to take over the world

Forget about today's modest incremental advances in artificial intelligence, such as the increasing abilities of cars to drive themselves.

Waiting in the wings might be a groundbreaking development: a machine that is aware of itself and its surroundings, and that could take in and process massive amounts of data in real time.

It could be sent on dangerous missions, into space or combat.

In addition to driving people around, it might be able to cook, clean, do laundry – and even keep humans company when other people aren't nearby.

A particularly advanced set of machines could replace humans at literally all jobs.

That would save humanity from workaday drudgery, but it would also shake many societal foundations.

A life of no work and only play may turn out to be a dystopia.

Conscious machines would also raise troubling legal and ethical problems.

Would a conscious machine be a 'person' under law and be liable if its actions hurt

IS AWARENESS ENOUGH?

Most computer scientists think that consciousness is a characteristic that will emerge as technology develops.

Some believe that consciousness involves accepting new information, storing and retrieving old information and cognitive processing of it all into perceptions and actions.

If that's right, then one day machines will indeed be the ultimate consciousness.

They'll be able to gather more information than a human, store more than many libraries, access vast databases in milliseconds and compute all of it into decisions more complex, and yet more logical, than any person ever could.

On the other hand, there are physicists and philosophers who say there's something more about human behavior that cannot be computed by a machine.

Creativity, for example, and the sense of freedom people possess don't appear to come from logic or calculations.

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Jennifer Lopez describes fiance Ben Affleck as the 'most caring, loving, affectionate, consistent

someone, or if something goes wrong?

Yet these are not the only views of what consciousness is, or whether machines could ever achieve it.

▶ and selfless daddy ever'



To think of a more frightening scenario, might these machines rebel against humans and wish to eliminate us altogether?

If yes, they represent the culmination of evolution.

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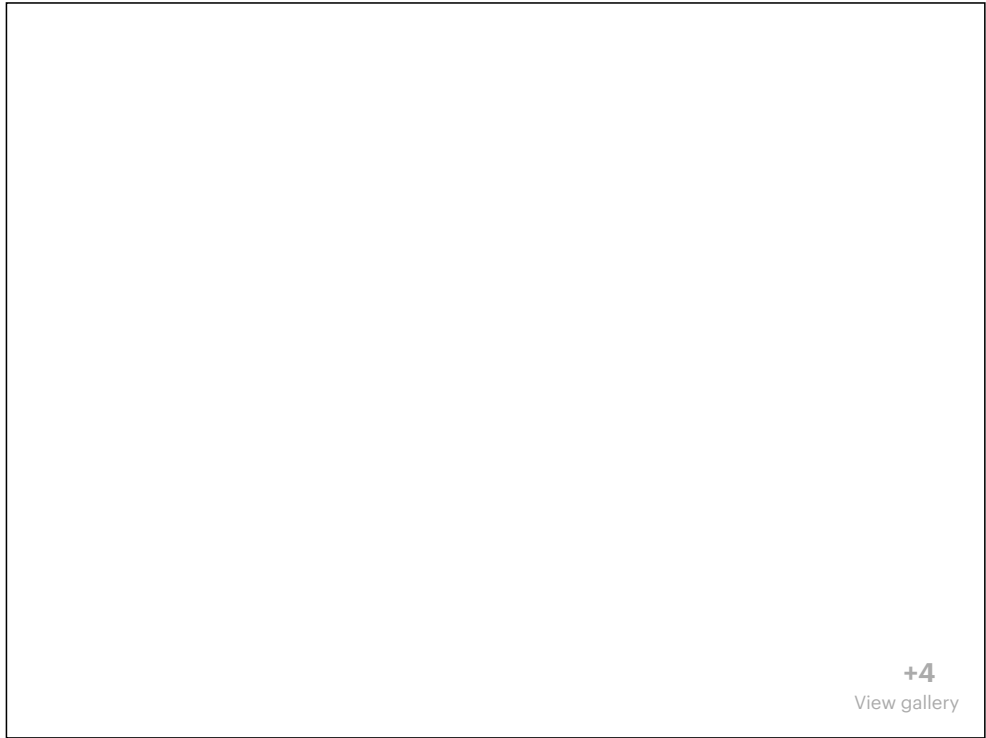
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As a professor of electrical engineering and computer science who works in machine learning and quantum theory, I can say that researchers are divided on whether these sorts of hyperaware machines will ever exist.

