Project - The Game Cube®

Technologies for human-computer interactions

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1   Introduction

The goal of this project is to build a game exploring original human-machine interactions. For that, we used a galvanic skin response (GSR) sensor as the main mean of interaction and the `Blender` 3d software to create the game. In our project, we use the GSR data - which measures skin conductance - as an indicator for stress and arousal. The goal of the game is for the player to manage her stress level and relax.

2   Project

2.1   Sensor data

We started from the premise that the GSR sensor could be used as an indicator of excitement. Psychological arousal is linked with nervous activity that changes skin conductance. However, data from the GSR sensor isn't necessarily stable and skin conductance is subject to sudden changes (spikes) that doesn't reflect a general state of being.

In our game, we used a statistical analysis technique called **moving average** to smooth out the data. The advantage of the moving average is that it reduces the impact of spikes but still preserves long-term tendencies, similarly to a low-pass filter. This technique is usually used in finance and economy to represent trends over time, which is what we want with real-time acquisition of data. The disadvantage of this technique is that there is a slight delay in the

example

formula why use constant no peak directly translated into rotation comparison with....

2.2 Game design

missions etc

2.3 Blender

style

3 Evaluation

4 Conclusion