

# Scientists to study synthetic telepathy

13 August 2008

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A team of UC Irvine scientists has been awarded a \$4 million grant from the U.S. Army Research Office to study the neuroscientific and signal-processing foundations of synthetic telepathy.

The research could lead to a communication system that would benefit soldiers on the battlefield and paralysis and stroke patients, according to lead researcher Michael D'Zmura, chair of the UCI Department of Cognitive Sciences.

"Thanks to this generous grant we can work with experts in automatic speech recognition and in brain imaging at other universities to research a brain-computer interface with applications in military, medical and commercial settings," D'Zmura says.

The brain-computer interface would use a noninvasive brain imaging technology like electroencephalography to let people communicate thoughts to each other. For example, a soldier would "think" a message to be transmitted and a computer-based speech recognition system would decode the EEG signals. The decoded thoughts, in essence translated brain waves, are transmitted using a system that points in the direction of the intended target.

"Such a system would require extensive training for anyone using it to send and receive messages," D'Zmura says. "Initially, communication would be based on a limited set of words or phrases that are recognized by the system; it would involve more complex language and speech as the technology is developed further."

D'Zmura will collaborate with UCI cognitive science professors Ramesh Srinivasan, Gregory Hickok and Kourosh Saberi. Joining the team are researchers Richard Stern and Vijayakumar Bhagavatula from Carnegie Mellon's Department of Electrical and Computer Engineering and David Poeppel from the University of Maryland's Department of Linguistics.

The grant comes from the U.S. Department of Defense's Multidisciplinary University Research Initiative program, which supports research involving more than one science and engineering discipline. Its goal is to develop applications for military and commercial uses.

Source: UC Irvine

APA citation: Scientists to study synthetic telepathy (2008, August 13) retrieved 26 September 2020 from <https://medicalxpress.com/news/2008-08-scientists-synthetic-telepathy.html>

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