

# Using your mood to operate a computer game

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(PhysOrg.com) -- Brain Computer Interfaces measure electrical signals from the brain and convert them into data that can be used by a computer. You can move a cursor on your screen, for example, simply by thinking about it. Now, researchers at the University of Twente have succeeded in measuring a person's frame of mind in order to create a game environment. In World of Warcraft, a friendly elf can change into an aggressive bear without any physical action being necessary.

Thanks to [Brain Computer](#) Interfaces (BCI), you can operate a machine such as a computer or wheelchair with signals from your brain. Concentrating on a particular movement will cause that movement to be actually carried out. Research is currently underway at the University of Twente into how BCI can be integrated into computer games. It is being

conducted in the Human Media Interaction department of Prof. Anton Nijholt of the Centre for Telematics and Information Technology research institute.

## World of Warcraft

Previously, BCI used to focus on brain signals that prompted movements. Now, it is also possible to measure the mood of the player and to include that as part of the game. For example, researchers have developed an application for World of Warcraft (WoW): alpha-WoW. As soon as a player becomes unsettled, or is in danger, the character can change shape. A friendly elf can be transformed into an aggressive bear. Under those circumstances, the player is much less vulnerable to other enemies. What is remarkable about this is that no physical action, such as using a joystick or mouse, is needed: it is all done through brain signals! As soon as a player relaxes, he returns to being an elf.



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## Electrodes cap

Brain activity is measured using electroencephalography (EEG). Electrical signals from the brain can be measured and localized by placing electrodes on a cap - a sort of bathing cap - which is worn on the head. The disadvantage of EEG is that it can only measure signals that originate from near the surface of the skull, although they are precisely the signals that are of interest for the purpose of this research. With the help of BCI, the electrical signals from the brain are converted into data that the computer can use.

The electrode caps that are currently being used are not really practicable for the average player, as gel first has to be rubbed onto those parts of the head where the electrodes are placed. Nevertheless, developments are progressing positively and should mean that it will be possible to use a so-called 'dry cap' with fewer [electrodes](#). A helmet of this kind could also have other functions, by being fitted with a music player or telephone, for example.

Provided by University of Twente ([news](#) : [web](#))