Mind reading rodents

Business

Ever wondered if someone is reading your mind as you’re thinking? Unless you’re a conspiracy theorist, probably not often. As everyone beyond the age of preschool knows, telepathy isn’t real, except when it is. Published in Nature’s Scientific Reports in February of 2013, scientists at Duke University have managed to transmit brain waves, or EEG, from one rat, through the Internet, directly to another rat’s brain, allowing the reciever rat to successfully complete visual tests without the necessary cues. How could this happen? When will I be able to read someone else’s mind? Firstly, it’s important to understand how this experiment was set up and what it acheived. Micro-electrodes were implanted into the primary motor cortex in the brains of thirsty rats trained to press one of two levers when an LED above that lever was lit.

A correct action opened a hatch containing sugar water. The rats were split into “ encoders” and “ decoders” and were placed in physically identical cages, which required a lever to be pushed to give a reward. Brain waves, or EEG, were transmitted from the encoder rat to the decoder rat over the Internet. In the “ encoders” group, an LED light would be lit to indicate which lever to push, while the “ decoders” group would have nothing lit. The team found that the decoders, despite having no visual cue, pressed the correct lever between 60 and 72 per cent of the time, thanks to the encoder’s brain waves. According to Professor Miguel Nicolelis, the head of the team, “ these findings demonstrate for the first time that a direct channel for behavioral information exchange can be established between two animal’s brains without the use of the animal’s regular forms of communication.

” Wait, couldn’t the rat just see what the other rat was doing, regardless of being linked over the Internet? Sure, except one rat was in a lab in North Carolina, while the other was in Brazil. The only drawback? A slight transmission delay. “ What is most interesting, however, was the scientists found that when two rats were paired up they quickly established a rapport based on some sort of sensory feedback. If the second rat failed at its task, the first rat would modify what it was transmitting to help the second rat. Both rats worked together since they were sufficiently motivated by the reward.

” Literally cooperating telepathically! Admittedly, the experiment was rather simple, as it merely focused on binary decision making, which allowed the rats a 50% chance of success even if they were just guessing, but the success rate of the decoder rats was still statistically significant. Further research indicates that brain to brain interface has progressed even more since 2013. Several months later, another study was conducted and found that a human and a rat, both attached by non-invasive electrodes, could crudely share motor and sensory information. Furthermore, the human subject could crudely control the twitch of the rat’s tail!! According to Professor Miguel Nicolelis, “ We cannot even predict what kinds of emergent properties would appear when animals begin interacting as part of a brain-net. In theory, you could imagine that a combination of brains could provide solutions that individual brains cannot achieve by themselves.

” These results are both tantalizing and frightening, for some. Some people are still fearful of what could arise from these results, and they are right to be worried. This technology would have drastic damages if it came into the

hands of a military force, perhaps involving trained mammals that can be controlled by brain signals from a remote human operator. However, in the shorter term, these can be applied very positively. War veterans and disabled people could be given back lost limbs and learn to control them more similarly to a normal limb.

However, science will take quite some time to transmit abstract thoughts or relate more complex tasks. “ Abstract thoughts are harder to read and represent; but not impossible technologically. We can already do that … we just need to understand the brain better.” Imagine a time when we might be able to communicate telepathically even the most complex of thoughts; it’s possible humans could even share a “ hive-mind,” like that of bees. Science always has and always will be challenging the present’s standards and expectations, and now it is no different.

Humanity has always had to adapt to it’s own rapid, fearsome growth. Things that frightened people not too long ago are generally accepted as fact now, such as natural selection and the uses of genetic engineering. Again, it’s up to you and the rest of society to decide whether or not we’re comfortable with the prospect of mind melding. As for me, I can’t wait to see what happens.