
Deep Reality: Towards Increasing Relaxation in VR by Subtly Changing Light, Sound and Movement Based on HR, EDA, and EEG

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ABSTRACT

We present an interactive Virtual Reality (VR) experience that uses biometric information for reflection and relaxation. We monitor in real-time brain activity using a modified version of the Muse EEG and track heart rate (HR) and electro dermal activity (EDA) using an Empatica E4 wristband. We use this data to procedurally generate 3D creatures and change the lighting of the environment to reflect the internal state of the viewer in a set of visuals depicting an underwater audiovisual composition. These 3D creatures are created to unconsciously influence the body signals of the observer via subtle

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pulses of light, movement and sound. We aim to decrease heart rate and respiration by subtle, almost imperceptible light flickering, sound pulsations and slow movements of these creatures to increase relaxation.

CCS CONCEPTS

• **Human-centered computing** → **Virtual reality**; *User centered design*; • **Applied computing** → *Consumer health*.

KEYWORDS

Virtual Reality, Affective Computing, Relaxation, Well-being, Physiological signals, Interactive, BCI, Biofeedback

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