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DAWN CHORUS: DIGITAL ART INSTALLATION FOR PUBLIC HEALING BASED ON AUDITORY-VISUAL STIMULATION.

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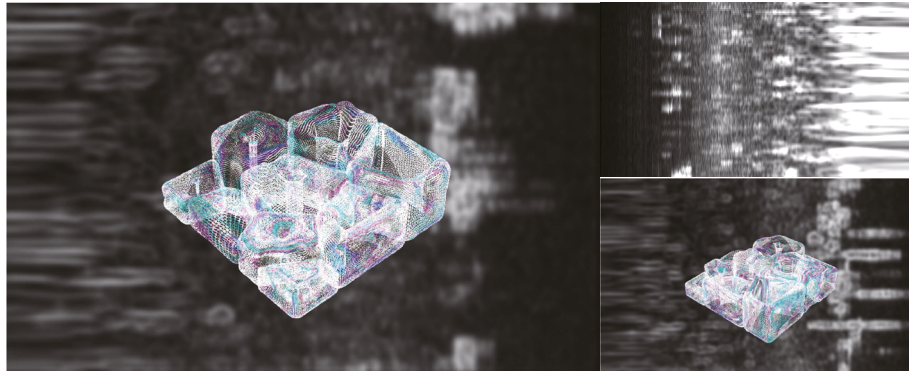
DAWN CHORUS: DIGITAL ART INSTALLATION FOR PUBLIC HEALING BASED ON AUDITORY-VISUAL STIMULATION.

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Dawn Chorus: A Digital Art Installation for Spiritual Healing Based on Auditory-Visual Stimulation



The Energy of Soundscape: Creation of Basic Three-dimensional Geometry

Abstract

The 2023 White Paper on the Mental Health of Urban Residents in China has highlighted that the fast-paced and high-stress urban lifestyle negatively affects the physical and mental health of people living in cities. Addressing issues such as anxiety and depression has become a growing concern for society as a whole. In recent years, digital technology has been employed to develop physical and mental healing art installations, combining art and technology features. These installations use software and hardware to offer unique sensory experiences to participants. This study aims to explore the design of an immersive digital art experience using the sound of birds chirping at dawn to create a healing effect. Real-time audio recordings of the birds' dawn chorus will be used to create dynamic visual images through sound visualization design. The digital art installation, called "The Dawn Chorus," will be placed in a public indoor space with low noise interference, making it easily accessible to the public daily. The installation will use visual and auditory sensory resonance to provide a unique and immersive digital art experience that can help alleviate physical and mental stress. The effectiveness of the installation healing function will be evaluated using randomized interviews and a subsequent quantitative assessment. This study utilizes digital media art to create an open-ended scenario for physical and mental healing in daily life, introducing new perspectives and methods to healing among urban residents.

Research Objectives

In today's fast-paced and high-stress urban life, the mental health of modern city dwellers has become a significant concern. To address this issue, the study aims to create digital healing experiences that can help improve urban residents' mental and physical health. The study has utilized the soothing sounds of birds chirping at dawn to design a healing digital art experience that the public can access easily. The art installation triggers visitors' sensory experience and diverts their attention, thereby helping to relieve brain fatigue and promote healing of the body and mind. This study explores new ways of creating healing scenarios for urban residents to incorporate into their daily routines.

Methodology and Tools

The enchanting dawn chorus of birds is a natural symphony that typically commences at 5 a.m. and varies based on temperature and location. A field study was conducted in an urban natural park to gain firsthand insight into this delightful occurrence during the spring season. Through the analysis of personal perceptions and interviews with esteemed ornithologists, the researcher has come to appreciate the biological significance of the dawn chorus and its potential to inspire spiritual healing programs.

This study uses sound visualization design to transform the audio of the dawn chorus into a dynamic image. The rhythm of the image is influenced by the input audio, creating a visual and auditory resonance that provides an immersive sensory experience. This digital installation can help to divert or slow down the directed attention of the participants and enhance their visual and auditory senses.

This project aims to develop a design methodology for real-time avian sound visualization involving real-time audio collection, processing, and imaging. The study involves the creation of a digital art installation using the TouchDesigner visual application and Arduino hardware. To make this digital experience accessible to the public in everyday life scenarios, we plan to place the installation in an open indoor space with low noise interference. Subsequently, we will conduct random interviews with visitors to assess the healing function of the digital art installation.

Research Process

A field survey was conducted in Sanhaowu Nature Park, Shanghai, China, to study the dawn chorus of birds at 5 a.m. during the spring season. The birds chirp continuously during courtship, feeding and other behaviours, releasing sound energy that travels through natural space. The experience of observing and discussing the dawn chorus of birds in Sanhaowu Nature Park has profoundly influenced the transfer and expression of the dawn chorus in healing digital art.

In the healing design process, we create 3D basic graphics of the soundscape by using geometric shapes to express the enrichment and flow of sound energy at different times. Utilizing TouchDesigner, a visual software, the birdsong sound is transferred into a visual light, flowing, gentle and colourful light, which serves as a surface finish for the 3D soundscape model. Through the serial communication between real-time audio collection components and the visual software platform, the rhythm of the dynamic images is aligned with the input real-time audio, creating a visual and auditory resonance in the immersive digital experience.

The study will conduct follow-up research by collecting participant feedback through questionnaires and interviews. This will help qualitatively evaluate the effectiveness of the healing digital art installations. The study also plans to develop a quantitative assessment to evaluate and improve the healing function from a more scientific perspective.



Early morning of the Sanhaowu Nature Park in the spring season, Shanghai, China.
Common birds in Sanhaowu Nature Park.

Obtained Results

The study transforms the real-time audio of the birds' dawn chorus into visual dynamic images through sound visualization design. The Dawn Chorus, a digital art installation, creates an immersive digital art experience by triggering visual and auditory sensory resonance. In addition, this digital installation will be placed in an indoor public space with low noise interference, making it accessible to the public in everyday life scenarios. According to the feedback from randomized interviews, the Dawn Chorus digital art installation can effectively divert or diminish the participants' directed attention, thus reducing brain fatigue and relieving physical and mental stress.

This study creates healing digital scenarios for urban residents in their daily lives that use the chorus of birds at dawn as input. It offers a fresh perspective and approach to public healing design. In the future, the study plans to develop a quantitative assessment for the healing function to evaluate and improve the experience of healing digital art installations more scientifically.

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