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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