Customizable Sonic EEG Neurofeedback Environment to Train Self-Regulation of Momentary Mental and Emotional State

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Abstract : We developed purely sonic, musical based, highly customizable EEG neurofeedback environment designed to administer a new neurofeedback training protocol. The training protocol concentrates on improving the ability to switch between several mental states characterized by different levels of arousal, each of them correlated to specific brain wave activity patterns in several specific regions of neocortex. This paper describes the neurofeedback training environment we developed and its specificities, thus can be helpful as a manual to guide other neurofeedback users (both researchers and practitioners) interested in our editable open source program (available to download and usage under CC license). Responses and reaction of first trainees that used our environment are presented in this article. Combination of qualitative methods (thematic analysis of neurophenomenological insights of trainees and post-session semi-structured interviews) and quantitative methods (power spectra analysis of EEG recorded during the training) were employed to obtain a multifaceted view on our new training protocol.