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AI Soundscape Empowerment and Music Dissemination in "Only Dream of the Red Chamber · Theatre Illusion City"

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Abstract

Soundscape serves as a paradigmatic practice for reproducing cross-media narratives and disseminating music. In "Only Dream of the Red Chamber · Theatre Illusion City,"the core aim is to distill a codified soundscape system that aligns with audience perceptual expectations and to apply dissemination technologies effectively, while avoiding deconstructive risks that may arise from the incorporation of contemporary expressive elements. The study highlights how AI-enabled soundscape design translates literary imagery into perceptible auditory IP, and how such systems, integrated with immersive tourism contexts, can amplify both cultural value and economic value.

Keywords

AI Soundscape; Sound Design; Immersive Tourism; Music Dissemination; Cross-Media Narrative; Dream of the Red Chamber; Theatre Illusion City.

1. Introduction

1.1. Background and Significance

The concept of soundscape originated with Canadian composer R. Murray Schafer in the early 1970s to describe and propagate aesthetic and cultural memory[1]. Soundscape treats sound as a representation of physical space[2], offering new perspectives for expressing perception and cultural identity, and for re-creating and interpreting classic memories.

Immersive travel and cultural tourism projects have emerged as a new practice form. In China, a distinctive full-sensory soundscape industry has given rise to immersive theatre-city experiences known as "Theatre Illusion City," including projects such as "Only Emei Mountain · Theatre Illusion City," "Only Henan · Theatre Illusion City," and "Only Dream of the Red Chamber · Theatre Illusion City." The Red Chamber project, located in Langfang, Hebei, integrates traditional literary classics with modern technologies to deliver a comprehensive, multi-sensory audience experience.

1.2. Significance of the Study

"Only Dream of the Red Chamber" utilizes soundscape layouts and visitor routing to embed music into narrative logic, guiding audiences from spatial displacement to cultural immersion. Sound and image positioning and multi-channel technologies reinforce character emotional clustering. The music reconstructs literary imagery with folk instrument timbres and through thematically repetitive variations to translate the Red Chamber imagery into a tangible auditory IP, while grounding the soundscape in the tourism experience. The study identifies how soundscape enhances cognitive experiences, activates classical memories through auditory-symbolic translation, and delivers tangible cultural and economic value in immersive tourism-thereby offering a model for cross-media audio-visual storytelling in cultural heritage contexts.

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2. Project Overview and Design Principles

2.1. Project Overview

"Only Dream of the Red Chamber · Theatre Illusion City" is a large-scale immersive live performance project led by the acclaimed director Wang Chaoge's team. The park adopts a creative strategy of "deconstruction of tradition, spatial reconstruction, and experiential deepening," guided by an East-meets-West aesthetic of "both true and false, emptiness and implication, cyclical traversing." The project merges cutting-edge scenography, installation art, and stage soundscape design to re-create the classic Red Chamber narrative and to create a holistic, immersive theatre-goer experience.

2.2. Design Concept

The design emphasizes the metaphor of "Seeking Dreams" and spatial design modeled after traditional Chinese city planning, using a grid-based layout. Each grid functions as an independent scene space for storytelling, enabling deconstruction of different plots while maintaining the richness of the original work and providing an adaptable, timeless expansion space.

