

Multiple companies scrambling to develop brain-computer interfaces that restore movement for severely injured patients

[Jeffrey] Keefer was undergoing brain surgery to relieve symptoms of [Parkinson's disease](#)—but since his skull would be open for around four hours anyway, he had also agreed to have an experimental device called a [brain-computer interface](#) temporarily implanted.

The unit, developed by Precision Neuroscience, sat on the surface of Keefer's brain for 25 minutes, reading his mind. During that time, he performed a series of exercises with his hands while engineers matched his [brain signals](#) to his movements.

The goal is to train a device that will give paralyzed patients the ability to operate a computer with their thoughts.

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Precision is one of several companies vying to commercialize brain-computer interfaces, or BCIs. On [March 20], [Elon Musk's](#) Neuralink introduced the first person [implanted with its interface](#). In a nine-minute presentation streamed on X, Noland Arbaugh, a 29-year-old quadriplegic, used his thoughts to play a game of chess.

Physical movement originates with electrical signals in the brain that are passed through the spinal cord or brain stem, but when someone is paralyzed, the signals hit a dead end. BCIs provide a digital bypass, capturing the signals at the source and relaying the commands to a computer.

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