WEEKLY ETHICACY: NEURALINK

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Neuralink is a company founded by Elon Musk with the goal of building high-bandwidth interfaces between the human brain and technology. Their flagship product is a neural implant that detects electrical signals at specific sites in the brain and can also deliver electrical impulses to the brain. This reading and writing of neural activity already has medical applications, especially in the treatment of Parkinson's Disease, spinal cord injury, and stroke. But Musk and others believe that the potential future applications of Neuralink extend far beyond medicine and could eventually transform fundamental aspects of the human experience. While these future applications are speculative and depend on developing a much more complete understanding of how the brain works, they seem plausible in principle. As Musk puts it, "We're already a cyborg, to some degree… It's just that the data rate to the electronics slow…. Increasing the data rate can improve the symbiosis that is already occurring between man and machine."

One long-run potential use of Neuralink might be voiceless brain-to-brain communication between individuals with implants. This application would build on one of the current uses of neural implants, which is to enable paralyzed individuals to communicate by controlling computer-generated speech or text messages with their brains. High bandwidth brain-to-brain communication raises important ethical questions. If separate bodies were in continuous, high-bandwidth, voiceless communication, and capable of sharing sights, sounds, ideas, emotions, and memories unmediated by language, would they be separate persons? Could one of these bodies be said to be responsible for actions performed by the other? Would one have the right to have their implant removed, or would this cause unacceptable harm to their counterpart? Other potential future applications, like enhancing normal sense perception, or improving memory and cognition, raise their own ethical issues.

Expert commentary on Neuralink stresses the great distance between the current state of brain/computer interface technology and what would be required to enable the applications described above. While current neural implants are fairly good at reading and interpreting some kinds of brain activity, they are quite poor at writing specific information to the brain. Much of our behavioral and mental life involves the coordinated activity across several regions of the brain. So far, this complex, coordinated activity has been mostly beyond the reach of technology like Neuralink. A second strand of commentary points out that, while Neuralink demonstrates some advances over other types of neural implants, there is nothing fundamentally new about using technology to repair or augment the brain and nervous system. While Musk sometimes suggests that Neuralink is a fundamentally new kind of technology, really it is an incremental improvement over existing neural implants, and it is pointed toward similar goals. But no one seems to dispute a few basic premises that make Neuralink worthy of an ethicist's attention: the relationship between human biology and human technology is changing rapidly; this changing relationship has the potential to transform our psychology and ethics; and there does not seem to be anything in principle standing in the way of some of Musk's most audacious claims about the future applications of neural implant technology.

Resources

- https://youtu.be/Gqdo57uky4o ("Elon Musk Reveals New Details About Neuralink, His Brain Implant Technology")
- https://youtu.be/CLUWDLKAF1M ("Neuralink: Elon Musk's entire brain chip presentation in 14 minutes (supercut)"
- https://www.theverge.com/2020/9/29/21493224/elon-musk-neuralink-neuroscience-brain-machine
- https://www.scientificamerican.com/article/elon-musks-secretive-brain-tech-company-debuts-a-sophisticated-neural-implant1/
- https://www.theguardian.com/science/2019/sep/22/brain-computer-interface-implants-neuralink-braingate-elon-musk