Auditory Interface Problems and Solutions for Commercial Multimedia Products

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Abstract: This paper will explore the various aesthetic, technical, and musical issues that sound designers face when creating audio for commercial products. I will draw from my experience at and use materials from Broderbund Software. In the first section, I will discuss issues concerning interface sonification. In the second section, I will briefly illustrate a quick musical solution to a potentially large logistical problem. In the last section, I will show a solution for balancing digital audio and MIDI on a variety of devices, drivers, and operation systems.

Part One: Sonification-Creating Interface Sound Effects

Sonification of the graphical user interface provides the user with audio feedback regarding the user's actions. By receiving this feedback, the user experiences the GUI as having a tactile quality. The user also receives information about the physical nature of the various devices that augments the GUI's metaphor. In addition, the designer can juxtapose interface objects with sounds that exaggerate or contradict the object's graphical quality in order to enhance the humor and the entertainment value of the user's experience. To illustrate my point, I will discuss the sound design of Broderbund's Alien Tales (a.k.a. Reading Galaxy). Alien Tales is a TV-like game show set on board a space station located in the far reaches of the galaxy. In the game, the player confronts contestants who are alien impostors claiming to be the authors of books written by famous Earthlings. The dialog is often zany and filled with mixed metaphors and incorrectly used clichés, and these conditions create an air of wackiness and fraud. I chose to mimic the paradigm of the overarching story and wacky atmosphere in creating the interface sound effects. Seemingly high-tech devices sound low-tech and strengthen the idea that the screen is a TV set filled with props, and that there are impostors on board.

For example, a menu rises from below the screen and asks a player to either begin play or to try to read the relevant book passages before proceeding with the game. When the device appears, the player hears a stage-hand straining to lift the heavy sign. Once the player pushes a button, the sound of an rickety oven door slamming shut emanates from the speakers and, the sign lowers. The player then hears the unseen stage-hand first sigh with relief and then fall down and crash into some junk. Another device appears when the player looses. The player sees a sign descend from the top of the screen and display a high-tech, zany neon message. The accompanying sound of a heavy, chain driven contraption enhances the fact that the player has just lost. Yet another device is a betting machine that springs up from below the screen. (The ringing sound of an old cash register is associated with this selection.) When the player has completed the transaction and the device descends from view, the user hears the stage-hand's efforts to pull the spring down. These examples show how the audio design of the interface reinforced the game environment. Visually, there is nothing to suggest that the interface items are props. Sound makes it easy to accomplish this task without compromising the visual aesthetic. Before proceeding with the sonification of the game could occur, the sound designer had to identify the stylistic paradigm that directed the design of the interface. In this case, the paradigm afforded a wide range of possibilities for both humor and storytelling.

Part Two: A Musical Solution for a Production Problem

In another project, Where in the USA is Carmen Sandiego, we encountered a logistical problem during production. We had received animation files ready for sound implementation that had the villain characters laughing just before they were caught by the player. Because the player has heard the villain's voice during game play, it would have been aesthetically correct to have that character's voice do the laughing. Such sound matching would normally not be a problem. This time, however, the art design

changed in mid-production, and we sound designers were not alerted of the changes until after we had completed all of the dialog recording. Moreover, the actors were not available to return. My associate, Michael Barrett, came up with a clever solution to the problem. We agreed that putting in canned laughter would not be acceptable. So Michael composed a little ditty that described laughter in a musical way. His musical track heightened the humor of the animation and quickly solved our logistics problem. [see attached movie]

Part Three: Balancing MIDI and Digital Audio Across Various Software Drivers and Devices

In the First Degree is an interactive drama in which the player's responses direct the flow of the story. The music was composed by Michael Becker, and I served as an advisor and an arranger. The MIDI music accompanying the game sets the dramatic mood of the situation without overshadowing the dialog. In this case, the challenge involved arranging the MIDI files so that they would both sound good on as many sound cards as possible and balance well with the dialog. If there were only one device to consider, the situation would have been a musically important but a technically trivial task. However, because the General MIDI standard is what it is and because each device behaves in subtly different ways, there was no assurance that we could depend on the standard. I was put in charge of with making sure that the MIDI music was properly arranged for both FM and Wave Table synthesizers on various devices and operating systems. The ability of Broderbund's tools to detect and reset whatever driver is on the user's machine provided the solution to my problem. Therefore, I had the ability to customize global VOLUME and EXPRESSION settings for any device on the market. These model devices included the Sound Blaster Pro card with the Yamaha OPL2/3 FM synthesis chip, the Sound Blaster AWE-32 Wave Table synthesizer, and the Roland Sound Canvas family of synthesizers. The Roland Sound Canvas was used as the model that the composer used to create the music. As I was working, I discovered that the Win95 and the Win3.1 drivers had different overall VOLUME ranges. This difference meant I had to balance the music on each driver in each operating system. VOLUME was set globally for use with all devices because this parameter is used by the application to fade out the MIDI sequences. These volume setting had to be accurate for FM devices as such devices do not support EXPRESSION. The latter parameter was used to set custom values for each of the Wave Table devices. Once this approach was identified, the challenge became defining the appropriate settings for each device driver. Finding these settings required several iterations of editing and evaluating the data within the context of the product. A compromise set of values was eventually reached and was delivered to the programmer.

Compromise Values Delivered to Programmer

Conclusion

To most lay people, the sound designer provides a type of data that have an intangible nature. Few non-audio workers have the vocabulary of terms required to describe what is needed to create a rich computer experience in the auditory realm. Therefore, the sound designer must guide the non-audio workers in the aesthetic process and provide them with the intangible material needed to make virtual objects appear tactile and real. In the process of making such objects appear real, the sound designer has the opportunity to enhance the humor and the entertainment value of the computer user's experience.

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