CLEARLY IMPOSSIBLE
Constructing The Phantom

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Abstract

How can light and space influence our consciousness and the shape of the perception? Dematerialization is a mean to alter our perception to this physical world -- Materials lose their sense of solidity and lights reconstruct the surfaces of the space and objects. This thesis project is to visually eliminate the boundaries of the objects and the space by playing the notion of visible and invisible. It constructs a "in-between reality", where individual elements begin to lose their clarity, the moment in which objects merge with the foreground and background. The intention was not to make the object completely disappear, but rather to heighten our sense of reality, by confronting our expectations of the physical space with surreal objects that nevertheless exist.

The research works at the level of the table-top experiment to better understand the phenomenon of "disappearing" and gain control of it. The fundamental strategy is to maintain the exact same luminance levels for each surface of the objects in order to eliminate the boundaries of the objects and space. In a diffused lighting condition, part of the light comes from reflection and part comes from transmission. Each aspect of the light could be controlled by the organization of the material and the thickness of the material. Since the wall is white, visually I get the same whiteness when I keep the same luminance level on different surfaces. Thus, I merge the foreground, object and background. All together the view fades to white.

The final installation project is discussing how this phenomenon reacts to the body movement. Therefore, I am constructing a illusion machine where we control the "true illusion" perception by ourselves. In this sense, we are the illusionist as well as the spectator.

I move; therefore, I see.
Part I
Visible and Invisible
A Scientific Research on Discovering The Phenomenon of “Disappearing”

Part II
Magic: A Pseudoscience Scenography
Exploring The Dramatic Stage Effect for Magics

Part III
Echoes
The Phenomenon Reacts to A Body Intervention

Part I
Visible and Invisible
The main theme of this thesis project is about the state of our consciousness and the shape of the perception. The development of this project is not based on a theoretical statement. Rather, it started from an interesting phenomenon of “disappearing”. Based on this discovery, the scientific research aims to gain full control of the phenomenon. With deeper investigating it, the direction of the project varies. Eventually, this procedure explores a new methodology which investigates a scientific research based art project. The ongoing experiments raise different theme discussion and those discussion guides the experiments direction as well.
Lippard and Chandler bring up very relevant arguments in their essay ["The Dematerialization of Art," on conceptual art practice of the 1960s and early 1970s]. Art has become much less of a material art form.

James Turrell uses Light as his “materials”. Light is seen as a physical medium that composes space.

In this thesis project, Light is used as a mean of de-materialization, which eliminates the physical object visually, altering ones perceptions. Materials lose their sense of solidity and lights reconstruct the surfaces of the space and objects.

Light as A Means of Dematerialization

http://www.blueverticalstudio.com/?p=5736

Works by James Turrell
The Ganzfeld procedure exposes the participant to ‘unstructured’ sensations usually by placing half ping-pong balls over the eyes so they can only see diffuse white light and by playing white noise through headphones.¹

When someone is exposed to a Ganzfeld, they often experience a progression of effects that can be described as follows:

* All colour drains from your field of vision
* The size of your field of vision oscillates
* You “see” a swirling Kaleidoscope of colours and with practice
* You completely ignore your vision as you use your mind in an extremely focused way²

¹ http://web-us.com/ganzfeld.htm
² http://mindhacks.com/2008/11/17/ganzfeld-hallucinations/
“Whiteout”
From Ganzfeld to “True” Illusion

Both Ganzfeld and the phenomenon of this thesis start from a pure whiteout scene: there are no reference points at all, leaving the individual with a distorted orientation. In that scene, eyes and brains are in the process to adjust to this environment.
From Ganzfeld to “True” Illusion

The illusion from Ganzfeld experience is from your inner neuron system. Different people experiences differently. The physical environment setting helps the people get into that illusionary states.

Different from Ganzfeld, this thesis project produce a “true” illusion, which physically happens in the real world. Therefore, all the people will experience the same illusion. In another word, we can control the illusion image for different people.
Experiments
Investigation of Visibility / Invisibility through the experiments with the distance between foreground and background.

The two Styrofoam panels can move in order to change the distance between the foreground and the background. In a very precise distance, the aperture on the foreground panel will disappear. The visibility of two apertures are controlled separately in order to investigate this key controlling parameter.
Experiments
Exploring the visibility and invisibility of the aperture on the side. In this case, by controlling the light in the side space, the side aperture could be hidden.
Thinner Styrofoam is less reflective but more translucent.

Thicker Styrofoam is more reflective but less translucent.

Illuminance Level = Reflection + Transmission

The thickness of the Styrofoam determines the level of reflection and transmission. The overall illuminance level on the surface of the Styrofoam equals the light from reflection plus the light from transmission.
In order to eliminate the boundaries of the objects and space, the fundamental strategy is to maintain the exact same luminance levels for each surface of the objects. In a diffused lighting condition, part of the light comes from reflection and part comes from transmission. Each aspect of the light could be controlled by the organization of the material and the thickness of the material. Since the wall is white, visually I get the same whiteness when I keep the same luminance level on different surfaces. Thus, I merge the foreground, object and background. All together the view fades to white.
Lab As A Mean to Exploring The Uncertainty

A laboratory is a facility that provides controlled conditions in which scientific research, experiments, and measurement may be performed. To gain full control of this phenomenon of “disappearance”, a laboratory setting serves as the research environment as well as the art installation itself.
Problem: Light is not evenly distributed since the light sources are on the top.

