

Optimizing User Experience in Digital Music Production: A Study on Interface Design, Music Visualization, and Innovative Approaches to Musical Composition for Facilitating Relaxation.

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Abstract

This project aims to explore innovative approaches to **interface design, music visualization, and music creation to promote relaxation** by optimizing the user experience of digital music production.

Our goal is to create a musical environment for users that allows them to deeply immerse, **release emotions and relax**.

Through this approach, we hope to help individuals better understand and appreciate music, thereby **improving their quality of life and mental health**.

Study Methodology

Inspiration	Ideation	Implementation
Literature Research	User Flow	Results
Competitive Analysis	Music visualization	Prototype
User Interview	Low-Fi and High-Fi	
	Usability Testing	
	SUS Questionnaires	

Conclusion

- **Interface Design:** Intuitive and efficient interface design is critical to user satisfaction and overall experience.
- **Music Visualization:** Music visualization enhances the user's sense of immersion and relaxation. Especially in the relaxation stage, it has an obvious effect on enhancing the user's relaxation experience.
- **Music creation method:** It can improve the quality of music creation and meet the specific needs of users

Future Work

How to integrate the latest technologies such as artificial intelligence and virtual reality into music production software to make it more intuitive and effective will be a topic worth discussing.

It can focus on how to integrate music elements from different cultures to produce music visualization, so as to create a more relaxed and comfortable music experience for users.

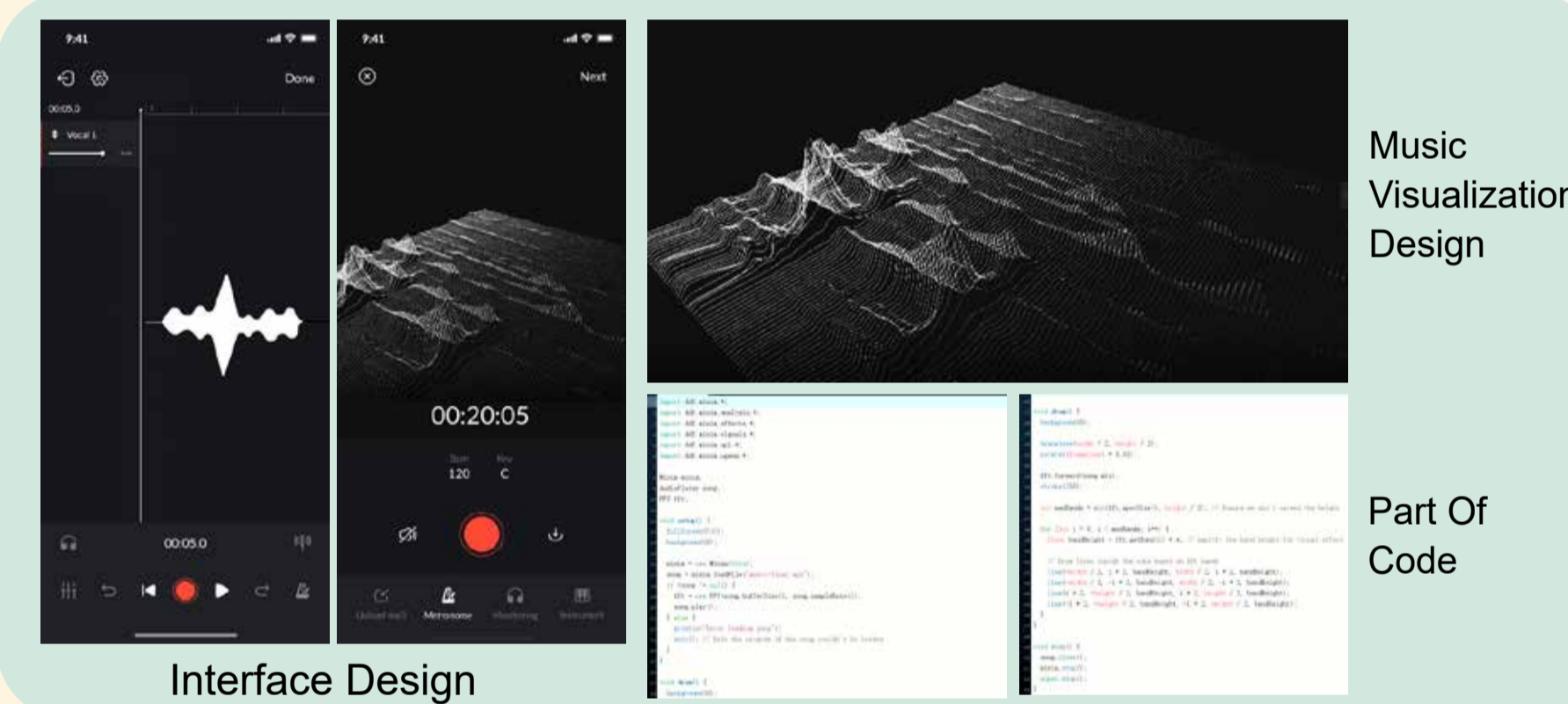
Introduction&Background

With the rapid advancement of technology, digital music production has emerged as a core area of the music industry. Numerous reators, whether professional producers or amateurs, have turned to digital tools for their music creation. However, advances in technology have also brought with it a strong focus on user experience. In order to meet user expectations, such as interface design, music visualization, and music creation methods, etc., require continuous research and innovation.

