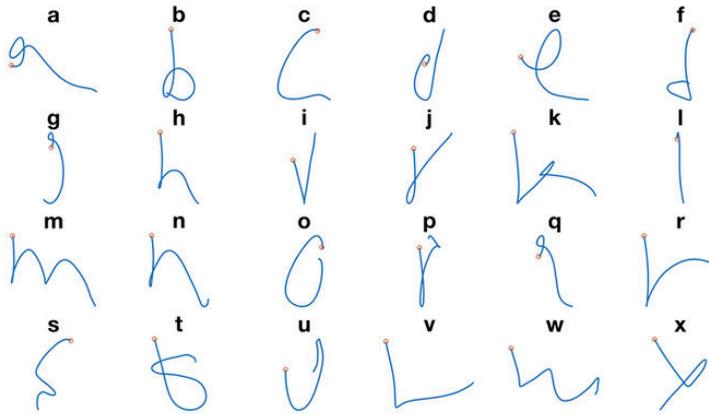


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AVERY KRIEGER

AI allows paralyzed person to 'handwrite' with his mind

By [Kelly Servick](#) | Oct. 23, 2019, 12:05 PM

CHICAGO, ILLINOIS—By harnessing the power of imagination, researchers have nearly doubled the speed at which completely paralyzed patients may be able to communicate with the outside world.

People who are “locked in”—fully paralyzed by stroke or neurological disease—have trouble trying to communicate even a single sentence. Electrodes implanted in a part of the brain involved in motion have allowed some paralyzed patients to move a cursor and select onscreen letters with their thoughts. Users have typed up to 39 characters per minute, but that’s still about three times slower than natural handwriting.

In the new experiments, a volunteer paralyzed from the neck down instead imagined moving his arm to write each letter of the alphabet. That brain activity helped train a computer model known as a neural network to interpret the commands, tracing the intended trajectory of his imagined pen tip to create letters (above).

Eventually, the computer could read out the volunteer’s imagined sentences with roughly 95% accuracy at a **speed of about 66 characters per minute**, the team reported here this week at the annual meeting of the Society for Neuroscience.

The researchers expect the speed to increase with more practice. As they refine the technology, they will also use their neural recordings to better understand how the brain plans and orchestrates fine motor movements.

Posted in: [Brain & Behavior](#), [Technology](#)
doi:10.1126/science.aaz9606



Kelly Servick

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