

Runaway Reverie

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ABSTRACT

Runaway Reverie is a 3D platformer that also functions as an interactive song. Through the course of the dream-like game, players explore how their movement, location, and interactions with the environment affect musical parameters.

This work was built using the Superpowers HTML5 engine using visual assets by Sparklin Labs, and extending the game engine's audio capabilities with Conductor and MultiSoundPlayer classes, which derive inspiration from layer and loop-driven interactive audio engines driven such as FMOD and Wwise. The implementation of these new functionalities demonstrates that such high-level game audio concepts can be applied to Web Audio as well.

Finally, the artist hopes that the game will serve as a demonstration that interactive multimedia experiences, especially those that incorporate music and audio as an essential element, can make use of web technologies for ease of access.

1. MUSICAL GAMEPLAY

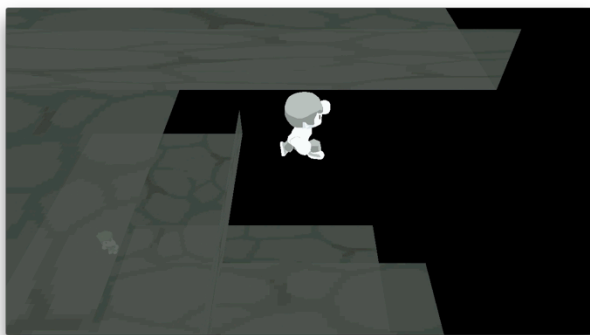


Figure 1. Screenshot of *Runaway Reverie* gameplay.

Figure 1 shows a screenshot from a gameplay session of *Runaway Reverie*. The player uses arrow keys or WASD to move and space to jump.

Using these controls, the player is able to affect different attributes of the music heard. On a low level, individual sounds

are triggered by individual player actions; for example, every time the player moves, a cello track fades in, and the cello fades out as soon as the player becomes stationary. Similarly, every jump will trigger a synthesizer note drawn from a pool of samples that are tied to the underlying harmony at that given moment.

Higher-level musical actions are possible as well. For example, once the player reaches the second platform, drums enter, and once the player interacts with the first avatar, the first verse will begin. Likewise, during the second verse, the player can vary the instrumentation simply by going within a close proximity of any of the three avatars; each one will cause different instruments to enter and exit, all in accordance with the progression of the verse..

A webpage with links for download as well as online play is available at <http://usdivad.com/runaway-reverie>.

A video playthrough of the game can be found at <https://vimeo.com/191660751>.

2. CONDUCTOR AND MULTISOUNDPLAYER

The sound additions to the Superpowers HTML5 game engine comprise two new classes: the Conductor and MultiSoundPlayer.

The MultiSoundPlayer class is comprised of multiple SoundPlayers and provides methods for smoother and more robust audio in the form of an “init, loop, tail(s)” scheme, allowing for looped sections of varying repetitions to begin and end seamlessly. The first time a MultiSoundPlayer class is played, it will play the “init” sample; subsequent plays will trigger the “loop” sample, and when it is designated to stop or transition it will play the “tail” sample at an appropriate time (encoded as beat numbers). The “tail” sample will only be played if the current beat number is marked as valid.

The Conductor class maintains a collection of MultiSoundPlayers and schedules audio events based on beats per phrase according to an internal metronome that uses the Web Audio API's clock for timing.

Source code and documentation of both classes can be found at http://usdivad.com/portfolio/superpowers_sound_additions.pdf.

3. ACKNOWLEDGEMENTS

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