

Prompt

Research brain emulation - does it exist now, even in development? If not, are there similar technologies in development/existence? Write ~500 words summarizing the technology in the real world, please include links supporting your claims.

Essay 1
Word Count: 517

Our technology focused on uploaded consciousness, a concept based on the Black Mirror episode, *The Black Museum*. The technology presented in this episode, enabled an individual to remove a person's consciousness out of another person's brain and store it externally until it could be placed into another vessel. Consciousness is everything a person experiences, from the feeling of a sprained ankle, to the emotion of love. To be aware of sensations, dislikes, your feelings, and even dreams, is to be conscious. Technology supporting uploaded consciousness does not currently exist, but is being heavily researched by neuroscientists. Information learned regarding this technology, has led to deeper knowledge of brains and their neural networks. Neural networks are algorithms that allow machines to learn different information such as finding a song by inputting a few lyrics, to answering your phone using a voice command. Neural networking is comparable to brain emulation on a less sophisticated level, but is the beginning of the road to achieving brain emulation, or the mimicking of a brain.

At the Brain Preservation Foundation in Virginia, Dr. Kenneth Hayworth, president and neuroscientist, is currently working on mapping brains. Dr. Hayworth believes that the connectome, the complex connections of all neurons in the brain, can be encoded and once successfully encoded, will pave the way for complete brain emulation. Currently, he is working on the time-consuming task of mapping slivers of mice brains. To put the length of brain mapping into perspective, a fly brain would take approximately one to two years to map.

The Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative is a research initiative that aims to unlock the mysteries of the brain while accelerating the development of new technologies to better assist researchers. Professor and neuroscientist, Rafael Yuste, is actively participating in this initiative by skipping the mapping of the connectome and focusing on the continual interaction of neurons and their patterns of firing. This research is being done to solve the mysteries behind brain disorders such as Alzheimer's disease. Researchers and scientists have already mapped the pattern of a tiny invertebrate called a Hydra, but are unsure of what the patterns mean. An innovative technology currently in use and partnered with the BRAIN Initiative, is the Deep Brain Stimulation Device, created for individuals with Parkinson's disease. This device is the size of a stopwatch and is implanted into the brain. Its function is similar to a pacemaker where it delivers electric stimulation to the parts of the brain that control movement.

A more recent technology stands out because of its noninvasive properties. The company Nuro, has created a system for individuals to control computers with their minds. This new software translates data from brainwaves into simple commands that can be processed in an app

or device. It was designed to give patients with spinal injuries the ability to vocalize their needs such as receiving a glass of water, or playing music on a Bluetooth speaker, just by thinking about pressing the icon on a screen. The founder of Nuro, Francois Gand, envisions this technology moving beyond the hospital and into everyday life.