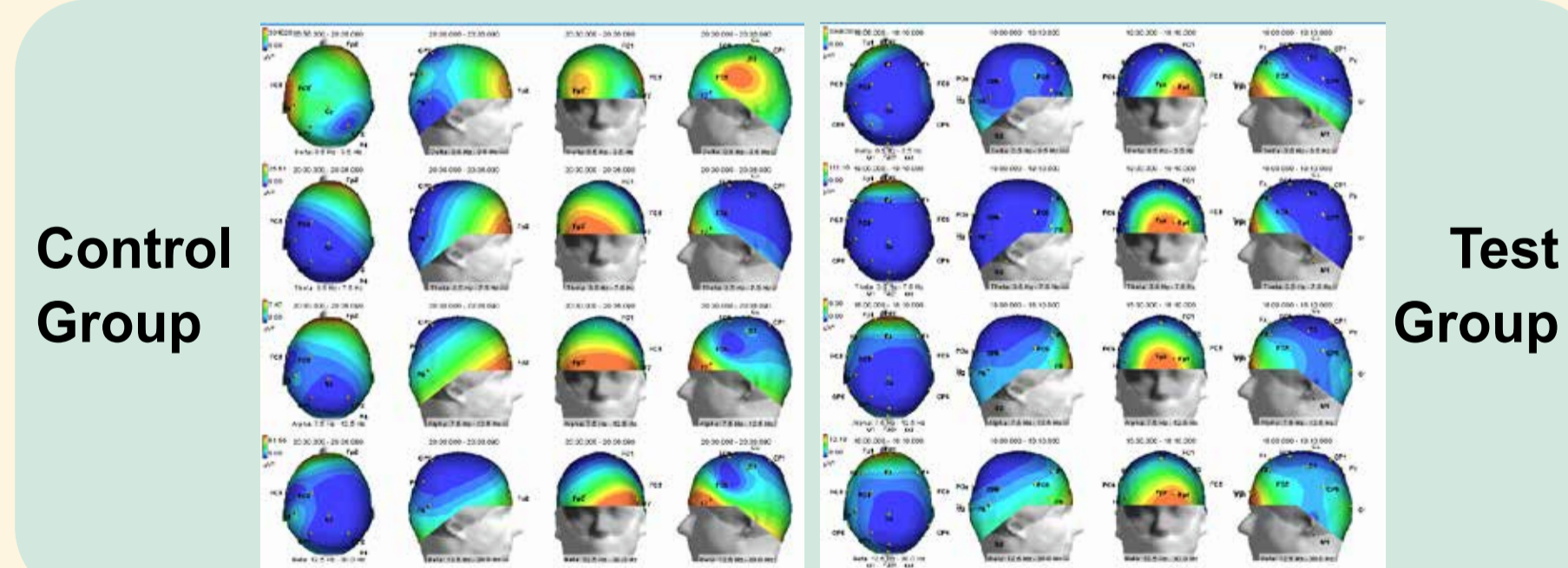
Stress is pervasive in modern society, and music, as a widely recognized method of relaxation, has drawn a lot of attention to its role in digital music production. How to use music production to promote relaxation is the focus of research. The interface design provides users with an efficient operation process, while the music visualization provides them with an immersive multisensory experience. Exploring new ways of making music, especially those that enhance relaxation, is also crucial.

To sum up, the purpose of digital music production is not only to use new technology, but to create a relaxing and satisfying user experience.

Diagram&Design



Heat Map



Testing&Evaluation

Interface test

Treejack
UXUM
SUS

Music Visualization Test

EEG test
Analyze and determine which brain regions show increased or decreased activity during stress and relaxation phases

Research Results

EEG Data Comparative Analysis:

Activity area comparison:

The test group had significantly higher occipital and temporal lobe activity than the control group in the middle and late stages, which may mean that the music visualization video provides richer stimuli to the observer both visually and auditorily.

Brain wave dynamic comparison:

The alpha wave activity of the test group was generally higher than that of the control group, indicating that music visualization can better guide the observer into a state of relaxation.

SUS Data Analysis

	Q1	Q2	Q3	Q4	Q5
Average score	4	3.9	1.5	4.1	4
SUS Average score	3	2.9	3.5	3.1	3
	Q6	Q7	Q8	Q9	Q10
Average score	4	4	2.5	4	4.1
SUS Average score	3	3	2.5	3	3.1

$SUS: (3.0 + 2.9 + 3.5 + 3.1 + 3.0 + 3.0 + 3.0 + 2.5 + 3.0 + 3.1) \times 2.5 = 29.1 \times 2.5 = 72.75$

Analysis based on SUS score of 72.25,

The application shows a high level of usability. However, there is still room for improvement, especially in these areas of functional flow.