



Neuroscience

● This article is more than 5 years old

'Neural revolution': Royal Society calls for inquiry into new wave of brain implants

Scientists think devices could allow people to communicate telepathically or the paralysed to walk in the next decades

Ian Sample *Science editor*

Tue 10 Sep 2019 01.00 EDT

Society must prepare for a technological revolution in which brain implants allow people to communicate by telepathy, download new skills, and brag about their holidays in “neural postcards”, leading scientists say.

While such far-fetched applications remain fiction for now, research into brain implants and other neural devices is advancing so fast that the [Royal Society](#) has called for a “national investigation” into the technology.

“In 10 years’ time this is probably going to touch millions of people,” said Tim Constandinou, director of the next generation neural interfaces lab at Imperial College London, and co-chair of a new Royal Society report called iHuman. “These technologies are not possible today, but we are heading in that direction.”

The report foresees a “neural revolution” driven by electronic implants that communicate directly with the brain and other parts of the nervous system. By 2040, the scientists anticipate that implants will help the paralysed to walk, with other devices alleviating the symptoms of neurodegenerative diseases and treatment-resistant depression.

The new wave of devices will go beyond existing products such as cochlear implant hearing aids and deep brain stimulators for people with Parkinson’s disease, with gadgets that help the healthy. In research labs, scientists are working on ways for people to [type with their brains](#), and share thoughts by [connecting their minds](#). Other teams are developing helmets and headbands to speed up learning and improve memory.

“People could become telepathic to some degree, able to converse not only without speaking but without words, through access to each other’s thoughts at a conceptual level. This could enable unprecedented collaboration with colleagues and deeper conversations with friends,” the report states.

But with such new powers come new risks, the report adds. Expensive brain-boosting devices may become luxury items in richer nations, leaving poorer countries behind. And with devices plugged directly into the brain, people’s most intimate data could be used against them. “Access to people’s thoughts, moods and motivations could lead to abuse of human rights,” the report says, adding that some companies might expect their employees to wear devices that reveal their inner feelings.

The report calls for the public to be consulted “early and often” about the ethical issues that neural implants throw up, and proposes a regulatory body akin to the Human Fertilisation and Embryology Authority (HFEA) to police how new devices are used.

“As our experience with social media has shown, we do need to think ahead about who will control this data and what it might be used for, to guard against possible harmful uses,” said Sarah Chan, a co-author on the report at Edinburgh University. “If recent experience has shown us anything, it’s that individual consent and opting in or out is not enough to protect either individuals or society more widely.”

But Constandinou warned against overregulation that could cripple new technologies before they leave the lab. “We need safeguards to ensure things are not misused, but we shouldn’t shoot ourselves in the foot,” he said. “This technology could massively improve the quality of life for millions of people,” he added.

Why you can rely on the Guardian not to bow to Trump - or anyone

I hope you appreciated this article. Before you move on, I wanted to ask whether you could support the Guardian’s journalism as we face the unprecedented challenges of covering the second Trump administration.

As Trump himself observed: “The first term, everybody was fighting me. In this term, everybody wants to be my friend.”

He’s not entirely wrong. All around us, media organizations have begun to capitulate. First, two news outlets pulled election endorsements at the behest of their billionaire owners. Next, prominent reporters bent the knee at Mar-a-Lago. And then a major network - ABC News - rolled over in response to Trump’s legal challenges and agreed to a \$16m million settlement in his favor.

The Guardian is clear: we have no interest in being Donald Trump’s - or any politician’s - friend. Our allegiance as independent journalists is not to those in power but to the public. Whatever happens in the coming months and years, you can rely on the Guardian never to bow down to power, nor back down from truth.

How are we able to stand firm in the face of intimidation and threats? As journalists say: follow the money. The Guardian has neither a self-interested billionaire owner nor profit-seeking corporate henchmen pressuring us to appease the rich and powerful. We are funded by our readers and owned by the Scott Trust - whose only financial obligation is to preserve our journalistic mission in perpetuity.

What’s more, we make our fearless, fiercely independent journalism free to all, with no paywall - so that everyone in the US can have access to responsible, fact-based news.

With the new administration boasting about its desire to punish journalists, and Trump and his allies already pursuing lawsuits against newspapers whose stories they don’t like, it has never been more urgent, or more perilous, to pursue fair, accurate reporting. Can you support the Guardian today?

We value whatever you can spare, but a recurring contribution makes the most impact, enabling greater investment in our most crucial, fearless journalism. As our thanks to you, we can offer you some great benefits - including seeing far fewer fundraising messages like this. We’ve made it very quick to set up, so we hope you’ll consider it. Thank you.

Betsy Reed

Editor, Guardian US



☐ Support \$5/month

☒ **Support \$15/month**

Recommended

Unlock **All-access digital** benefits:

- ✓ Unlimited access to the Guardian app
- ✓ Unlimited access to our new Feast App
- ✓ Ad-free reading on all your devices
- ✓ Exclusive newsletter for supporters, sent every week from the Guardian newsroom
- ✓ Far fewer asks for support

☐ Support once from just \$1

Continue →

Remind me in April

VISA



More on this story