

Investors' 'dumb transhumanist ideas' setting back neurotech progress

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It has been an excellent year for neurotech, if you ignore the people funding it. In August, a tiny brain implant successfully decoded the inner speech of paralysis patients. In October, an eye implant restored sight to patients who had lost their vision. It would just be better, say experts,
10 if the most famous investors in the space – tech magnates such as Elon Musk and OpenAI's Sam Altman – were less interested in uploading their brains to computers or merging with AI. "It's distorting the debate a lot," said Marcello Ienca, a professor of neuroethics. "There is this long-term concern regarding the narratives they use."

Michael Hendricks, a professor of neurobiology at McGill, said: "Rich people who are fascinated
15 with these dumb transhumanist ideas" are muddying public understanding of the potential of neurotechnology. "Neuralink is doing legitimate technology development for neuroscience, and then Elon Musk comes along and starts talking about telepathy and stuff."

Silicon Valley firms have ramped up investment in neurotechnologies in the past years. Apple and Meta are both working on wearable devices that leverage neural data: a wristband for Meta,
20 headphones for Apple.

These technologies have considerable near-term potential to treat a variety of neurological issues – from ALS to Parkinson's to paralysis. The problem is, their investors don't always appear to have curing disease as an end goal.

Musk has said brain-computer interfaces like Neuralink's may one day allow people to "upload
25 [their] memories" and "download them into a new body or a robot body".

To be clear, technologies like brain uploading are a long way off, Hendricks and Ienca said: in fact, they're probably impossible, at least in the foreseeable future. Some worry, however, that far-fetched narratives could stymie actual health advances – for example, by pushing regulators to adopt fear-driven laws. Kristen Mathews, a lawyer who works on mental privacy issues at the
30 US law firm Cooley, said all this "sci-fi hype could trigger regulation that would hinder advances in technology that would otherwise have the potential to really help people who need help".

The actual frontier of neurotechnology is best understood as encompassing three distinct categories. There are medical devices, such as the brain implants that decode speech, or Neuralink's electronic chip that allowed a man with a spinal injury to control a computer. There
35 are consumer wearables, devices such as earbuds or, more loosely, glasses such as Apple's VisionPro. Then there are the science-fiction efforts, such as Kernel, which aims to link brains to computers, or Neuralink's recent efforts to trademark the name Telepathy.

The first category promises the most powerful advances: restoring vision and hearing, and treating neurodegenerative diseases or perhaps psychiatric disorders. The second category, consumer
40 wearables, are a thornier regulatory problem. While there has been a spate of reporting on privacy-invasive brain-measuring devices – for example, China's much-discussed EEG helmets that supposedly monitor construction workers for fatigue, or pupils for focus – it's far less clear that these have ever worked, or pose a real surveillance risk. (494 words)