

Wednesday, 07 March 2012, 17:00 hrs

Stephanstrasse 1 a

Wilhelm Wundt Room, 4th Floor

Guest Lecture

Dr Michael Tangermann

Berlin Institute of Technology, Department Machine Learning, Berlin, Germany

Auditory Brain-Computer Interfaces

Utilizing the auditory sense for the control of a Brain-Computer Interface (BCI) is a relatively recent research area. Compared to the strength of visual event related potentials (ERP) of the EEG, auditory stimuli typically revealed much weaker ERP responses, which was a drawback for early auditory BCI approaches.

During the last two years, however, the field has experienced a strong improvement due to new experimental paradigms, which exploit the ability of users to spatially attend to target stimuli. In combination with modern machine learning methods, the single trial analysis of ongoing brain activity opened up a growing number of application areas, e.g. communication and control for patients that have reduced deliberate motor control (including gaze control), or the online monitoring of (spatial) auditory attention as a tool for the neurosciences and to support the development of assistive technology.

In my talk, I will introduce the basics of auditory ERP first, then present the state of the art research for online spelling with auditory BCI systems.