Has fiction become science yet?

TELEKINESIS

Let's be precise about what telekinesis actually means. Not controlling a robot arm from across the room via a joystick; that's teleoperation. Not feeling like you're "present" somewhere else through a screen; that's telepresence. Telekinesis is something more specific and more strange: your mind, directly commanding physical action. No interface, you consciously operate. Just thought and then movement.

That is what science has been quietly building. And it is further along than most people realise.

THE FICTION

Telekinesis has been a fixture of human imagination long before Marvel gave it to Professor X. Ancient mythologies are full of it. Folklore across cultures describes holy men, witches and mystics who could move objects through will alone. In modern pop culture it's everywhere; from Eleven in Stranger Things to every Jedi who has ever picked up a lightsaber without touching it.

The fantasy is always the same: a person concentrates, something moves. Clean. Direct. The mind as a physical force.

Science fiction gave it a specific flavour usually tied to evolved mental powers, radiation or some kind of vague "energy". Always portrayed as something beyond the reach of ordinary engineering. You were either born with it or you weren't.

Nobody imagined you'd get there with a 4mm chip and a machine learning algorithm.

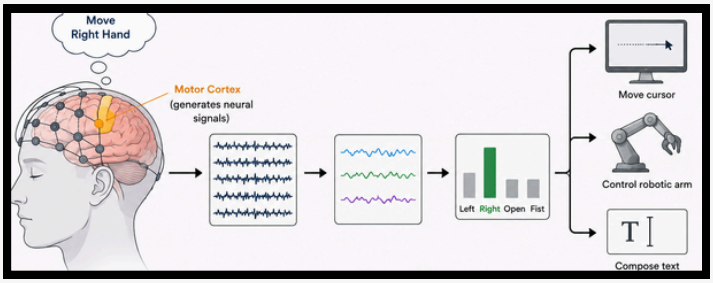
THE SCIENCE

In 2004, a 25-year-old man named Matthew Nagle was enrolled in a clinical trial at a Rhode Island hospital. Nagle had been stabbed in the neck in 2001, leaving him paralysed from the shoulders down. He could not move his arms, his hands, or his legs.

Surgeons implanted a device called BrainGate; a tiny array of 96 electrodes placed directly onto the surface of his motor cortex, the region of the brain that plans and initiates movement. When Nagle thought about moving his hand, neurons in that region fired electrical signals. BrainGate recorded those signals. A computer decoded them in real time. A cursor moved on screen.

In 2006, the results were published. Nagle had used his thoughts alone to move a cursor, open emails, play a basic video game and control a television. He did not move a single muscle to do any of it. No joystick. No voice command. No body movement of any kind. Thought became action.

HOW IT WORKS



The brain's motor cortex generates distinct electrical patterns when you think about different movements, moving your hand left, right, opening your fingers, making a fist. These patterns are consistent enough that a trained algorithm can learn to tell them apart.

A BCI (Brain-Computer Interface) records the raw neural signals, filters out noise, decodes the intended movement, and translates it into a command; moving a cursor, activating a robotic arm, composing text. The key word is "intended." The patient does not need to attempt the movement. They only need to think it.

That distinction is everything. This is not assistive technology helping someone move a paralysed limb. This is a system that bypasses the limb entirely and reads the intention directly from the source.

HOW FAR HAS IT GONE

Since Nagle, the field has moved steadily forward.

In 2012, Jan Scheuermann, paralysed from the neck down used a BCI-controlled robotic arm to pick up a chocolate bar and feed herself. The arm was not part of her body. She did not move to control it. She thought, and it moved.

In 2021, a Stanford team reported a paralysed patient composing text at 40 words per minute by imagining handwriting movements. A computer decoded those imagined movements letter by letter. 40 words per minute is faster than most people type on a phone.

In 2023, a woman with ALS regained her ability to communicate through a BCI that decoded intended speech directly from neural signals, not from muscle movement, not from eye tracking, but from the brain's attempt to speak before any signal ever reached the vocal cords.

In early 2024, Noland Arbaugh, paralysed from the shoulders down had Neuralink's N1 chip implanted and was playing chess and browsing the internet within weeks of surgery. The N1 chip carries 1,024 electrodes, more than ten times the resolution of the original BrainGate array.

And who knows, maybe in the next 5 years, I'll achieve my dream of becoming the Avatar, able to control all four elements (air, water, earth and fire)

HOW CLOSE ARE WE

Honest answer: close in specific, important ways and still far in others.

What works now: cursor control, text composition, robotic arm control for simple tasks, basic communication. These are real, clinically demonstrated and improving every year.

What doesn't yet work: fine motor control at the level of natural hand movement. Current BCIs give you enough signal resolution to point, select and compose not enough to play the piano or perform surgery. The gap between "move a cursor" and "full dexterous control of a robotic hand" is large.

There are also real engineering problems. Implanted electrodes cause tissue reaction over time, degrading signal quality. Surgery carries infection risk. Non-invasive BCIs, EEG headsets that read signals from outside the skull exist but lack the resolution of implanted devices. The field is actively working on all of these.

But the direction is clear, and the pace is accelerating. More electrodes. Smaller implants. Smarter decoding algorithms. Every year the resolution goes up and the gap between intention and action gets smaller.

If you're interested in learning more about the latest advances in Brain-Machine Interfaces or related topics, consider joining the IEEE SMC 16th Workshop on Brain-Machine Interface (BMI) Systems, which will be held on October 4–7, 2026. https://www.ieeesmc.org/bmi/

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