

INTERACTIVE SONIFICATION OF VISUAL EVOKED POTENTIALS EVOKED BY ILLUSIONS

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ABSTRACT

Visual processing in the brain creates several types of visual evoked potentials (VEP) in our brainwaves. A VEP is an evoked potential caused by a visual stimulus, which is measured by the electrical response of the brain's primary visual cortex to a visual stimulus in this case optical illusions. Optical illusions are distortions of the senses, which are caused by the visual system. The goal of this research is to develop an expressive interface using visual perceptive EEG data to create a framework by converting VEP data into objects through specific algorithms and mappings that will provide sonic and/or visual output of this neurofeedback information. The proposed interface utilizes brainwave data in the form of VEP components triggered by optical illusions that interactively manipulate audio/visuals in a multi-channel, 3D environment. The VEP objects can be played as an instrument via this user-controlled interface such as mixing and parameter control to create evolving and dynamic compositions. The interest lies in exploring how sonification of this complex data can inform about visual perception as well as offer new forms of artistic expression.

