Medical applications and human enhancement using neurotechnology.

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Abstract

Human enhancement focuses on enhancing and overcoming physical and psychological limitations. Pharmaceutical substances that affect consciousness and cognitive function have long been used and discussed. However, the possibility of employing invasive and noninvasive electromagnetic stimulations of the human brain or brain-steered devices has gotten less attention—especially outside of therapeutic procedures—and is still largely studied. However, making these adjustments at such a late stage makes them extremely challenging, extremely expensive, and occasionally completely impossible. With the goal of determining if these genuine or diegetic prototypes could be utilised to better comprehend the routes these applications are taking, we have compiled and organised an overview of current experimental and speculative uses of neurotechnologies in this publication.

Keywords: Pharmaceutical, Electromagnetic, Neurotechnologies.

Introduction

Neurotechnology is being more widely used for non-medical purposes, such as psychiatric treatment and prosthetics. Neuroprosthetics and telepathy Neurotechnology is frequently used as a prophecy for a day when the body will undergo constant "technoization," changing it forever. Such technological advancement is anticipated to occur in two ways:

Invasive: involving the replacement or enhancement of human processes with technology through surgical procedures (implants, prostheses).

Noninvasive technologies include brain-machine interfaces that can connect people and objects and noninvasive neurostimulation techniques that alter the body without requiring such procedures [1].

The work of cyborg artist Neil Harbisson is a well-known example of neurohacking. Harbisson, who was totally coloured blind from birth, had an antenna placed in his head in 2004 that converted colours into noises that he could hear through bone conduction. However, intrusive choices like the Cyborg Antenna and the cochlear implant are rare; for the most part, we discovered noninvasive examples in the Med + category. One of these consumer-friendly programmes that is frequently utilised during the BR41N. IO hackathon is the Unicorn Speller software, which can be used with an EEG headset. It can be used to spell words by keeping an eye on a screen and keeping track of the times a particular letter or symbol blinks. It was originally created for usage in the medical industry, for example, for locked-in patients [2].

With Kevin Warwick's chip implant in 1998, neurotechnology augmentation implants gained popularity. He had a chip inserted in his arm that gave him the ability to operate various appliances without touching or moving them, including doors and lights. He was able to use this technology to operate a robotic arm and an electric wheelchair, which are both strongly tied to medical applications. Warwick was able to experience the chip's stimulations thanks to the chip's bidirectional functionality. There are various noninvasive alternatives to implants, whether or not they are integrated into the nervous system, to improve human performance [3]. It appears that gaming is one of the key passions. Many technological advancements centre on controlling avatars in video games, such as the virtual race known as "Cybathlon."

Controlling household appliances is one potential future use that could result from the hackathon, which is often referred to create a "Smart Home." With the use of this programme, users can measure brain waves with an EEG headset and turn on any appliance, such as lights, a heater, or an artificial intelligence assistant like Apple's Siri. The hackathon applications use the "Unicorn Speller," which, as previously mentioned in the section "Med+," necessitates users to concentrate on certain icons flashing on a screen [4].

Although there are now few implant options available to DIYers in general, there are countless noninvasive or self-tracking options. Authentication is a potential future use case as well. NeuroTechX investigated the potential uses of EEG information as a biometric for security [5]

Conclusion

Because of its advancement and accessibility, neurotechnology

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may have a greater impact in the near future. Some claim that wearable technology's improved performance will lead to a decline in the use of invasive technology. Neurotechnology may have been around for centuries, but in many ways it is still in its infancy.

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