

*Body Cinema:  
An Exploration in Interactive Cinema*

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## 1. INTRODUCTION:

The purpose of this document is to describe and discuss an interactive art installation that explores ideas around the body as a cinematic instrument of expression. The piece, called *Body Cinema*, involves the dynamic interaction of an audience member with a movie being projected underneath them as they are hanging suspended over the projection screen in a safety harness. The type of interaction that the participant can exert over the movie's narrative comes about from their kinesthetic awareness and spatial mapping while watching the movie.

*Body Cinema* is designed around three theoretical frameworks: (1) Blom and Chaplin's concepts of the experiential body of knowledge: kinesthetic awareness, phrasing, forming, relating, and abstracting (Blom and Chaplin, 1988, pg.17); (2) Stephen Levinson's statement that "our thinking is fundamentally spatial" (Levinson, 2001, pg.69); and (3) Arnheim's ideas around the division of the body into mental, spiritual-emotional, and physical zones as part of a symbolism of the body as a visual image (Arnheim, 1974, pg.405).

The interactive nature of the piece is implemented through the manipulation of sensor data captured from light sensors (connected to an I-Cube) around the audience member; the sensors directly influence the content and orientation of what gets shown on the projection surface underneath them. The interactivity and control of the different movie clips is implemented in Max, a graphical programming language, by capturing and interpreting MIDI data from the I-Cube system. Nato objects, which are cinema objects for Max, are used extensively.

## 2. DETAILS OF THE PHYSICAL DESIGN:

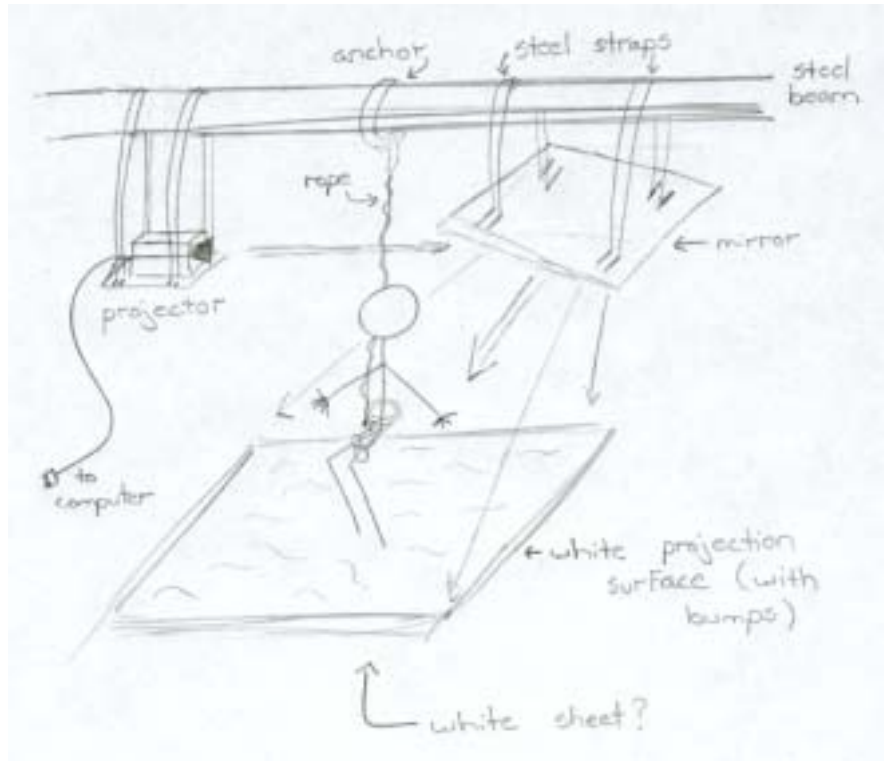
This is a user-driven installation. The audience member is suspended in a safety harness above the movie screen high enough so that they are unable to touch the ground with their feet, but no higher. The movie screen is a white sheet with soft and hard objects underneath it to give the surface an uneven, bumpy look. This is designed to give the movie projection a more three-dimensional and textural feel.

The projector is sitting on a wooden board, which is attached to a wooden ceiling panel by steel straps. The projector's image is sent to a mirror hanging upside down and on an angle, redirecting the image so that it is projected downwards onto the projection surface. By this design the projector must either be sitting upside down, or the projection must be rotated by 180° (some projectors have this ability). The mirror was constructed by gluing a 3 ft. X 3 ft. mirror to a wooden board, and then hanging the board from a wooden ceiling panel using steel straps.

The audience member is tied into an anchor hanging off a steel beam located in between the two wooden ceiling panels. While being suspended in the air above the movie screen, the participant has some agency over the movie by interacting with five light sensors positioned around the space. Triggering these sensors has an effect on the

content and orientation of the projected movie. The light sensors are triggered by a headlamp fitted over the participant's head.

See the diagram below for a sketch of the installation space. This sketch is missing the five light sensors that will be positioned around the space for the participant to interact with.



**FIGURE 1:** *Body Cinema physical design sketch (missing light sensors)*

### 3. DETAILS OF THE MOVIE CONTENT:

There are five movie clips used in *Body Cinema*, each assigned (through the Max program) to its own light sensor. The theme of the movie clips is “walking topographies” – each clip represents a top-down view of traveling-by-walking through five different environments. There is a clip of walking through a forest, one of walking along a bicycle path, one of walking along half pavement, half grass, one of walking along half pebbles, half forest, and one of walking along a rocky pebble beach. They were filmed by walking through each of the environments holding a video camera, attached to the end of a tripod, facing down at an angle of roughly  $-50^\circ$  from horizontal.

The goal of the movie content is to contribute to the kinesthetic experience of the installation, and to give the participant a sense of traveling as affected by rotational body movements.

