

ENB Elite Master Program Neuroengineering (MSNE) Invited Presentation

Prof. Maarten De Vos

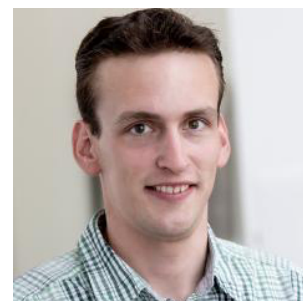
Towards mobile and wearable brain monitoring

Abstract

All non-invasive technologies for the study of human brain activity suffer from the requirement that only artificial, movement-constrained behavior is allowed. However, by reducing “normal” behavior to a minimum the ecological validity of the results can be limited. To overcome these limitations, we developed a truly mobile EEG system suitable for field recordings and natural situations which allows to decode single-trial brain responses in outdoor situations. We also demonstrated that signal quality of the mobile EEG system is equivalent to that of a standard lab amplifier in a traditional BCI experiment. Besides mobility and robustness with respect to motion, the critical issue before introducing EEG routinely in large studies became the electrode, as ideal EEG electrode would allow high quality and concealed recordings that can be conveniently attached to the head. We will demonstrate that a newly introduced cEEGrid electrode concept fulfills all these requirements and allows to monitor auditory attention reliably over long amounts of time.

Biography

Maarten De Vos is Associate Professor at the IBME, in the University of Oxford, following a Junior Professorship at the University of Oldenburg, Germany. He obtained his Ph.D. in electrical engineering from KU Leuven, Belgium, focusing on tensor-based decomposition methods. His academic work focuses on innovative biomedical monitoring and signal analysis, in particular the derivation of biosignatures of patient health from data acquired via wearable sensors and the incorporation of smart analytics into unobtrusive systems. He pioneered research in the field of mobile real-life brain-monitoring, which was awarded with several innovation prizes. His work on neonatal brain monitoring also achieved impact in patient care through the Neoguard implementation project. After successful completion of the Biodesign faculty training at Stanford University, he started the Oxford Biodesign program.



Time and Venue

Talk is hosted by the Professorship for Neuroscientific System Theory (Prof. Conradt).

Friday, November 25th 2016, 15h00

Karlstr. 45, 80333 Munich, Room 1025

All talks in the MSNE Invited Speaker Series are open to students, staff, and members of the public. Attendance is free.
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