

Technology

Stephen Hawking warns artificial intelligence could end mankind

f

By Rory Cellan-Jones Technology correspondent

🕓 2 December 2014 🖻



Stephen Hawking: "Humans, who are limited by slow biological evolution, couldn't compete and would be superseded"

Prof Stephen Hawking, one of Britain's pre-eminent scientists, has said that efforts to create thinking machines pose a threat to our very existence.

He told the BBC:"The development of full artificial intelligence could spell the end of the human race."

His warning came in response to a question about a revamp of the technology he uses to communicate, which involves a basic form of AI.

But others are less gloomy about AI's prospects.

The theoretical physicist, who has the motor neurone disease amyotrophic lateral sclerosis (ALS), is using a new system developed by Intel to speak.

Machine learning experts from the British company Swiftkey were also involved in its creation. Their technology, already employed as a smartphone keyboard app, learns how the professor thinks and suggests the words he might want to use next.

Prof Hawking says the primitive forms of artificial intelligence developed so far have already proved very useful, but he fears the consequences of creating something that can match or surpass humans.



Stanley Kubrick's film 2001 and its murderous computer HAL encapsulate many people's fears of how AI could pose a threat to human life

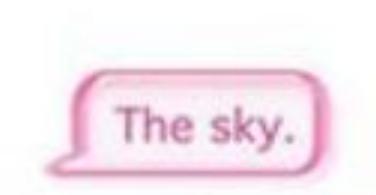
"It would take off on its own, and re-design itself at an ever increasing rate," he said.



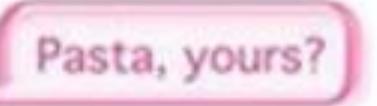


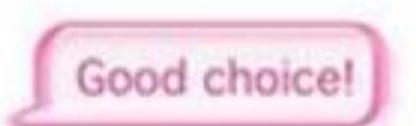


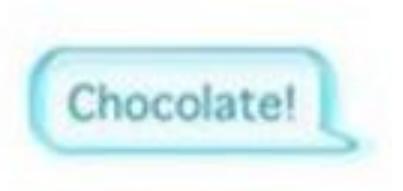


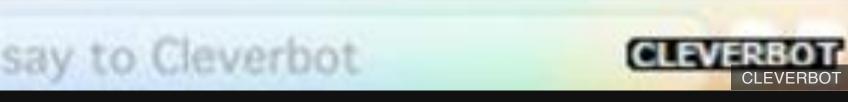


What is your favorite food?









Cleverbot is software that is designed to chat like a human would

"Humans, who are limited by slow biological evolution, couldn't compete, and would be superseded."

But others are less pessimistic.

"I believe we will remain in charge of the technology for a decently long time and the potential of it to solve many of the world problems will be realised," said Rollo Carpenter, creator of Cleverbot.

Cleverbot's software learns from its past conversations, and has gained high scores in the Turing test, fooling a high proportion of people into believing they are talking to a human.

Rise of the robots

Mr Carpenter says we are a long way from having the computing power or developing the algorithms needed to achieve full artificial intelligence, but believes it will come in the next few decades.

"We cannot quite know what will happen if a machine exceeds our own intelligence, so we can't know if we'll be infinitely helped by it, or ignored by it and sidelined, or conceivably destroyed by it," he says.

But he is betting that AI is going to be a positive force.

Prof Hawking is not alone in fearing for the future.

In the short term, there are concerns that clever machines capable of undertaking tasks done by humans until now will swiftly destroy millions of jobs.



Elon Musk, chief executive of rocket-maker Space X, also fears artificial intelligence

In the longer term, the technology entrepreneur Elon Musk has warned that AI is "our biggest existential threat".

Robotic voice

In his BBC interview, Prof Hawking also talks of the benefits and dangers of the internet.

He quotes the director of GCHQ's warning about the net becoming the command centre for terrorists: "More must be done by the internet companies to counter the threat, but the difficulty is to do this without sacrificing freedom and privacy."

He has, however, been an enthusiastic early adopter of all kinds of communication technologies and is looking forward to being able to write much faster with his new system.



Prof Hawking is using new software to speak, but has opted to keep the same voice

But one aspect of his own tech - his computer generated voice - has not changed in the latest update.

Prof Hawking concedes that it's slightly robotic, but insists he didn't want a more natural voice.

"It has become my trademark, and I wouldn't change it for a more natural voice with a British accent," he said.

"I'm told that children who need a computer voice, want one like mine."







