

Takashi's Seasons

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ABSTRACT

Takashi's Seasons is a sequential live shadow puppet/video performance in which a number of interpretations of the four seasons are performed by an artist. Controlled with fishing line and wooden dowels, the puppets cast shadows on the screen. At the same time, the puppeteer controls the content being projected, and triggers sound effects using a custom input device. Working in precarious unison, the shadows of the puppets are synchronized with the animation, creating a unique live action performance. Animation and sound are composited with shadows in real time; rather than relying on a series of pre-rendered animation sequences, the artist produces 'motion pictures' via a combination of seasonal sounds, live shadow puppet manipulation, and the projection of shadow-like animation sequences.

Categories and Subject Descriptors

J.5 [Computer Applications]: Arts and Humanities: Fine arts.

General Terms

Performance, Design, Experimentation, Languages, and Theory.

Keywords

Shadow Puppet, Hybrid, Digital and Analogue

1. INTRODUCTION

1.1 Hybrid Form (Digital and Analogue)

Takashi's Seasons is a celebration of the everyday in four parts (one for each season) told from a single point of view. The presence of objects (shadows) and elements in the video animation create hybrid visuals. The installation was intentionally designed to send viewers back and forth physically and mentally between shadows and projected images, disrupting their preconceived notions of what is digital and what is analogue.

1.2 Memory and Language

This work does not intend to offer a common point of reflection for all to understand and cherish. Rather, critical to my installation is how the piece evokes personal memories strongly tied to the four seasons, interpreted through a Japanese cultural perspective. Through the presented vignettes, the piece vividly illustrates those personal memories, presenting them as a unified experience. Memory is not just a static snapshot of the past, but a lens through which we can interpret new information and experiences.



Figure 1. Installation

The silhouettes of a boy, girl etc. are reduced to generic forms. Although most traditional shadow theater performances teach moral lessons or tell stories from religion and popular myth, the symbols in *Takashi's Seasons* are open to multiple interpretations. The audience is encouraged to project their own stories on to the performance.

1.3 Artist and Audience

The artist interprets digital cues to flesh out the story. At the same time, the audience interprets the performance by the artist and develops his or her own personal narrative. In this sense, the artist and audience are of equal importance.

2. RELATED WORK

The initial inspiration for *Takashi's Seasons* came from researching the history of projection devices, including magic lanterns¹ and utsushi-e². Invented during the second half of 17th century in Europe, the magic lantern was the first technical apparatus designed for projection. An optical box made of wood, sheet metal, copper, lens and reflector, in a darkened room it projects images painted on a glass slide onto a white screen. The invention of the magic lantern influenced the emergence of a new type of entertainment in the late 18th Japan known as utsushi-e ("Utsushi" means projection in Japanese, and "e" means image.) Utsushi-e was an original hybrid of the ancient Asian shadow play and western magic lantern show.

Another influence was the French media artist Julien Maire's artwork "*Demi-Pas [Half-Step]*"³. Created with a variety of computer-controlled cinematic devices, it suggests a new form of the projection/shadow show. In order to produce animated pictures, Maire utilizes slides to manipulate focus, creating magical three-dimensional transitions.

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3. TECHNICAL DETAILS

3.1 Fabrication of the Shadow Puppets

In pursuing an aesthetic of simplicity for *Takashi's Seasons*, a large challenge was crafting expressive puppets of minimal size. In most contemporary shadow puppet theater, puppets are at least one foot in height. There are two reasons for this: first, when performing in a large theater it is of critical importance that the puppets are visible to the entire audience. Second, the puppets must have mass: without mass the joints will not operate properly and they become difficult to control.

The choice of materials made construction a challenge. Sturdier, denser materials were found to be better for movement, however, these materials were found to be extremely difficult to work with at small scale. In order to find the best possible solution, a number of prototypes were made to determine the smallest acceptable puppet size given the size of the installation space. After much experimentation 1/16-inch museum board was chosen. Each part of each puppet was drawn in Adobe Illustrator and then outputted to a laser cutter. Though embroidery thread is typically used for joints, the joints on these puppets were exceptionally small, requiring the use transparent fishing line.



Figure2. Shadow Puppets

3.2 Silhouette Animation

In creating the performance, all props and characters were first sketched on paper, then created in Adobe Illustrator. Placing all elements on a 640 by 360 pixel grid, props and characters were divided into physical puppets and video animation. After adjusting the scale of the puppets so the shadows cast would match the scale of the projected imagery, the puppets were outputted to a laser cutter. The animation was developed in Adobe AfterEffects using both traditional keyframing and programming in AfterEffects's Expression (e.g., algorithmic movement such as the fluttering of butterfly's wings). The blending of digitally generated animation and projected shadows produced a unique hybrid animation style.



Figure3. Silhouette Animation

3.3 Interaction Design

A custom switch mounted on a pedestal behind the screen is connected to two microcontrollers that are in turn connected via a serial cable to a computer mounted on the ceiling. The first AVR microcontroller is directly connected to the switch, and is programmed to read electronic signals generated by the switch, converting them to serial messages. The second microcontroller translates these serial signals to Windows OS keyboard commands. Software programmed in Macromedia Flash triggers animations and sounds effects based on keyboard commands from the second microcontroller, allowing video animations to be synchronized with the shadow puppets via the switch. The microcontrollers were programmed using C and C#/ .NET respectively.

3.4 Real-time Composite

Each animation component is independent with its own alpha channel and independent audio track, making it possible to composite multiple clips in real time. This flexibility results in slightly different sounds and visuals each performance. The falling leaves and flying dragonflies, the chimes of temple bells: all are independent.

4. CONCLUSIONS & FUTURE WORK

With most interactive media art the audience is restricted to engaging with the work within the boundaries of the artist/audience relationship. Through its ambiguity, my project attempts to disrupt the relationship between artist and audience, allowing individuals to project their own narratives.

Though projection technology has evolved since the development of the magic lantern, the fundamental discipline of shadow/projection theater show has not changed in over a century. With its hybrid form, *Takashi's Seasons* proposes a new "cinemaginary" twist on the classic shadow/projection show.

5. REFERENCES

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