Time-related illusion experience system for "wellness entertainment"

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In connection with research that applies interactive multimedia art to useful "serious games" such as in the field of welfare, I focus on "wellness entertainment" that is linked to mental health. The surprising feeling that humans experience in the illusion experience is related to the production of intimacy and novelty that is also explained in evolutionary biology, and it is considered to be a theme suitable for "wellness entertainment" from the viewpoint of brain activation.

As an efficient prototyping tool, I have used Cycling74's "Max" as a development environment, and have produced several interesting visual illusion demonstrations in the area of basic psychology. Many visual illusions are provided as still images or looping videos. But I've added a new level of interactivity to the system, rather than only watching passive content. This provides a new discovery of the illusion and activates the brain by the experience as entertainment. This wellness experience leads to the prevention of mild dementia. In this presentation, I will give more details on the auditory, temporal, and multimodal illusions than with the popular visual illusions, along with practical examples.

(1) In a system embodying the claims in Gibson's book advocating affordance perceptual psychology, people can experience that what was considered "invisible" in classical visual psychology theory is actually "visible". (2) The interactive illusion experience system inspired by recent interesting illusion loop videos consists of 16 small circles, each of which oscillates sinusoidally in the radial direction from near the center of the screen. Making these phases freely changeable individually creates a surprising experience of perceiving rotational motion as a whole, but this is not imaginable just by looking at the fixed loop video. (3) In the illusion still image entitled "The bulge illusion", two small squares, like as "eyes", are arranged according to a certain rule inside each square on a checkered background. I have developed an interactive illusion system that can change the size of two small squares like the "eye" and the position of the background in the grid by one pixel. The effect was more than expected, and it became a wellness entertainment that realized intellectual surprises that could not be experienced with mere still image illusion material. (4) As a good example of the auditory illusion and the time illusion, I would like to introduce an example of an interactive illusion system that I created inspired by a topic provided by a lecturer at a keynote lecture at a conference. This is a topic of an experiment in which a hole is made in the skull and the mouse brain is exposed to infrared rays to observe the response to auditory stimuli. It is impossible to actually do this for humans. If the perceived audio signal is divided into short segments of equal length, and each segment is played back in reverse time, under certain conditions, both mice and humans can perceive the meaning of the audio signal - the demo video was just one fixed example. Therefore, I developed a system that can freely control the time scale for splitting the audio signal into equal lengths and playing back in reverse. My students enjoyed experiencing the phenomena actually advocated by humans, this is the welness entertainment. (5) I will also introduce other examples of time illusions and look forward to discussing with you.