

Creating more accessible platform for neurofeedback using an open-source EEG

This bachelor thesis was carried out in Biohackeri in collaboration between STUNS and Uppsala University. Biohackeri is a non-profit association that aims to make research, especially in biology and biotechnology, accessible to everyday people. The purpose has been to study the possibility of creating a neurofeedback platform via OpenBCI open-source EEG technology that would lead to a more accessible neurofeedback in society.

The study was conducted with different methods where the focus was on research, testing, and data analysis. The study has included a summary of theory currently used in neurofeedback, a small-scale pilot study and a presentation on the ethical aspects behind the technology and neurofeedback in Sweden.

In the results, we discuss the availability of neurofeedback from three perspectives: the theory perspective, the 8-channels EEG test results, and the ethics perspective. From the theory we present a discussion of the Othmer method which is characterized by the so-called Infra-low frequency in neurofeedback therapy. This was made possible with the help of an interview with the expert Gunilla Radu, founder and owner of Nordic Center of Neurofeedback AB.

From the tests with 8-channel EEG via OpenBCI hardware and software, we were able to present our results to two subjects and show answers to a follow-up survey as an evaluation of the tests performed. The advantages of the tests were to give Biohackeri an opportunity to see the potential applications for a neurofeedback platform and to create a basis for a further development of such a platform.

When it comes to requirements and rules that neurofeedback therapists should meet, it turned out that in Sweden therapists do not need to have a specific background or education. There are ethical perspectives that neurofeedback therapists can consider implementing neurofeedback therapy.