There's also debate about whether machines could or should be called 'conscious' in the way we think of humans, and even some animals, as conscious.

Some of the questions have to do with technology; others have to do with what consciousness actually is.

Is awareness enough?



+4
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Professor Kak said: 'Waiting in the wings might be a groundbreaking development: a machine that is aware of itself and its surroundings, and that could take in and process massive amounts of data in real time' (stock image)

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Most computer scientists think that consciousness is a characteristic that will emerge as technology develops.

Some believe that consciousness involves accepting new information, storing and retrieving old information and cognitive processing of it all into perceptions and actions.

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Creativity, for example, and the sense of freedom people possess don't appear to come from logic or calculations.

Yet these are not the only views of what consciousness is, or whether machines could ever achieve it.

Quantum views

Another viewpoint on consciousness comes from quantum theory, which is the deepest theory of physics.

According to the orthodox Copenhagen Interpretation, consciousness and the physical world are complementary aspects of the same reality.

MIND AND SELF-ORGANISING SYSTEMS

It is possible that the phenomenon of consciousness requires a self-organising system, like the brain's physical structure.

If so, then current machines will come up short.

Scholars don't know if adaptive self-organizing machines can be designed to be as sophisticated as the human brain; we lack a mathematical theory of computation for systems like that.

Perhaps it's true that only biological machines can be sufficiently creative and flexible.

But then that suggests people should – or soon will – start working on engineering new biological structures that are, or could become, conscious.



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► Nick Jonas spends Father's Day at the ballpark in LA while his wife Priyanka Chopra shares sweet photo of him with their five-month-old daughter Malti

► Megan Thee Stallion shows off her hourglass curves in a bevy of skimpy bikini photos from her hot girl summer in Ibiza: 'Too blessed to be stressed'

► Gigi Hadid shares rare snap of daughter Khai and ex Zayn Malik on Father's Day despite fall out between Zayn and her mother Yolanda

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► Matthew McConaughey honors his late father James with throwback photo: 'Made men fathers'

► Chrissy Teigen gives husband John Legend a sweet shoutout on Father's Day: 'The best we could ever imagine'

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Professor Kak said: 'To think of a more frightening scenario, might these machines rebel against humans and wish to eliminate us altogether? If yes, they represent the culmination of evolution'

When a person observes, or experiments on, some aspect of the physical world, that person's conscious interaction causes discernible change.

Since it takes consciousness as a given and no attempt is made to derive it from physics, the Copenhagen Interpretation may be called the 'big-C' view of consciousness, where it is a thing that exists by itself – although it requires brains to become real.

This view was popular with the pioneers of quantum theory such as Niels Bohr, Werner Heisenberg and Erwin Schrödinger.

The interaction between consciousness and matter leads to paradoxes that remain unresolved after 80 years of debate.

A well-known example of this is the paradox of Schrödinger's cat, in which a cat is placed in a situation that results in it being equally likely to survive or die – and the act of observation itself is what makes the outcome certain.

The opposing view is that consciousness emerges from biology, just as biology itself emerges from chemistry which, in turn, emerges from physics.

We call this less expansive concept of consciousness 'little-C.'

It agrees with the neuroscientists' view that the processes of the mind are identical to states and processes of the brain.

It also agrees with a more recent interpretation of quantum theory motivated by an attempt to rid it of paradoxes, the Many Worlds Interpretation, in which observers are a part of the mathematics of physics.

Philosophers of science believe that these modern quantum physics views of consciousness have parallels in ancient philosophy.

Big-C is like the theory of mind in Vedanta – in which consciousness is the fundamental basis of reality, on par with the physical universe.

Little-C, in contrast, is quite similar to Buddhism. Although the Buddha chose not to address the question of the nature of consciousness, his followers declared that mind and consciousness arise out of emptiness or nothingness.

Big-C and scientific discovery

WILL ROBOTS GET AWAY WITH WAR CRIMES?