WATCH: Prof Murray Shanahan provides a brief introduction to AI

View comments

Related Topics

Stephen Hawking

Artificial intelligence

Share this story About sharing



More on this story

Does rampant AI threaten humanity?

2 December 2014

Artificial intelligence: A brief introduction to AI

2 December 2014

Will workplace robots cost more jobs than they create?

30 June 2014

Artificial intelligence: How to turn Siri into Samantha

13 February 2014

Why has Google bought an AI company?

28 January 2014

Alan Turing: The experiment that shaped artificial intelligence

21 June 2012

Can computers have true artificial intelligence?

3 April 2012

Related Internet links		
Prof Stephen Hawking		
Space X		
Cleverbot		
Swiftkey		
The BBC is not responsible for the co Technology >	ontent of external Internet sites	
	FCC shuts virus loophole on its website	
BBC	September 2017 Technology	
	Africa 'needs more engineers and makers'	
BBC	September 2017 Technology	
	Tech Tent: Driving data from your car	
BBC	S 1 September 2017 Technology	

More Videos from the BBC

Recommended by Outbrain



Is a former inmate inflcting injuries on staff at Shepton Mallet prison?



Bristol mum: 'I had to go without food so the children could eat'



Hadleigh Farm rescue centre wants tortoises microchipped



The trainer who sings opera to race horses



English Channel paddleboard crossing for RNLI Sheringham



Houston flood: What Storm Harvey left behind

Elsewhere on BBC

Recommended by Outbrain



BBC.com

Discover Britain's best summer events!



BBC Culture

Are new comedies as funny as old ones?



BBC News

Rohingya refugees fleeing Myanmar near 40,000



BBC Future

The bleak, chilling magazine for nuclear doomsday preppers



BBC News

Why this 'unusual love story' has been taken off air in India



BBC Future

Introducing 'Grand Ideas' – a new special series

Top Stories

Trump seeks flood recovery 'down-payment'

Residents come back - but what's left?

Kenyatta blasts court after poll annulled

Features

'What happened after I grilled my sister's date'



Love and beauty in a refugee camp



Seven great songs inspired by pop feuds



The men who drew the Mason-Dixon Line



'Why I gave up my beauty queen crown'



Catching the hackers in the act



Reality Check: Fake photos of Myanmar violence



The Iraqi courts sentencing IS suspects to death



Uninsured and anxious, Houston flood victims return home



Most Read	
Serena Williams gives birth to baby girl	1
Storm Harvey: Trump seeks \$7.8bn for flood recovery	2
Birling Gap beach: Shipwreck 'could be to blame for mist'	3
US reveals details of recent 'sonic attack' on Cuba diplomats	4
Solar power deal will lower social tenants' energy bills	5
'Monster' tuna hauled by Neyland boat is 'catch of lifetime'	6
A-level places dispute pupils to return to their school	7
Seven great songs inspired by pop feuds	8
Newspaper headlines: Conservation charity and countryside campaigners clash	9
MPs declare sports and bookies as most common donors	10

From Around the Web

Promoted content by Outbrain



Banks Are Worried Swiss People Will Know About This The Strategy Insider





Cable Companies Furious over This New Device @freeseetv



This Game lets You Play through the Ages Forge Of Empires



Brits Abroad Risk Losing Wealth – Here's Why Abbey Wealth



Road Trip: Dump Your Blues Down in the Gulf by... DMV.org



Farmspiel: Warum dich dieses Spiel vom Alltag... Big Farm

Ads by Google

Ads

Expat In Switzerland?

Thousands of Expats Have Benefited From Their Free Review **Expat Savings Team**

 \square

British Expat In France?

Discover How You Could Get A Better £70k+ Pension. Free Guide & Review! your.expatpensionreview.com

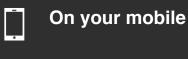
British Expat?

Transfer Your UK Pension & Avoid Losing up to Half of your Funds. Get your Free Guide! Forth Capital

Investissement Suisse 8%

8% rendement p.a. faible risque. 100% libre d'impôt. ShareWood Switzerland AG

BBC News Services



On your connected tv



Get news alerts

Contact BBC News

Explore the BBC

Home	News
Sport	Weather
Shop	Earth
Travel	Capital
Culture	Autos
Future	тν

Radio	CBBC
CBeebies	Food
iWonder	Bitesize
Music	Arts
Make It Digital	Taster
Nature	Local
Terms of Use	About the BBC
Terms of Use Privacy Policy	About the BBC Cookies
Privacy Policy	Cookies

Copyright © 2017 BBC. The BBC is not responsible for the content of external sites. Read about our approach to external linking.