Musk's Neuralink creates 'happy monkeys' who play Pong with their minds

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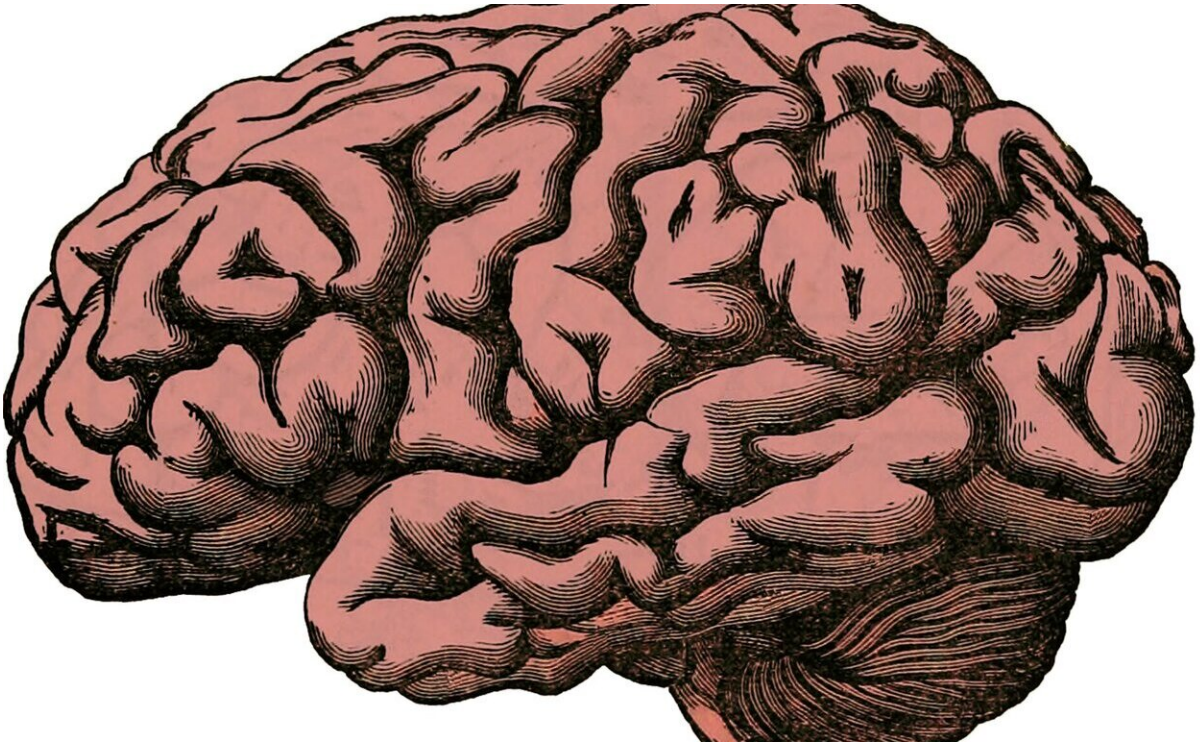

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When talking about Elon Musk, we must be prepared to talk about big numbers. The world's richest man—he's currently worth about $209 billion, give or take a billion—has designed electric powered cars that can drive (with stops for charging) the 2,8000-mile width of the United States.

He envisioned the hyperloop, a vacuum-sealed network carrying magnetically levitating pods that can transport passengers between cities faster than planes, up to 760 miles per hour. He wants to colonize Mars, one of our closest planetary neighbors residing a mere 112 million miles away and is building a rocket to do so.

But last week, Musk held a press conference to talk about a different project, one that will take humankind a matter of just millimeters. The destination: the brain.

Musk's Neuralink project, unveiled in 2016, seeks to marry computational power with brain signals to achieve lofty goals such enabling the disabled to move paralyzed limbs merely with thought.

And he has less lofty goals, as revealed during a recent question-and-answer session held on the Clubhouse app: Teaching monkeys to play video games.

Musk said his team has implanted a wireless chip into a monkey's brain that enables humans' closest relatives to play Pong.

"We've already got like a monkey with a wireless implant in their skull and the tiny wires, who can play video games using his mind. And he looks totally happy. He does not look like an unhappy monkey," Musk said.

Last August, Musk released a video of a pig named Gertrude whose brain activity was monitored on a screen.

"You can literally rub the pig on its snout and we can detect exactly where you touch the snout," Musk said.

Experimentation on animals is a precursor to bringing the power of

computers to human thought.

According to Neuralink's web site, current experimentation "has the potential to treat a wide range of neurological disorders, to restore sensory and movement function, and eventually to expand how we interact with each other, with the world, and with ourselves."

Musk foresees a time when such devices would allow people to save and replay memories, and conduct other tasks merely by thinking about them.

"It is cool technology—as one would expect of a company started by an entrepreneur who builds his own electrical cars, massive batteries and vertically landing rockets," according to Christof Koch, chief scientist of the MindScope Program at the Allen Institute for Brain Science.

As Musk explains it, humans today in fact are almost like cyborgs given our dependence on computers, smartphones and various other digital devices. Interacting with such devices with hand motion or voice control is relatively slow. Musk wants to cut out such low-bandwidth "middle men" and establish a direct neural connection between computers and our brains. Such a connection could proceed at the speed of thought.

The implanted device is 23mm x 8mm and sits flush with the skull. It contains an IMU—Inertial Measurement Unit—that tracks orientation, velocity, pressure and gravitational forces.

One expert who specializes in neural interfaces is Andrew Jackson, a professor at the University of Newcastle. He noted one key achievement of the Neuralink project is "they are pushing up the number of channels that you can record." Prior experimentation was able to obtain a maximum of about 100 channels of information. Musk's project has obtained 1,000.

"Even if the technology doesn't do anything more than we're able to do at the moment—in terms of number of channels or whatever—just from a welfare aspect for the animals, I think if you can do experiments with something that doesn't involve wires coming through the skin, that's going to improve the welfare of animals," Jackson said.

Not everyone is on board. One of the most outspoken animals rights groups criticized Musk's project.

Kathy Guillermo, senior vice president of the Laboratory Investigations Department at PETA in the United States said, "Elon Musk is no primatologist, or he'd never suggest a monkey who's strapped to a chair with a metal device implanted in his skull and forced to watch video games all day is anything but miserable."

PETA also chastised Musk last fall, challenging him "to behave like a pioneer and implant the Neuralink chip in his brain rather than exploiting smart, sensitive pigs who didn't volunteer for surgery, don't appreciate that he provides pats and a straw cell, and should be left out of pie-in-the-sky projects."

More information: neuralink.com/

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