

Traditional Culture into Interactive Arts: The Cases of Lion Dance in Temple Lecture

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Abstract. The lion dance in Chinese culture is one of profound arts. This work aims to bridge traditional culture and modern multimedia technology and application of network cameras for the interactive tool to design a set of activities to promote the lion as the main body. There consists of the imaging systems and interactive multimedia applications.

Keywords: Interactive Art, Lion Dance, Traditional Culture.

1 Introduction

1.1 Motivation for the Research

Lion dance activities in the Chinese community has been thousands of years. Lion dance from the Han Dynasty, peaked in the Southern and Northern Dynasty. It is a cultural exchange between China and the Western Regions. However, lion dance activities are not only unique to the Chinese people, but also Japan, Korea, Southeast Asian countries.

Traditional culture in a modern society faces a bottleneck for keeping vivid to people. The study will explore about the creative interaction design, lion dance culture, and the relationship between interactive media and traditional culture. To deepen the experience for visitors and promote the traditional culture – lion dance effectively.

1.2 The Objectives of the Research

This work attempts to promote traditional lion dance via multimedia interface design. It consists of through multimedia interface design interact promotion of the traditional lion dance:

- (1) Enhance people's awareness of traditional culture.
- (2) Use of the richness of the interaction interface to entertains in lion dance.
- (3) Retaining long-standing cultural tradition prevent it from disappearing.

2 Literature Review

Literature review in this chapter will be divided into three parts. Part I: Interactive design and interactive interface. With the basic concept of interaction to develop interactive works. Part II: To understand lion dance culture and history. Part III: To investigate the interaction between the media and traditional culture.

2.1 The Interaction Design and Interface

"Interaction design" combines the aesthetics, the humanities and technology. The use of "consciousness" to the definition of conduct between the object to the application of sensory perception of the interaction with the environment [4]. By means of "interaction", the user has a better grasp of absorption of ownership study to demonstrate the finished product is also easier to follow the idea of each person to adjust. And finished products through the manipulation of different people, can allow users to make easily and produce different results. Then change yours mind. That is a new visual experience [8]. Through the body and limbs of human action with computer "interactive" and trigger the body participate in fun activities. Through effective human-computer interface design pattern reach motivation. To make users enjoy the power of choice that is success in interaction [5].

Digital Art, communication and interactive has close relationship. Stressed person works through the body and the design of the conduct in interactive. Through human interaction and user interface, play an "interactive" and focus on conduct of participants to lead the most direct participants of the visual experience. The use of "multi-mode" environment interaction and the "perception" in management capability to understand the user's action (such as touch, pick up, move goods). Then create body immersion into the performance of the actual situation and enhance the interaction [1].

Dinkla have distinguished six important implications of interactivity:

(1) Power and Play; (2) Participation versus Interaction; (3) Proximity and Manipulation; (4) Strategies of Seduction; (5) Nonlinear Narration; (6) Remembering, Forgetting, and Reconstructing [10]. Through these qualities can view between interactive and user and develop more comfortable application [1].

Base on the user's interactive and display method; the interaction design can be roughly classified three main forms: (1) Interactive Wall (2) Interactive Tabletop (3) Interactive Floor. Detail description of Table 1 [1]. Some forms of artistic expression can be designed with computer vision technology inter actively.

2.2 Lion Dance's History

In China, the lion culture combining traditional culture. It contains a wealth of civilian life, religious beliefs and showing multi-cultural patterns of life. It is a symbol of ethnic consciousness and the characterization of groups in the region [2]. Tang Dynasty, Xinjiang lion dance figurines (see Figure 1), make Human and lion's image vivacity. Southern Song, "Hundred of people play in spring" (see Figure 2), depicted the case of children playing lion so vividly. Lion dance in the New Year become to the culture and have more festive atmosphere [2].

Table 1. Computer Vision interactive technology [1]

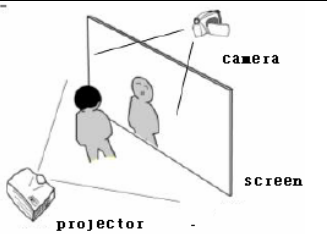
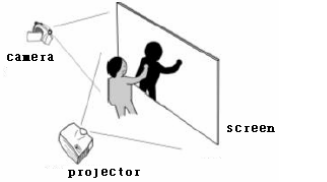
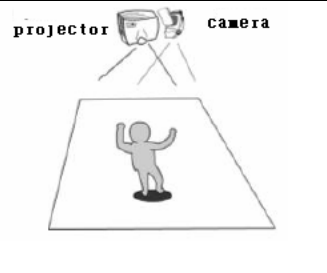
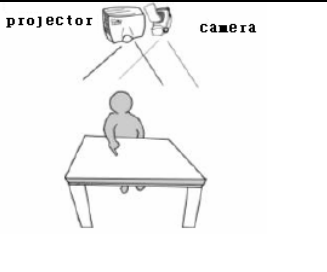
Interactive Wall		<p>Type 1: detect people's momentum Note: Use body gesture to interact</p> <p>In front of the camera body's motion interactive with projector.</p>
		<p>Type 2: detect shadow's motion Note: The outline of shadow to interact</p> <p>With backlight, make shadow in screen, camera set up in the back, analysis of the black shadow action.</p>
Interactive Floor		<p>Note: Focus on location move to make interactive</p> <p>Set up camera and video projector in the top of the user, analysis of the user standing location, and projection on bottom of location. Based on the location of objects arising interaction effect.</p>
Interactive Tabletop		<p>Note: Focus on hands to make interactive</p> <p>The camera is set on top of user to detect user's hand. And projector set up in top of user too, make images projector to desktop. Interaction can be accomplished by touch screen through hands.</p>



