



A HISTORY OF VIDEOGAME MUSIC AND SOUND

Computer gaming week 7

DIFFERENT TYPES OF SOUND IN MEDIA

- DIEGETIC (*from inside the DIEGESIS*) refers to sound that BOTH the audience and the characters can hear. *This would be sound effects or music played in the scene.*
- NON-DIEGETIC refers to sound that ONLY the audience can hear. *Typically, this would be Soundtrack music – played for effect, to build tension in the audience but not part of the scene itself*
- Sound is a powerful technique in media for many reasons.
- To begin, sound engages a distinct sense which can lead to a “synchronization of senses” -- making a single rhythm or expressive quality unify both image and sound.

THE POWERS OF SOUND

- Secondly, sound can direct our attention quite specifically within the image
- *For example, our attention on the foreground not the background.*
- The soundtrack can clarify image events, contradict them, or render them ambiguous.
- In all cases, the sound track can enter into an active relation with the image track.
- Sound also cues us to form expectations.
- *For example, a door creaking would make us expect someone or something has entered the room.*
- The use of sound can creatively cheat or redirect the player's expectations.
- In addition, sound gives a new value to silence.
- *For example, a quiet passage in a game can create almost unbearable tension, forcing the viewer to concentrate on the screen and wait in anticipation for whatever sound will emerge.*

- Lastly, sound is full of many creative possibilities through editing.
- The sound engineer can mix any sonic phenomena into a whole piece or effect.
- The infinity of visual possibilities is joined with the infinity of acoustic possibilities to create meaningful results.
- <https://youtu.be/1LADCeI28YQ>

<https://youtu.be/OONaPcZ4EAs>



VIDEO GAME MUSIC

- With advances in technology, video game music has grown to include the same breadth and complexity associated with television and [film scores](#), allowing for much more creative freedom.^[1] While simple synthesizer pieces are still common, game music now includes full orchestral pieces and [popular music](#). Music in video games can be heard over a game's title screen, options menu, and bonus content, as well as during the entire gameplay.^[1] Modern soundtracks can also change depending on a player's actions or situation, such as indicating missed actions in [rhythm games](#).



EARLY VIDEOGAME SOUND

- At the time video games had emerged as a popular form of entertainment in the late 1970s, [music](#) was stored on physical medium in analog waveforms such as [compact cassettes](#) and [phonograph records](#). Such components were expensive and prone to breakage under heavy use making them less than ideal for use in an [arcade cabinet](#), though in rare cases, they were used ([Journey](#)). A more affordable method of having music in a video game was to use digital means, where a specific computer chip would change electrical impulses from computer code into analog sound waves on the fly for output on a speaker. Sound effects for the games were also generated in this fashion. An early example of such an approach to video game music was the opening [chiptune](#) in [Tomohiro Nishikado's Gun Fight](#) (1975)



IMPROVEMENTS IN SOUND

- As advances were made in silicon technology and costs fell, a definitively new generation of arcade machines and [home consoles](#) allowed for great changes in accompanying music. In arcades, machines based on the [Motorola 68000](#) CPU and accompanying various [Yamaha YM programmable sound generator sound chips](#) allowed for several more tones or "channels" of sound, sometimes eight or more. The earliest known example of this was [Sega's](#) 1980 arcade game [Carnival](#), which used an [AY-3-8910](#) chip to create an electronic rendition of the [classical](#) 1889 composition "[Over The Waves](#)" by [Juventino Rosas](#).^[10]



PRERECORDED AUDIO

- Taking entirely pre-recorded music had many advantages over sequencing for sound quality. Music could be produced freely with any kind and number of instruments, allowing developers to simply record one track to be played back during the game. Quality was only limited by the effort put into mastering the track itself. Memory space costs that was previously a concern was somewhat addressed with optical media becoming the dominant media for software games. CD quality audio allowed for music and voice that had the potential to be truly indistinguishable from any other source or genre of music.
- This was the beginning of what is often considered to be “less videogamey sounding” videogame music.



EARLY PROBLEMS WITH THIS

- However, there were several disadvantages of regular CD-audio. Optical drive technology was still limited in spindle speed, so playing an audio track from the game CD meant that the system could not access data again until it stopped the track from playing. Looping, the most common form of game music, was also problem as when the laser reached the end of a track, it had to move itself back to the beginning to start reading again causing an audible gap in playback.



MORE IMPROVEMENTS

- Sequencing samples continue to be used in modern gaming for many uses, mostly RPGs. Sometimes a cross between sequencing samples, and streaming music is used. Games such as *Republic: The Revolution* (music composed by [James Hannigan](#)^[31]) and *Command & Conquer: Generals* (music composed by Bill Brown) have utilised sophisticated systems governing the flow of incidental music by stringing together short phrases based on the action on screen and the player's most recent choices (see [dynamic music](#)). Other games dynamically mixed the sound on the game based on cues of the game environment.
- As processing power increased dramatically in the 6th generation of home consoles, it became possible to apply special effects in realtime to streamed audio. In *SSX*, a recent video game series, if a snowboarder takes to the air after jumping from a ramp, the music softens or muffles a bit, and the ambient noise of wind and air blowing becomes louder to emphasize being airborne. When the snowboarder lands, the music resumes regular playback until its next "cue". The [LucasArts](#) company pioneered this interactive music technique with their [iMUSE](#) system, used in their early adventure games and the *Star Wars* flight simulators *Star Wars: X-Wing* and *Star Wars: TIE Fighter*. Action games such as these will change dynamically to match the amount of danger. Stealth-based games will sometimes rely on such music, either by handling streams differently, or dynamically changing the composition of a sequenced soundtrack.



EVOLUTION OF MUSIC IN VIDEOGAMES

- <https://youtu.be/OeBG0QIRNtY>