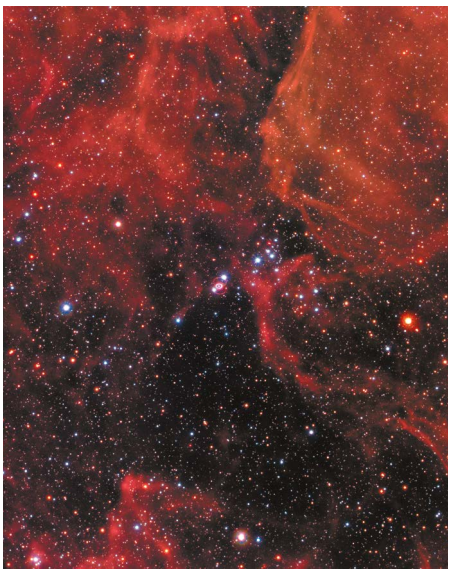
hours. Two of its cutting-edge instruments provided unprecedented insights into what was happening at the heart of the exploded star. "The data were really superb quality, much better than I had imagined," says team member Josefin Larsson, an astrophysicist at the KTH Royal Institute of Technology in Stockholm.

The JWST observations revealed the fingerprint of ionized argon and sulfur gas produced by the central neutron star. The finding is "the strongest observational evidence so far" for the presence of a neutron star in SN 1987A, says Mikako Matsuura, an astrophysicist at Cardiff University, UK. She won't go so far as to call it conclusive, but says that "JWST is really an amazing telescope to deliver such a discovery".

Now astronomers will shift their focus to learning more about the neutron star and its evolution over time. Lead author Claes Fransson, an astrophysicist at Stockholm University, and his colleagues have new observations from JWST, including some made last month, and plan to look for more details, such as whether the neutron star is enveloped by powerful magnetic fields.

As for actually seeing the neutron star through a telescope, the dust will have to clear out more. "As the supernova expands," Fransson says, "the dust and gas blocking the light to the centre will get thinner and thinner, so that we will be able to see the central region easier."



NASA, ESA, ROBERT P. KIRSHNER (CFA, MOORE FOUNDATION), MAX MUTCHLER (STSCI), ROBERTO AVILA (STSCI)

Supernova 1987A (centre) is in the Large Magellanic Cloud galaxy.

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NEURALINK BRAIN CHIP: ADVANCE SPARKS SAFETY AND SECRECY CONCERNS

An implant made by Elon Musk's firm has allowed a person to move a computer mouse with their mind.

By Liam Drew

The first person to receive a brain-monitoring device from neurotechnology company Neuralink can control a computer cursor with their mind, Elon Musk, the firm's founder, revealed this week. But researchers say that this is not a major feat — and they are concerned about the secrecy around the device's safety and performance.

The company is "only sharing the bits that they want us to know about", says Sameer Sheth, a neurosurgeon specializing in implanted neurotechnology at Baylor College of Medicine in Houston, Texas. "There's a lot of concern in the community about that."

Musk announced on 29 January that Neuralink had implanted a brain–computer interface (BCI) into a human for the first time. Neuralink, which is headquartered in Fremont, California, is the third company to start long-term trials of such devices in humans.

Some implanted BCIs sit on the brain's surface and record the average firing of populations of neurons, but Neuralink's device, and those from at least two other firms, penetrates the brain to record the activity of individual neurons. Neuralink's BCI contains 1,024 electrodes — many more than previous systems — arranged on innovative pliable threads.

> **"The patient seems to have made a full recovery, with no ill effects that we are aware of."**

The company has also produced a surgical robot to insert its device. But it has not confirmed whether that system was used for their first human BCI implant. Details about the recipient are also scarce, although Neuralink's volunteer recruitment brochure says that people with quadriplegia stemming from certain conditions "may qualify".

Mind over mouse

This week, Musk said on Spaces — an audio component of his social-media platform X — that "progress is good, and the patient seems to have made a full recovery, with no ill effects that we are aware of". He added that the volunteer "is able to move a mouse around the screen by just thinking".

To researchers working on implanted neurotechnologies, this achievement is underwhelming.

"A human controlling a cursor is nothing new," says Bolu Ajiboye, a BCI researcher at Case Western Reserve University in Cleveland, Ohio. The first human to receive a long-term BCI implant, in 2004, could control a cursor with it and non-human primates have been doing so for even longer, explains Ajiboye.

Nor are data from individual neurons needed to achieve this feat. New York City-based neurotechnology company Synchron's BCI, which is placed in a brain blood vessel and records the averaged firing of neuronal populations, also enables cursor control and a 'left click' function. And even external, scalp-based recording systems can provide users with rudimentary cursor control.

Controlling a computer mouse with their thoughts could enable people living with paralysis to regain some independence and functionality. But it is a far cry from Musk's ambitions for the Neuralink device. "Imagine if Stephen Hawking could communicate faster than a speed typist or auctioneer," Musk wrote last month on X. "That is the goal."

Information vacuum

Implanted, high-density electrode systems developed by academic teams have enabled trial participants with paralysis to operate prosthetic robotic arms and hands, and to communicate by decoding their imagined speech. Ajiboye expects that Neuralink will soon be able to replicate some of these feats. "But it's hard to know because there's very little information," he says.

Even more important at this stage, researchers say, is safety — of both the device and the surgery. Neuralink has posted videos online of its robotic surgeon sewing components of the implant into agar, Sheth says, but he and other researchers are in the dark about the system's first application in the clinic.

Even so, scientists welcome Neuralink's progress. "The more companies involved in human BCIs," says Ajiboye, "the better to push the field forward."