Fig. 1. Tang Dynasty, Xinjiang lion dance figurines



Fig. 2. Southern Song, Hundred of people play in Spring

2.3 Interactive Media and Traditional Culture

There are some issues in cultural industry. Typically, the enlisting and preserve the historical activities and performance is most important. With the help support of multimedia technology that allow people to interact with the culture. The results of digital media such as table 2 [6].

Table 2. Domestic digital media research result [6]

The field of digital media applications	Description
Humanities and Social	Combination of digital media technology, a game of chess to reproduce the Tang Dynasty Ladies, aristocrats playing polo, foreign countries into the gorgeous space-time Chang-an Example: Virtual Chang-an - Heritage Collection reproduce
Life and Entertainment	The use of 3D computer graphics, animation and other visual effects, and through the "3D wireless interactive technology" and the tip of the peripheral devices so that users can have an immediate and interactive media itself Example: 3D stereo photography services
Digital learning	Combination of broadband Internet and interactive new media technologies to address the needs of time and space, making scattered in remote teachers and students, and then a shared interactive virtual environment for interactive teaching and learning Example: Virtual classroom e-learning courses

3 Interactive Interface Design

3.1 Principles of Design

Visual information is captured by webcam. The data sets are manipulated with image processing techniques. Features are used to accomplish interactively with users.

3.2 Image Acquisition

“Processing” developed by MIT media lab is employed as an image processing tool. The image features consists of color information and shapes by means of processing.

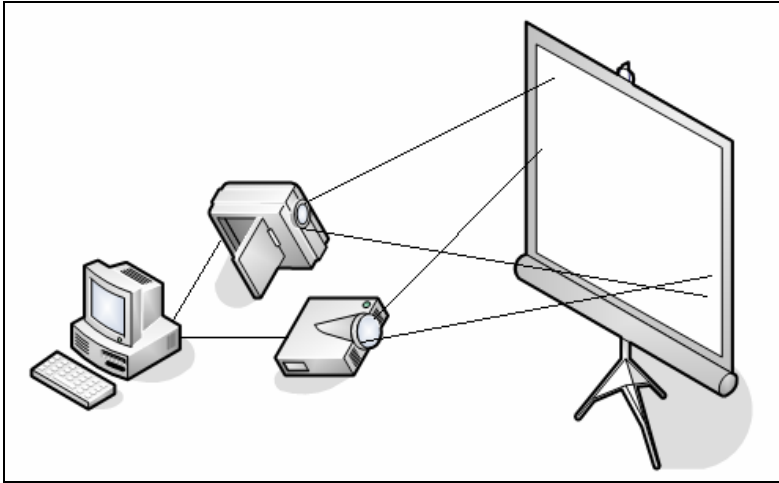


Fig. 3. Interact with diagram

3.3 Reference Creative Technology

The computer vision technology to the development of three forms: (1) Interactive Wall, (2) Interactive Tabletop, (3) Interactive Floor. Divided by the number of computer vision over the design of the computer as a Webcam capture color images to detect specific target object to move, So that objects can also move the location of the changes made compared to the data of the interaction as a reference input value, and the use of infrared cameras is to detect the infrared light, etc.

3.4 Work Design Characteristics

This study is designed to work real-time images of the interactive installation by the user to spherical objects moving in front of webcam, as the interactive mode.

Computer vision technology through the importation of video cameras into digital images, the number of digital images can be viewed as a two-dimensional matrix, in the matrix of each implementation with the following values as the color pixels.

By the algorithm can be related to processing analysis to guide the projection of the image generated simulation of the dynamic pursuit, that is, the integration of real and virtual contexts.

4 The Experimental Results

Lion dance is a traditional Chinese art performance. Chinese traditional lion dance that can avoid the evil ghosts so every festival, Spring Festival Tour will be occasions, such as lion dance groups will have to kick off the festive celebrations. In this paper, lion and the interaction between the red ball and use the information in the digital media source graphics with real-time computing (closed regional sphere of color and the outline of information), to achieve interactive visual feedback.

4.1 Design Concepts

When the red ball moves, the lion dance will follow the red ball to move to achieve the purpose of interaction with the user (See Figure 4).