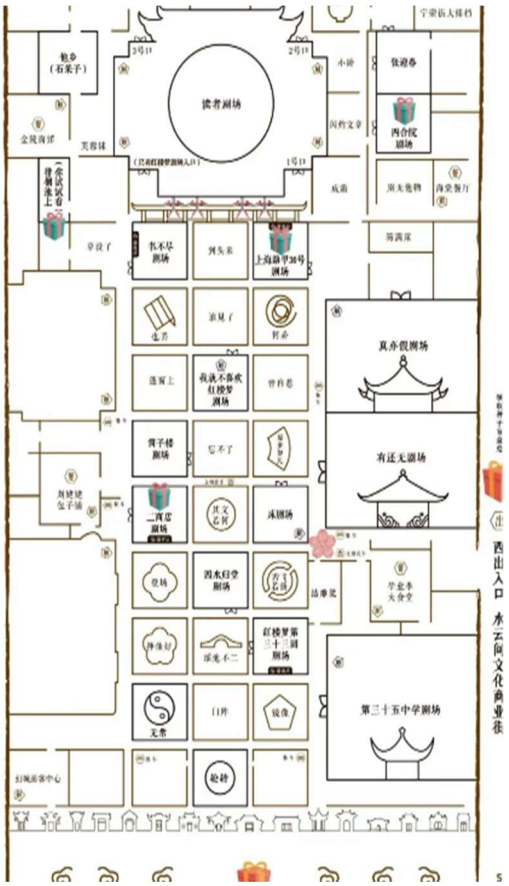

Figure 1. Tour Map of the "Only Hongloumeng" Scenic Area

3. Soundscape Space Design Analysis

3.1. Sound Environment Analysis of Contextual Spaces

The park features a total of 108 themed spaces, with over 40 designed to provide visitors with an immersive soundscapes and imagery experience. This study selects three typical types of soundscapes spaces for analysis: atmosphere-creating scenes, creative real-life scenes, and indoor small theaters.

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3.1.1. Ambience Space

The entrance to the park carries multiple values as the audience's first impression. A spacious venue with an immersive atmosphere provides a ceremonial gravitas, using ambient music as the baseline to establish the narrative context and cultural recognition of the Red Chamber tradition.

3.1.2. Creative Real-scene Space

A hallmark scene features a door-ensemble maze comprising 123 doors; passing through each door triggers a dedicated soundscape module, with music or voice content matched to the new space, creating a sense of time and space travel through audiovisual cues.

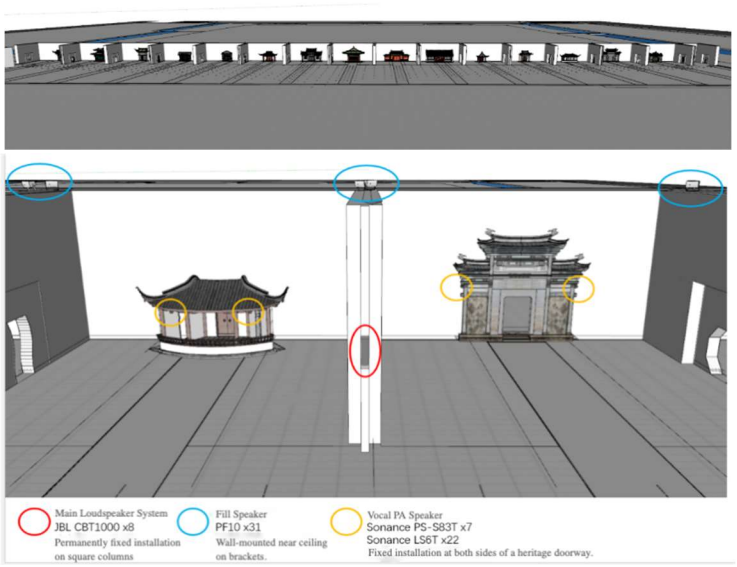

Figure 2. Distribution of sound system in the door wall

Figure 3. Sound distribution diagram of the gate array maze

3.1.3. Indoor Small Theatre

The Siheyuan-style theatre epitomizes a highly realistic, integrated soundscape environment. It recreates various courtyard interiors and includes the project's theme music and other instrumental effects to immerse spectators. A notable feature is the all-black stage for transitions, with transitions aided by music, sound effects, and lighting to suggest time shifts, while sound localization guides audience orientation in the darkened space, producing a vivid, highly immersive domestic-scene experience.

