Music, Sound, and Video Games

Ming Chow
Tufts University
Department of Computer Science
mchow@cs.tufts.edu

The Significance and Importance of Music and Audio in Games

- Video Games Live! http://www.videogameslive.com/
- PLAY! http://www.play-symphony.com/
- Direct complement to gameplay
  - Feedback and interaction (duh!)
  - Immersion
  - Sensation
  - Sets the stage, genre, tone, and mood of the game; integral part of the foreground
- Catchy, memory (psychological?)
- Technological, economic, ideological, social, and cultural pressures have contributed to the development of game audio
- Constrained by genre and audience expectations

Brief History of Game Music and Sound

- Way before the 70s: slot machines
- The '70s: not symphonic; bloops-and-bleeps; *Pong*; *Simon*; *Gunfight*; *Space Invaders* (heart rate)
- Early '80s: waka-waka-waka; ditties
- Remainder of the '80s (8-bit): loopy music; MIDIs; *Final Fantasy*; *Tetris*; Game Boy (4 channels for sound)
- The '90s (16-bit): Sega Genesis (6 channels for sound); play-by-play (read: any of the *Madden* games); drum samples; stereo effects
- The '90s (32-bit): CD quality sound
- Current: Soundtracks; ambient sound; custom sound generation; full integration to gameplay

Terminology

- *Interactive* audio - Triggered by player's direct input
- *Adaptive* audio - Reacts to various game states
- ***Dynamic*** audio - Encompasses both interactive and adaptive audio (i.e., changes in gameplay environment)

Sound Production in Games

- Composers - Write the music
- Sound designers - Develops and implement non-musical sounds
- Voice talents - Performs the dialog
- Audio programmers - Programs how everything above functions together in game
- Good read: "Getting Game Audio Right: The Big Picture" (Gamasutra) http://www.gamasutra.com/view/feature/5868/getting_game_audio_right_the_big_.php

Adaptive and Dynamic Audio in Games

- Loopy audio is frowned upon and games are now largely non-linear
- Effective and non-boring
- Use of cues and fades
- Variability
  - Tempo (*Space Invaders*, *Super Mario Bros*)
  - Pitch (*The Legend of Zelda: Ocarina of Time* and beyond)
  - Volume (menus)
  - Melody (*Final Fantasy* series)
  - Open form (*The Legend of Zelda: Ocarina of Time* and beyond; *Grand Theft Auto III* and beyond)

Examples

- *Pong*
- *Donkey Kong*
- *Super Mario Bros*
- *Final Fantasy*
- *Michael Jackson's Moonwalker*
- *Castlevania: Symphony of the Night*
- *Final Fantasy IX*
- *The Legend of Zelda: Wind Waker*
- *Grand Theft Auto: Chinatown Wars*

Challenges and Looking Ahead

- Sound and audio can now make or break a game
- The demand for rich audio experience in a game has never been higher
- Innovating in game audio is a tough problem
- Ambience is still very popular
- In general, game study in academia is still in its infancy; many facets of the field are unchartered

References

- http://www.npr.org/templates/story/story.php?storyId=89565567
- http://planetromero.com/2009/12/the-importance-of-game-music
- http://www.gamespot.com/gamespot/features/video/vg_music/index.html
- http://www.gamasutra.com/view/feature/4257/the_next_big_steps_in_game_sound_.php
- **Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design** by Karen Collins, http://www.amazon.com/Game-Sound-Introduction-History-Practice/dp/026203378X