





## BREAKTHROUGH

# Are Humans Becoming More God-Like? Interview with Yuval Noah Harari of Hebrew University

[Yuval Noah Harari Professor At Hebrew University In Jerusalem](#)

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-  Technology will enable people to “upgrade” to god-like cyborgs in a century or two. That could be a good thing, as long as the technology is serving us — not the other way around.
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Is technology enabling us to become ever-more god-like? And would that be a good thing?

As artificial intelligence (AI) and embedded technologies empower people to become “more than human,” future advances could become as much of an ethical question as a technological one.

Yuval Noah Harari, a history professor at

Hebrew University, has been grappling with the broader questions around humanity's development, [predicting](#) that we could become god-like cyborgs within a couple hundred years.

Several strains of science are putting humans on the path to “upgrade themselves into gods,” he says: biological engineering, cyborg engineering and AI engineering. “All three paths hold great promises, and equally great threats.”

Harari shares the concern of leading scientific and tech minds — ranging from Stephen Hawking and Bill Gates — that artificial intelligence poses a risk to humanity, saying that stronger global institutions are needed to address such existential threats. “The key is to make technology serve us, instead of us serving technology,” he says in an interview:

*You've predicted that humans could achieve a sort of divine state through biological manipulation or genetic engineering. How will that evolution happen?*

This isn't a poetic metaphor or a vague metaphysical claim. It is a concrete prediction. Throughout history, humans have ascribed to gods specific abilities, such as to design and create living beings; to reshape their own bodies; to control the environment and the weather; to read minds and to communicate instantly across space; and to escape death and live indefinitely.

Humans are in the process of acquiring all these abilities and then some. “Business as usual” will bring us there. If humankind simply carries on with its present economic, scientific and political patterns, humans are very likely to be upgraded into gods within a century or two at most. Yet the same

technology that may upgrade human to gods, may also make them useless.

*So what will this mean for humanity?*

The rise of AI, which dispenses with organic components and seeks to create completely non-organic beings, is a particularly important and extremely worrying development.

I don't think that an AI will annihilate humankind by a nuclear strike, as in some Hollywood science fiction movie. The more likely danger is that AI will make most humans useless. Computer algorithms are catching up with humans in more and more cognitive fields. It is very unlikely that computers will develop anything even close to human consciousness, but to replace humans in the economy, computers don't need consciousness. They just need intelligence.

Throughout history, the only intelligent entities have been conscious entities. But intelligence is now decoupling from consciousness. We are developing non-conscious algorithms that can play chess, drive vehicle, fight wars and diagnose diseases better than us.

When the economy has to choose between intelligence and consciousness, the economy will choose intelligence. Once self-driving cars and doctor-bots outperform human drivers and doctors, millions of drivers and doctors around the world will lose their jobs, even though self-driving cars and doctor-bots have no consciousness.

Many new kinds of jobs might appear, but that won't necessarily solve the problem. Humans have basically just two types of skills — physical and cognitive — and if computers outperform us in both, they

might outperform us in the new jobs as well.

So what will be the use of humans in such a world? What will we do with billions of economically useless humans? We don't have any economic model for such a situation. This may well be the greatest economic and political question of the 21st century.

*You've suggested that Silicon Valley is developing a sort of "techno-religion," viewing even death as a technological problem. What role should morality have in such transformational innovations?*

In all likelihood, the new techno-religions will also create new techno-moralities. We already see it happening.

Humans rarely manage to come up with a completely new moral value. The last time this happened was in the 18th century, when the humanist revolution preached the stirring values of human equality, liberty and fraternity. All subsequent conflicts and struggles have been conducted either in the name of the three humanist values, or in the name of even older values — such as obeying God or serving the nation.

But the hacker movement has created the first new value since 1789: freedom of information. We mustn't confuse freedom of information with the old humanist value of freedom of expression. Freedom of expression was given to humans, and protected their right to think and say what they wished — including their right to keep their mouths shut and their thoughts to themselves.

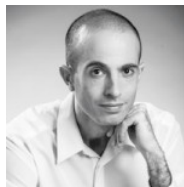
Freedom of information is not given to humans. It is given to *information*. Moreover, this novel value may impinge on the traditional freedom of expression, by

privileging the right of information to circulate freely over the right of humans to own data and to restrict its movement. Given that most humans may also become militarily and economically useless, we may well enter a post-human era, in which information is valued more highly than human beings. Indeed, both biologists and computer scientists increasingly see humans as biochemical algorithms, which should be evaluated strictly according to their data-processing capacities.

We should make technology serve us, instead of us serving technology. For that, we need new and much stronger global political authorities. The new opportunities and threats of the 21st century — from global warming to AI — are all global in nature. If you want to do something serious about them, you must have effective global governance.

*Technologies that can enhance our minds and bodies were featured in the second episode of the [Breakthrough](#) documentary series, "More than Human," directed by Paul Giamatti. The six-part series, developed by GE and the National Geographic Channel, airs Sundays at 9pm ET on the NatGeo Channel.*

(Top image: Courtesy of Thinkstock)



*Yuval Noah Harari is a Professor at Hebrew University in Jerusalem and author of, "[Sapiens: A Brief History of Humankind](#)."*

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