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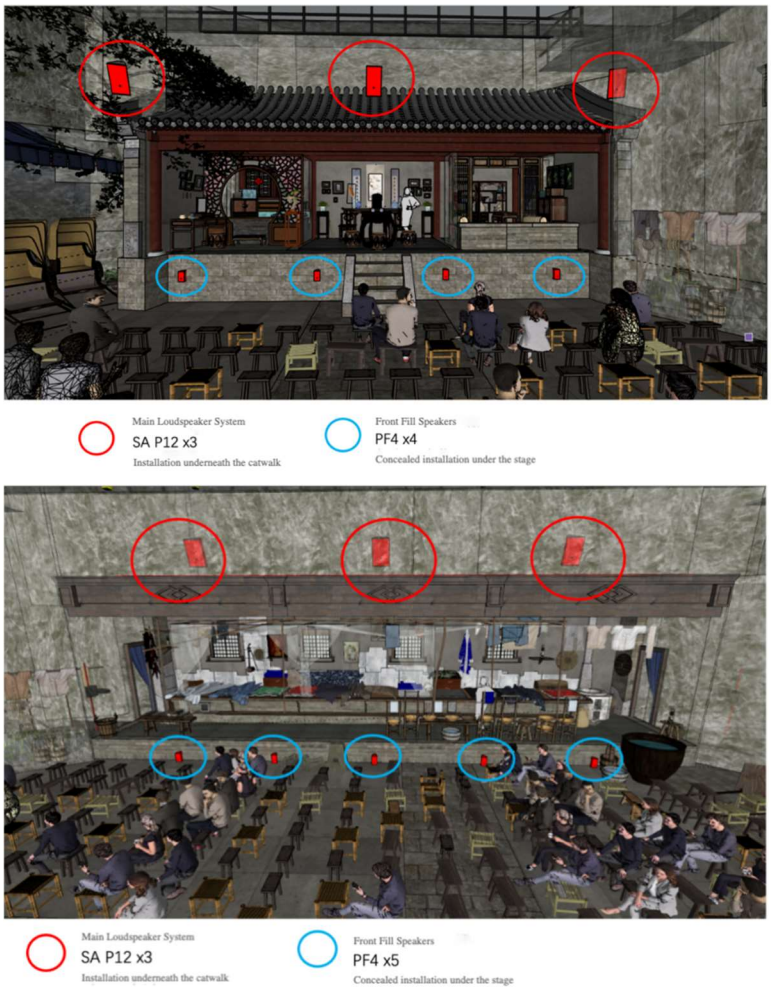

Figure 4. Sound distribution diagram of the quadrangle courtyard theater

3.2. Sound Design and Scene Construction Features

Material selection and repeated use of core thematic music create a coherent soundscape system; recurring themes or their variations reinforce the linkage between the Red Chamber theme and its dissemination.

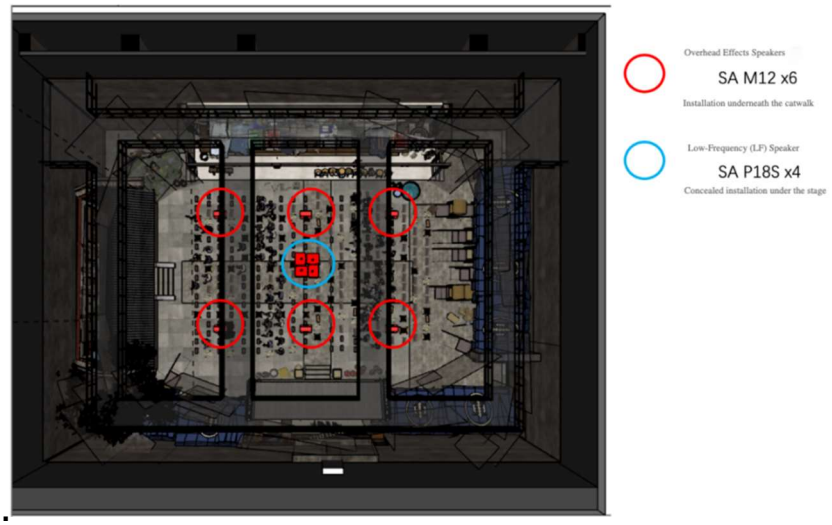

Figure 5. Sound distribution diagram of the theater in "Chapter 33"

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Technological implementations include voice localization technologies, multisensory immersive soundscapes, and unconventional dissemination paths; performers' voices can be spatially projected in ring-shaped theatres, with sound field directionality and visual focal points synchronized to strengthen the integration of music with performance.A multi-channel sound system builds a soundscape that is immersive and enveloping, creating a "soundscape symbiosis" within the experience.

