사운드 시각화 기능을 가진 중국 악기

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Chinese Instrument with Sound Visualization function

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● 요 약 ●

The music with the times, evolved from analogous tape music to digital music. New authoring tools, interfaces, and applications make us to produce high quality music using cheap equipments. Inspired by this concept, we design an classical chinese style-instrument with the audio-visual interactive function. It enables a user to compose music and to see a vivid picture at the same time.

키워드: 음악시각화(music visualization), 인터랙티브(interactive), 악기(instrument), 중국(Chinese)

I. 서 론

From the Greek roots of the phenomenon of synesthesia is defined by contemporary scientists as "an involuntary joining in which the real information of one sense is accompanied by a perception in another sense[1]." Digital technology now makes it possible to break down rudimentary information into discrete packets of numbers and/or electrical signals. This enables computers to automate mappings of various analogous structural characteristics from one type of media to another. This is a technique used by many modern music visualizers. While technology may make mappings between elements easier to perform, applying theories of aesthetic expression can result in visuals that better reflect the overall mood and characteristics of the music. The aesthetic principles and the creator's perceptions of the various corresponding media should be analyzed, compared, and then used as criteria when attempting to create digital synesthetic art. For example, Windows Media Player's visualization [2] is the early form of music visualization, which provided a useful reference work for visual music. Windows Media Player offers an opportunity to "see" a song at the same time listeners are listening to it, through visualizations. These visualizations produce animated effects that are derived from changes in volume and pitch of the music.

Some basic visualizations produce oscillation effects like those viewed on an oscilloscope.
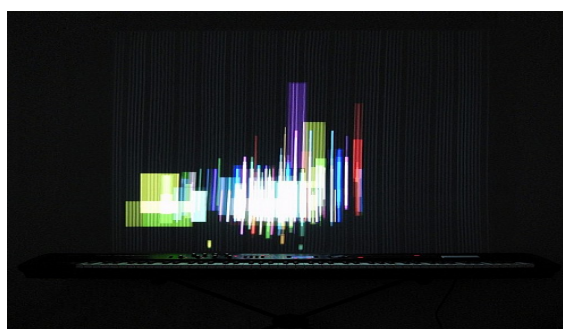

그림 1. 소리 시각화 예
Fig. 1. An sound visualization example

As shown in this picture, a designer connected a piano with a screen so that visualization forms can be showed on the screen when a user plays a note on the piano. However this process is rather too simple because only abstract patterns and colors do not give unconventional and artistic feelings.

Therefore we decided to design an interactive artwork that has typical Chinese classical style. We proposes a physical image desktop with sound visualization in the next section.

III. 본 론

We use a classic instrument designed by ourselves as a carrier of music and visions. Red lights substitute strings of the instrument and images and sound will be appeared on a table when the red lights are touched. The structure is as follows:
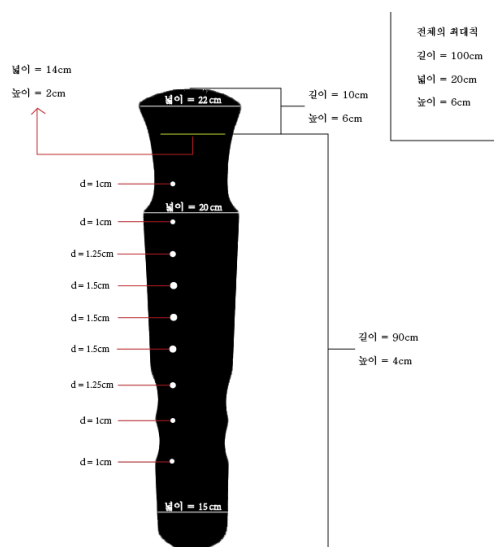

그림 2. 시스템 구조
Fig. 2. System Architecture

- infra-red lights and light sensors are installed on each side of the instrument.
- speakers and dry-ice are placed inside a hole on the instrument.
- dry-ice is emitted from the two sides of the instrument and images are directed from the top to the bottom

IV. 결 론

Visual music art is not simply contains computer produced 3d images. Instead, it contains images that are immersed in a virtual environment. 'Immersive' is defined as noting or pertaining to digital technology or images that deeply involve one's senses and may create an altered mental state. Immersive therefore for instance, a role played by an actor, a scene viewed by an audience, which means that a spectator or an audience, as a part of an artwork can influence the course of a performance. The extension of creativeness derived from visual music mainly is the unity of immersive art and artificial technology and integration of modern media such as images, sound, video. The future graphical images are involved with immersive art which makes possible for spectators to be separated from outside of the world by the transferring ones' feeling from the real world to a illusionary world.

감사의 글

참고문헌

[1] R. Cytowic, "Synesthesia: A Union of the Senses" pp. 1, Springer-Verlag, NY.

[2] Visualizations for Windows Media Player, http://windows.microsoft.com/en-US/windows/windows-media-player-visualizations