

Towards assessing and improving brain-computer interface user-training?

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Abstract

Brain-computer interfaces (BCIs) introduce promising possibilities for interacting with digital applications solely through the analysis of brain activity, often acquired using electroencephalography (EEG). For instance, BCIs enable to control the direction of a character in a video game through the imagination of right- or left-hand movement to turn in the according direction. Despite promising applications for clinical and non-clinical applications, BCIs are not yet reliable enough to be used outside research laboratories. For instance, BCIs do not work for 10 to 30% of people. Several leads exist to improve the reliability of BCIs. One of them, is to improve the user training during which the users must learn to produce different patterns of brain activity that are recognizable by the computer. Indeed, the current user training does not fit the recommendations made in the field of education. The neurofeedback, the information regarding the users' brain activity that is fed back to them, represents one main element of the user training. In this talk, I will present some previous work in which I investigated different neurofeedback and their influence on the usability of BCI user training and present some of my recent work at the intersection between virtual reality and BCIs.

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