3.3. Music Content and Soundscape Effects

The project uses prominent melodies from the Red Chamber repertoire-ranging from long, mournful to jubilant moods (e.g., Dream of the Red Chamber Overture, Farewell Unhappiness, People in the Book, A Page Full of Absurd Words, etc.)-to evoke the literary imagery in a spatially integrated auditory space. The melodies begin with vocal textures, supplemented by traditional instruments (such as xiao and pipa) and layered with arrangements that reflect narrative development and thematic symbolism.The original music is emotionally resonant and stylistically diverse, supporting different narrative scenes.[4] The integration of space and sound fosters a sense of entering the dreamlike cosmos described in the text, while simultaneously inviting reflections on the themes of prosperity, decline, love, and loss. The melodic material, and its symbolic associations (e.g., "Gold" for Jinling's iconic artifacts and "Jade" for Li Daiyu's imagery), connect the musical narrative to the broader socio-political metaphors of the late Qing dynasty. The result is an immersive listening space in which audiences perceive both the dream-world and the human experiences embedded within the literature.

4. AI Empowerment and Value-Added Propagation; Enhancement Strategies

4.1. AI Soundscape Layout and Music Propagation Efficiency

Sound-field layout and music coverage are distinctive features of the soundscape. By embedding music into the narrative logic of spaces and distributing sound sources across different scenes, AI real-time computation achieves dynamic balance of audio as audiences move (described as "sound shifts with movement")[3]. Point-to-point intelligent sound-field layout and coverage prevent auditory overload and fatigue. Throughout the theatre and scene performance, all character sound sources use voice localization systems, enabling the actors' voices to be projected as they move within the ring theatre; sound-field direction and visual focus are synchronized to bind music with performance, moving beyond a two-dimensional narrative into a three-dimensional immersive expression. Multi-channel systems support a "soundscape symbiosis" that underpins the immersive ecology of the experience.

4.2. IPization of Character Theme Songs

Sound elements are transformed into cross-domain listening IPs, creating an industry loop from on-site scene experience to off-site cultural consumption. A digital twin system for the soundscape is developed to pre-visualize different climatic conditions of sound effects in a virtual environment, allowing musical symbols to transcend physical constraints and propagate via digital communities, thereby revitalizing traditional culture as a contemporary IP.

4.3. AI Soundscape Design Optimization and Music Propagation Efficacy

The project's success hinges on the intelligent upgrading of soundscape dissemination. By AI-driven real-time tracking of character dynamics, crowd distribution, and movement trajectories, the system can dynamically enhance core narrative sound effects to ensure the clarity of key imagery. Personalization and adaptive experiences become a focal point for further evolution of soundscape storytelling, as well as for future dissemination strategies.

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4.4. Future Prospects

The research envisions converting Red Chamber theme melodies and music into digital assets and building a "Red Chamber Soundscape Metaverse," where audiences can generate personalized memory carriers in virtual spaces and extend the IP into broader digital ecosystems.

5. Conclusion

Soundscapes can greatly enrich musical dissemination and cross-media storytelling in immersive tourism experiences. AI-enabled soundscapes not only help create atmosphere and immerse audiences in literary imagination but also enable more expressive and innovative forms of cultural communication. The integration of music and soundscape technologies expands the experiential space of immersive tourism, guiding audience movement and perception while refining the tourism design. Soundscapes also offer temporal extension, enabling multi-dimensional re-creations of history and classics with heightened immersion. For a classic work such as Dream of the Red Chamber, whose interpretation is inherently multiple, the efficacy of the Theatre Illusion City lies in balancing thematic expression with audience expectations and in mitigating potential deconstructive risks associated with modern expressive elements. The project demonstrates how traditional literary themes can be expressed through a contemporary, audience-aligned soundscape, achieving a mutual reinforcement of artistic value and commercial value.

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