

In the news

TURNING NEURAL ACTIVITY INTO WORDS

A paper published in *PLoS Biology* describes how researchers recorded neural population responses in non-primary auditory cortex of individuals listening to spoken words and then reconstructed the original spoken words from the population activity.

The study shows that the superior temporal gyrus encodes certain key features of speech, such as syllable rate, and that this information is sufficient to reconstruct the complete word with surprising accuracy. "This is exciting in terms of the basic science of how the brain decodes what we hear," says study author Robert Knight, a neuroscientist at the University of California, Berkeley, USA (*Guardian*, 31 Jan 2012). Moreover, "It paves the way to rapid progress toward biomedical applications," comments Jan Schnupp of the University of Oxford, UK (*Guardian*, 31 Jan 2012). For example, it could benefit "patients who have damage to their speech mechanisms because of a stroke or Lou Gehrig's disease and can't speak" says Knight (*Telegraph*, 31 Jan 2012).

However, the technology is in its early days and would need substantial improvements before it could be used in clinical settings. According to Schnupp: "This research is based on sounds a person actually hears, but to use this for a prosthetic device these principles would have to apply to someone who is imagining speech" (*Telegraph*, 31 Jan 2012). Nevertheless, "It adds to the fascinating literature of decoding thoughts which is getting more and more precise" says Steven Laureys of the Coma Science Group at the University of Liège, Belgium (*New Scientist*, 3 Jan 2012).

Any fears of imminent mind-reading devices can be laid to rest, however. As Schnupp says: "We can rest assured that our skulls will remain an impenetrable barrier for any would-be technological mind hacker for any foreseeable future" (*Guardian*, 31 Jan 2012).

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