

Topic 037

Ever dreamed of recording your dreams and turning them into a video clip? The technology that enables you to do that is near: UC Berkeley scientists figured out a way to turn the way our brains interpret visual stimuli into a video, and the result is amazing.

In practice, test subjects viewed some video clips, and their brain activity was recorded by a computer program, which learned how to associate the visual patterns in the movie with the corresponding brain activity.

Then, test subjects viewed a second set of clips. The movie reconstruction algorithm was fed 18 million seconds of random YouTube videos, which were used to teach the program how to predict the brain activity evoked by film clips. Finally, the program chose 100 clips which were most similar to the movie the subject had seen, which were merged to create a reconstruction of the original movie.

The result is a video that shows how our brain sees things, and at moments it's eerily similar to the original imagery.

“This is a major leap toward reconstructing internal imagery. We are opening a window into the movies in our minds,” said Professor Jack Gallant, a UC Berkeley neuroscientist and coauthor of the study published in the journal *Current Biology*.

Example

Neuroscientists have developed a way to listen to words you've heard, by translating brain activity directly into sound. Their findings represent a major step towards understanding how our brains make sense of speech, and are paving the way for brain implants that could one day translate your inner thoughts into audible sentences.

Every language on Earth is made up of distinct acoustic features. The volume or rate at which syllables are uttered, for example, allow our minds to make sense out of speech. How the brain identifies these features and translates them into relevant information, however, remains poorly understood.

UC Berkeley researcher Brian Pasley and his colleagues wanted to see what features of human speech, if any, could be reconstructed by monitoring brain activity.