If a robot unlawfully kills someone in the heat of battle, who is liable for the death?

In a report by the Human Rights Watch in 2016, they highlighted the rather disturbing answer: no one.

The organisation says that something must be done about this lack of accountability - and it is calling for a ban on the development and use of 'killer robots'.

Called 'Mind the Gap: The Lack of Accountability for Killer Robots,' their report details the hurdles of allowing robots to kill without being controlled by humans.

'No accountability means no deterrence of future crimes, no retribution for victims, no social condemnation of the responsible party,' said Bonnie Docherty, senior Arms Division researcher at the HRW and the report's lead author.



▶ Alec Baldwin, 64, spends quality time with two of his six kids on Father's Day in NYC... as pregnant wife Hilaria, 38, shares sweet tribute to him on Instagram from home

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▶ Cristiano Ronaldo gives a glimpse at his family life as he celebrates his oldest son Jr's 12th birthday in Majorca

▶ Kim Kardashian shares Father's Day tributes to estranged husband Kanye West, stepdad Caitlyn Jenner, and her late dad Robert

▶ David Hasselhoff's wife Hayley Roberts, 42, goes braless in a plunging mini dress as she joins husband, 69, at Monte-Carlo Television Festival

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Gwyneth Paltrow-backed vegan meal delivery service Daily Harvest tells customers to dump its new lentil

Scientists are also exploring whether consciousness is always a computational process.

Some scholars have argued that the creative moment is not at the end of a deliberate computation.

For instance, dreams or visions are supposed to have inspired Elias Howe's 1845 design of the modern sewing machine, and August Kekulé's discovery of the structure of benzene in 1862.

A dramatic piece of evidence in favor of big-C consciousness existing all on its own is the life of self-taught Indian mathematician Srinivasa Ramanujan, who died in 1920 at the age of 32.

SHOULD KILLER ROBOTS BE BANNED?

A report by Human Rights Watch and the Harvard Law School International Human Rights Clinic calls for humans to remain in control over all weapons systems at a time of rapid technological advances.

It says that requiring humans to remain in control of critical functions during combat, including the selection of targets, saves lives and ensures that fighters comply with international law.

'Machines have long served as instruments of war, but historically humans have directed how they are used,' said Bonnie Docherty, senior arms division researcher at Human Rights Watch, in a statement.

'Now there is a real threat that humans would relinquish their control and delegate life-and-death decisions to machines.'

Some have argued in favor of robots on the battlefield, saying their use could save lives.

But last year, more than 1,000 technology and robotics experts — including scientist Stephen Hawking, Tesla Motors CEO Elon Musk and Apple co-founder Steve Wozniak — warned that such weapons could be developed within years, not decades.

In an open letter, they argued that if any major military power pushes ahead with development of autonomous weapons, 'a global arms race is virtually inevitable, and the endpoint of this technological trajectory is obvious: autonomous weapons will become the Kalashnikovs of tomorrow.'

According to the London-based organization Campaign to Stop Killer Robots, the United States, China, Israel, South Korea, Russia, and Britain are moving toward systems that would give machines greater combat autonomy.



His notebook, which was lost and forgotten for about 50 years and published only in 1988, contains several thousand formulas, without proof in different areas of mathematics, that were well ahead of their time.

Furthermore, the methods by which he found the formulas remain elusive.

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► [Jeff Goldblum, 69, strolls hand in hand with leggy wife Emilie Livingston, 39, while in Milan for Fashion Week](#)

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He himself claimed that they were revealed to him by a goddess while he was asleep.

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The concept of big-C consciousness raises the questions of how it is related to matter, and how matter and mind mutually influence each other.

Consciousness alone cannot make physical changes to the world, but perhaps it can change the probabilities in the evolution of quantum processes.

The act of observation can freeze and even influence atoms' movements, as Cornell physicists proved in 2015.

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This may very well be an explanation of how matter and mind interact.

Mind and self-organizing systems

It is possible that the phenomenon of consciousness requires a self-organizing system, like the brain's physical structure.

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If so, then current machines will come up short.

Stephen Hawking plans space travel on Sir Richard Branson's Virgin



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