Electrodermography and heart rate sensing for multiclass emotion prediction in virtual reality: A preliminary investigation

ABSTRACT

This paper demonstrates a method for classifying multi-model emotions using a combination of Heart Rate (HR) and Electrodermography (EDG) signals with SVM (Support Vector Machine) as the classifier in Virtual Reality (VR). A wearable was used during the experiment to acquire the subject's HR and EDG signals simultaneously while watching 360O videos in VR. The acquired signals are then classified with SVM in a multi-class model for valence and arousal. The experiment conducted is for 10 intra-subject classifications, in which two subjects achieved the best accuracy of 99.5%, while for inter-subject classification of 10 subjects achieved 66.0%, This paper demonstrates that combined signals of HR and EDG can provide high accuracy for multi-class emotion classification in VR.