#### 4. ARTISTIC RATIONAL:

*Body Cinema* is an exploration in concepts around interactive cinema. The basic artistic rational behind the project is to create a physical cinematic space that is responsive to the audience member, such that the participant modifies his/her cinematic experience through body movements.

The artistic theory used in *Body Cinema* comes from Blom and Chaplin (1988) in “The Moment of Movement: Dance Improvisation,” Stephan C. Levinson (2001) in “Space and Place,” and R. Arnheim (1974) in “Art and Visual Perception – A Psychology of the Creative Eye.”

Blom and Chaplin discuss ideas around the experiential body of knowledge (Blom and Chaplin, 1988, pg.17). I have attempted to carry the same ideas over to *Body Cinema*. The first concept is *kinesthetic awareness*, meaning that in *Body Cinema* the participant has the opportunity to explore meaning behind his/her own movements. My goal is for audience members to ask themselves some of the following questions: “What will happen to the movie if I twist my body around this way?” “Is there a different effect produced if I move just my head and try to keep the rest of my body still?” “How does the movement inside the movie clips affect my physical sense of movement in the harness?” “Which movie clips produce what kind of effects on my kinesthetic awareness?”

The second concept in Blom and Chaplin’s theory is *phrasing*: “*All movement contains innate rhythms and phrases which provide the magic ingredients in any of the performing arts*” (Blom and Chaplin, 1988, pg.17). The third concept is *form*. Questions I want the participants to ask themselves include: “What kind of responses will I get from the movie if I focus on grouping my body movements into circular phrases?” The fourth concept is *relating*: this concept is explored by the participant discovering their relationship to the sensors, the movie projection and the projection surface. The fifth and final concept is *abstraction*: because the movements are not in any way choreographed, each time a participant enters the *Body Cinema* space they create a new narrative, a new performance, and a new cinematic experience.

The second artistic theory which I hope to exemplify in *Body Cinema* is Stephen Levinson’s statement that “our thinking is fundamentally spatial” (Levinson, 2001, pg.69).

*“It is just because, for us, spatial knowledge is a matter of higher-level thinking... that we can be deeply intrigued and tantalized by the artful manipulations of space by which the architect and sculptor play on our minds.”* (Levinson, 2001, pg.70).

Not only is the interactivity mapped to the 360° space around the participant, but the movie content was also created to give the perception of movement through space. By having the orientation of the projection change as well as the content, the audience

member has the feeling of traveling to different environments through the rotation of their body, but also that they are forever moving forward.

The third kinesthetic theory used in *Body Cinema* is one by R. Arnheim, and builds upon ideas of the body as an instrument of expression that is divided into three zones. Arnheim quotes the French dance teacher François Delsarte in specifying purposes for the three body zones: the head and neck make up the mental zone; the torso is the spiritual-emotional zone; and the abdomen and hips make up the physical zone (Arnheim, 1974, pg. 405).

*“This description blends what we know about the mental and physical functions and their location in the body with the spontaneous symbolism of the body as a visual image.”*

(Arnheim, 1974, pg. 405).

The notion of the body being divided into three zones correlates nicely to *Body Cinema*: The light sensors are triggered by the headlamp positioned on the participant's head (the mental zone), which affects the choice of movie content. The torso (the spiritual-emotional zone) is positioned directly over the projection, helping the participant to feel immersed in the movie's content. The abdomen and hips (the physical zone) are used from sitting in the harness – it is in this zone that all of the pressure from the person's own weight is felt, and also where the person can twist their body to rotate themselves around.

## 5. INTERACTIVITY:

As previously mentioned, the interactivity of *Body Cinema* is programmed in Max / Nato. Although the programming behind it is somewhat complex (at least for my level of programming skills), I tried to implement a relatively simple interactivity scenario for the user. The audience member can directly influence the movies being projected below them for two different effects:

- a) Each of the five light sensors is associated with one of the five movie clips. When light sensor #1 is triggered, for example, it causes movie #1 to play. If movie #1 was already the movie playing, then nothing happens.
- b) Each of the five light sensors is associated with a particular orientation, going from 0° to 288° in 72° increments (360° divided by 5). If light sensor #3, for example, is positioned around the space at 216°, this will trigger movie #3 to play as well as turn the orientation of the movie to 216°.
- c) I wrote a programming section in Max / Nato that could control the movie playback rate based on the intensity of the light being shined onto one of the light sensors, but have decided not to implement it yet. More work needs to be done on discovering the MIDI numbers generated by different intensities of light and at what distances from the light sensor in order to make this bit of programming code useful for the installation. The basic idea though, is that the more intense the

light, the faster the movie would play. If the light was quite dim, the movie might even end up playing backwards.

## 6. CONCLUSION:

The physical design for this art installation has been a collaborative project between Robb Lovell and myself. Although Robb is designing a different installation piece, substituting a performer in place of the audience member and using animation in place of the video (I will be using live footage), our ideas are common enough that we were able to use the same physical setup. Robb has also been invaluable in helping me with the Max / Nato programming.

My ultimate personal goal in this project is to continue to explore ideas around interactive cinema, and to become more knowledgeable about kinesthetic concepts and the body as a cinematic tool. Once this installation is exhibited, I am hoping to interview participants after their experience in order to learn about how they felt, what they experienced, and to try and understand how they related to the projections underneath them. I am interested in learning from these informal interviews how participants can use their bodies as experiential tools in an interactive cinematic environment.

## Works Cited

Blom, L.A. & L. Tarin Chaplin. "The Experiential Body of Knowledge," in The Moment of Movement: Dance Imrpovisation (London: Dance Books, 1988).

Levinson, S.C. "Space and Place," in Some of the Facts – Exhibition Catalogue for Anthony Gormley at Tate St. Ives, 2001.

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