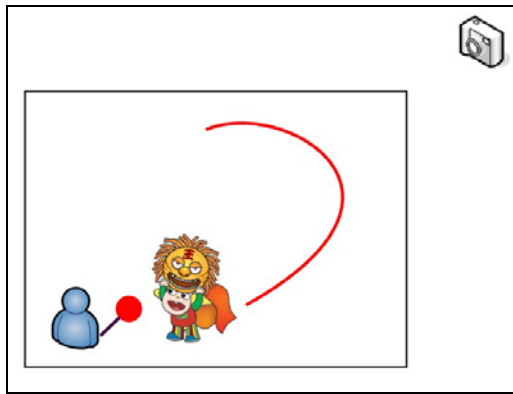


Fig. 4. The lion dance will follow the red ball.

4.2 Experiments

Judge the red ball to detect the use of the following basic steps to determine.

- (1) To catch up through the RGB color camera.

```
import processing.video.*
Capture video
R = red()
G = green()
B = blue()
```

- (2) Based on the prior definition of the scope of good red color, to obtain the location of the red color range (See Figure 5) .

```
video.loadPixels()
int index = 0;
for (int y = 0; y < video.height; y++) {
```

```

for (int x = 0; x < video.width; x++) {
    // Get the color stored in the pixel
    pixelValue = video.pixels[index]
    get RGB (pixelValue) near the Red
    index++
}
}

```

(3) Sphere obtained to use the above information, calculate the relative X, Y coordinates and combined with the main graphics.

```

image(lion.jpg, x, y)

```

(4) When the ball moves, so that graphics can have a direction of movement (See Figure 6).

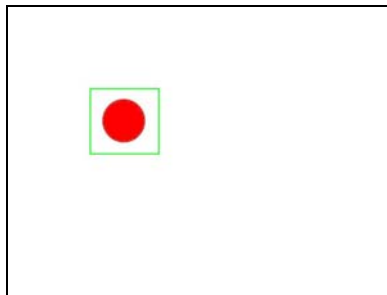


Fig. 5. Obtain the location of the red color range

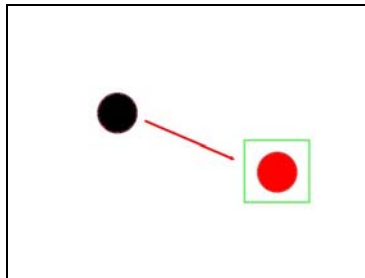


Fig. 6. The Ball movement traces

4.3 Preliminary Results of the Experiment

In this paper, the hand moves back and forth to enhance the impression that the lion dance. The red ball is tracked by the camera in terms of red color information. Experimental plan is shown as follows (See Figure 7 and Figure 4.3.2).

Obtain the location of red color range.

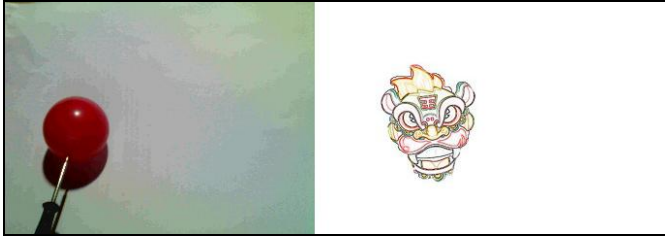


Fig. 7. Preliminary results of the experiment(original location)

4.4 Display of Results

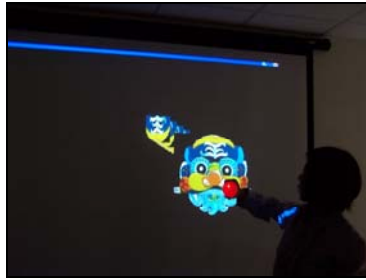


Fig. 8. Display the result (Original location)

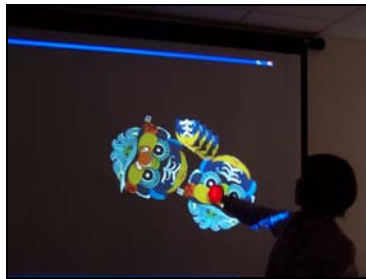


Fig. 9. Display the result (After moving the red ball)

5 Conclusion and Concluding Remarks

The study with a concept of modern multimedia technology, digital cameras and adding interactive elements to create a lion dance interactive multimedia platform. Concluding remarks:

(1) Visual Lively

With the festive lively combined with rhythm elements. Freshness of color to creates a fun platform to attract users. Players are able to experience to increase the user with the traditional cultural relations.

(2) Entertainment between platform and user

The study is Detected red-ball motion by the digital camera to make a interactive platform. User's action and reaction can be catches by digital camera. Generate what you see is what you get's effectively. Let tradition and modernity no distance and more closer.

Lion dance is a common activity. Make traditional culture be in people's hearts deeply. In order to promote the traditional activities, this work has demonstrated it's efficacy with respect to this aspects.

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