**Background Buffer Area**

- Fluorescent Light
  - For The Background Illuminance

**Background Wall**

**Foreground Buffer Area**

- Fluorescent Light
  - For The Foreground Illuminance

**Foil paper**
- Isolating Inner Lighting Condition from Outside

**Styrofoam™**
Foil Paper: 
Adding more reflection in order to have a evenly distributed light condition, resolving the problem of too little light from the bottom

Making the top part of the Styrofoam sharper in order to avoid too much light caused by the light source above
Trigger:

For this experiments setting, after we get to the perfect condition that the objects is invisible, if we open the front door panels, the objects turns to be visible again, since it lacks the light from the front. Therefore, by opening and closing the door panel on the front, which changes the inner light condition, we can watch the transitions from visible to invisible.
Phantom House

Based on the Lab setting, I started to do some experiments with more controls. Houses with different size, shape, distance, thickness merge with the background, turning into invisible in this Light Lab.
Phantom House
These photos show the back side of the same houses. The section look image can turn to be in visible.
Phantom House
These photos show the right side of the same houses.

Part II
Magic: A Pseudoscience Scenography

Once I developed a certain method to adjust the light setting in order to make things disappear, the research moved onto the next step: scenography study. The main purpose is to use this “disappearing” phenomenon as a key feature to design dramatic scenography. The way I started with this research is tested couple of “random” scenes in this light box. Afterwards, I designed more specific scene as magic shows.
Dramatic Scenes
The first step in this chapter is to put some dramatic scenes like labyrinth into the light lab to see the visual effect.
Dramatic Scenes I
Invisible Curtain
Dramatic Scenes II
Endless Room
Dramatic Scenes IV
Labyrinth II

From Dramatic Scenes to Pseudoscience Scene

After testing a series of “random” scenes, the research is towards some very specific “magical” scenes which explore the different possibilities of the phenomenon of disappearance.
Distance Responsive

Once people is close to the object, he affects the perfect diffused light condition. Therefore, the illuminance levels on the wall and the background are not balanced, so that the aperture shows up.
The foam serves as a mask so that the people behind only show a part of their body, which makes a visual illusion that parts of the body are floating in the air.
Thickness & Transparency

By changing the thickness of the styrofoam, we could change the transparency. Therefore, we are controlling the visibility of people’s movement.
Distance Perception

As a commonsense, we know that the closer people are to the semi transparent glass, the clearer the image of people behind the glass will be. However, once we control the thickness of the foam, which means we control the transparency of the foam, actually we could alter the distance perception between the people and the wall.
Floating People
The people were lifted by the white styrofoam. With well controlled diffused light, the support foam could be visually merged into the background.
Teleportation

Teleportation is a term that refers to the transfer of matter from one point to another point without traversing the physical space between them. In this scene, it seems that those two doors connect to another world.
Perspective interaction

The disappearance of the object could be controlled by the perspective. The visibility of the objects varies from different perspectives. The trick is to have a gradient illuminance of the background. So that from different perspective, sometimes the object has the same illuminance level with the background, sometimes not. This makes the object fade in and fade out smoothly, which let people truly interact with the space.
Phantom Shadow
Shadow is cast on the wall behind the man. However, once the man leaves, the shadow stays there.
Chop The Woman Into Halves
In the past research, the perception is only based on the visual effect. This part is going to discuss the relationship between body and the “disappearing” phenomenon. When the phenomenon responds to our body movement, our inner perception system will be more active since the “illusion” can be controlled by ourselves. This will make people start to wander, go back and forth and raise the consciousness of the materiality of the physical world. Therefore, we are not facing a magic show stage. We are experience a “in-between” reality, where the reality could be distorted by our physical movement. We are the illusionists as well as the spectators. The final installation project is a experimental test to this discussion.

**Part III**

**Echoes**

In the past research, the perception is only based on the visual effect. This part is going to discuss the relationship between body and the “disappearing” phenomenon. When the phenomenon responds to our body movement, our inner perception system will be more active since the “illusion” can be controlled by ourselves. This will make people start to wander, go back and forth and raise the consciousness of the materiality of the physical world. Therefore, we are not facing a magic show stage. We are experience a “in-between” reality, where the reality could be distorted by our physical movement. We are the illusionists as well as the spectators. The final installation project is a experimental test to this discussion.

“What I would like to do is to make you aware that you see and that, by not being able to prejudice the situation, you suddenly become party to an entirely different structure of the state of the real”

-- Robert Irwin

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A Body Intervention
Once the hand moves close to the wall, the visual image of the wall configuration changes. This is because the hand influences the previous perfect diffused light conditions.
After making some experiments in small scale, like putting the fist in the Styrofoam box, I started to build some mockups for the new experiments. The idea is to use head as a representation of our full body to intervene the space as to change the visibility/invisibility of the objects inside the light box. Because in different parts of the Styrofoam tunnel, the light condition is different. Therefore, the way you disrupt the light is different. This research is about how to precisely control the influence of body movement.
Final Installation (working progress)
The idea of this installation is that once people get into the tunnel, everything in the end of the tunnel is invisible. When people start to walk, the objects start to be visible gradually. After walking for a certain distance, the objects is completely visible. However, if you keep going, the object would be suddenly disappear again. In terms of the perception, at the beginning, objects only show their materiality when you are closing to it. This calls the consciousness to our everyday life experience since we see objects clearer when we are closer to it. However, the very uncanny point in this project is that, after people see the objects very clear and want to get even closer to it, it starts to disappear just right in front of the people. This is opposite to the experience we had before, which encourages people to rethink our perception and the reality.

You move; therefore, you see.

The scenes you see in the tunnel.
I move; therefore, I see.
I move; therefore, I see.
Bibliography


