Thought-controlled computer cursor takes a leap forward

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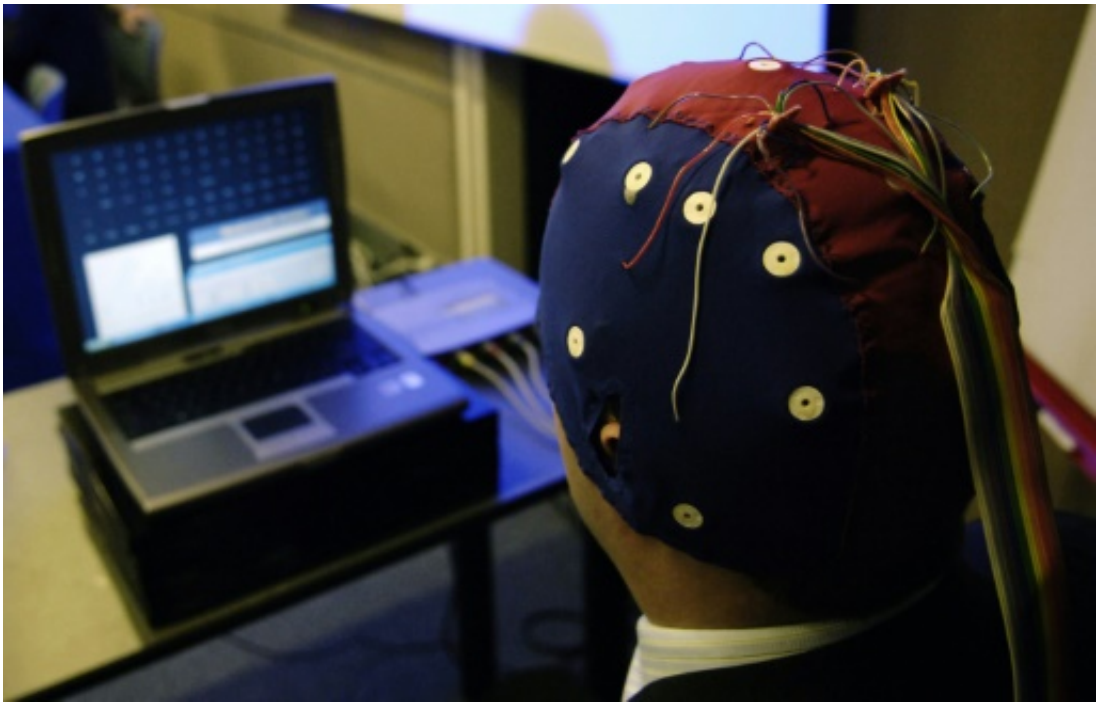

A scientist presents a Brain Computer Interface system on June 8, 2006

Scientists working to perfect a thought-controlled computer cursor said Monday they have achieved their best results yet, and are moving closer to creating a version that paralysis victims can use.

The device works twice as fast as in previous trials after American developers found better ways to read brain activity and fine-tuned its hardware and software, according to results published in the journal

Nature Medicine.

Improving the speed and accuracy of mind-controlled prostheses is crucial to taking them from mere lab experiments to helping quadriplegics regain some level of independence.

"The current work is a step towards one of our ultimate goals, which is to provide point-and-click control of any computer system whenever the user desires," study co-author Jaimie Henderson, of Stanford University, told AFP by email.

The results were from the BrainGate clinical trial, which made history in 2011 when a woman named Cathy Hutchinson used only her thoughts to operate a robotic arm to bring a flask of coffee to her lips for a sip.

In this latest study, researchers observed how well and how fast two paralysed people—a man and woman in their 50s, both with amyotrophic lateral sclerosis (ALS) also known as Lou Gehrig's disease—could use their minds to guide an arrow-shaped cursor onto a target on a computer screen.

The team compared the pair's performance with previous attempts, including how well Hutchinson performed in the same cursor tests for a 2011 study.

The duo were able "to move the cursor from one point on the screen to another twice as fast," said Henderson.

The test subjects control the prosthesis via an array of electrodes implanted onto their motor cortices—the part of the brain that controls body movement.

The 96 tiny electrodes pick up the signals from nearby neurons and send

them to a computer that translates them into action.

Researchers said they have made a range of improvements, including filtering out electrical interference that can weaken signals from the brain.

The team asked the participants to try different ways of thinking about moving the cursor in order to find which worked best.

The study is a collaboration between Brown University, Massachusetts General Hospital and the US Department of Veterans Affairs as well as Stanford University and Case Western Reserve University.

Researchers said much more research is needed before widespread use will be possible.

More information: *Nature Medicine*, DOI: 10.1038/nm.3953