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UNIVERSITY of CALIFORNIA
SANTA CRUZ

Emersive VR: An Expanded Immersive VR Practice

A thesis paper submitted in partial satisfaction
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in

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by

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2021

Table of Contents

<i>I. Introduction</i>	1
<i>II. Immersion</i>	4
i. Immersive Spectacle	5
ii. Interactivity and Immersion	12
iii. Essential Characteristics of Immersive VR	14
Virtual Embodiment	14
Completeness	19
Singularity	22
<i>III. Emersion</i>	24
i. What is Emersion?	24
ii. Emersion and Differentiability	29
iii. Reflexive Storytelling	39
<i>IV. Relationship Between Immersive and Emersive VR</i>	45
<i>V. Emersive VR: Fair Sai Re Pi VR</i>	51
i. Fair Sai Re Pi VR	51
ii. Multiplicities and Emersive VR	66
<i>VI. Conclusion and Future Study</i>	70
<i>Bibliography</i>	76
<i>Appendix A</i>	81
<i>Appendix B</i>	82

Abstract

Emersive VR: An Expanded Immersive VR Practice

Haoran Chang

In the current mainstream Virtual Reality (VR) practice and design, creating an immersive isolated virtual environment is the canon. Audiences are usually situated in a singular and complete form of space in VR to receive the fully immersive experience. Nevertheless, in this paper, I propose a different way of thinking about the practice and design of VR. Rather than seeing VR as a singular and isolated space in relation to other spaces, I am considering a potentiality to have a more expansive and reflexive VR practice and design. I call this Emersive VR in contrast to Immersive VR. Emersion is a concept borrowing from body ecology, which is a field based on the philosophy of awakening and consciousness. Emersion in body ecology is different from immersion in that people can still sustain self-consciousness without being subsumed by the other. In the notion of Emersive VR, audiences are not located in a singular and complete virtual space but in a differential space between physical and virtual. The spatial difference is folded through the VR experience perceived by the audiences. I highlight two different approaches to construct an Emersive VR experience in this paper: multisensory VR experience and reflexive VR storytelling. In both of them, audiences are not isolated in a singular virtual world but in a differential space with multiple embodiments. I use my VR project, *Fair Sai Re Pi VR*, as a case study in discussing Emersive VR. *Fair Sai Re Pi VR* is a multisensory VR experience fictionalizing a fire therapy sold by a pyramid scheme company in China. The audience's body is between physical "therapeutic space" and virtual space, and fictional story and reality. This VR project attempts to question the relationship between Chinese Traditional Medicine and Modernity via the Emersive VR design. Emersive VR is a reconfiguration of immersive VR. It is to expand the idea of immersive VR and sketch a more dynamic future of VR as a critical media.

DEDICATION

To My Parents

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I. Introduction

Virtual Reality (VR) technology is considered by many people as an apparatus to escape from reality. The sci-fi movie, *Ready Player One* (2018), directed by Steven Spielberg, is plotted in an expansive gamified VR universe that people can escape to, which becomes some VR goers' ultimate imagination about VR. Many commercial VR games and experiences separate people from the physical world in design, such as walking in the forest, shooting combats, and cooking. These virtual renderings in VR are mostly mimics of the real world. VR is the portal to another space. VR has become even more appealing to people during the pandemic in 2020 since people are quarantined at home with limited access to the physical spaces. People can use VR to escape to another space facing the constraints in the physical space. These virtual spaces do not have a connection to the real world but are in parallel to it. Besides creating a virtual world to live in, people also reflect the real world in the virtual space. In 2015, Artist and VR entrepreneur Chris Milk presented VR as an “empathy machine” in a TED Talk and showed a 360-degree VR documentary, *Clouds Sidra*, which tells a story of a 13-year-old girl living in a refugee camp in Jordan.¹ VR is used as an apparatus to help people become the other or go to a place that they do not have access to. This new experiential engagement by transporting to other places and becoming the other also inspired journalists, like Nonny de la Peña, known as the

¹ Chris Milk, “How Virtual Reality can create the ultimate empathy machine.” Filmed March 2015 at TED2015, video, 10:02, https://www.ted.com/talks/chris_milk_how_virtual_reality_can_create_the_ultimate_empathy_machine/transcript?language=en.

“godmother of immersive journalism,” who produced immersive journalism pieces to address critical issues, such as racism, refugee issues, and xenophobia.

From building a VR simulating the real world to the “empathy machine,” VR design and practice follow the original promise of this technology that it will create an ultimate immersive environment for people. The immersive environment has a clear boundary to the physical space. Putting the VR headset on, users can become the other and reside in another place. However, this promise is not as ideal as it sounds. In the VRChat, one of the most popular VR social games, sexual assaults, and racism are not uncommon. The idea of using VR technology as an “empathy machine” has been criticized by many scholars. Media theorist Grant Bollmer fears that empathy machines can become the denial of accepting the difference between oneself and others.² There is a danger of blurring the boundary between self and other in using VR technology to create the illusion of becoming other.³ Media scholar Lisa Nakamura addresses the problem of a “toxic embodiment:” the strong sensory experience in VR enables the audience to feel the proximity to the other, but it can also function as identity tourism and becoming empathy automation, rather than addressing the real issue systematically.⁴

The booming VR entertainment industry would like us to believe that by putting on a VR headset, we can teleport into countless other worlds to become whoever we

² Grant Bollmer, “Empathy Machines,” *Media International Australia* 165, no.1 (2017): 63–76.

³ Kate Nash, “Virtual reality Witness: Exploring the ethics of mediated presence,” *Studies in Documentary Film* 12, no.2 (2018): 119–131.

⁴ Lisa Nakamura, “Feeling Good About Feeling Bad: Virtuous Virtual Reality and the Automation of Racial Empathy,” *Journal of Visual Culture* 19, no. 1 (2020): 48-61.

want. But is this the only possible way to imagine the future of this medium? Can we build a VR practice that is not creating an isolated immersive world? Can VR be used as an expansive medium rather than as a singular closed space? How can we expand the VR design and practice and use it as a critical medium instead of an apparatus rendering visual spectacle we can escape to?

I propose the concept of “Emersive VR” to rethink and expand “immersive VR,” the gold-standard of mainstream VR design and practice. Emersion comes from the Latin root “emergo” which means to rise from the water, in differentiation to immersion, coming from the Latin root “immergo” which means to dive or to submerge.⁵ Emersive VR is inspired by the idea of emersion in body ecology. Different from immersion, emersion reawakens human consciousness through highly embodied encounters with VR. Some media scholars have explored this idea. Piotr Kubiński uses the term “emersive” in the game studies while examining different strategies of disrupting or weakening a player’s immersive experience.⁶ Unlike his intention of creating an obvious separation between immersion and emersion, in my proposal of Emersive VR, I do not intend to situate them at polemic positions. Emersive VR proposes reimagining VR as an immersive apparatus and expanding it through reconnecting to other spaces. It aims to reawaken human subjectivity and self-consciousness in VR. By breaking the singular form of immersive VR, Emersive

⁵ Piotr Kubiński, “Immersion vs. Emersive Effects in Videogames,” in *Engaging with Videogames: Play, Theory and Practice*, ed. Dawn Stobart and Monica Evans (Oxford: Inter-Disciplinary Press, 2014), 134.

⁶ Piotr Kubiński, 134-139.

VR practice asks for a more reflexive, expansive, and critical design and practice in utilizing this emerging media.

I will start by reviewing the concept of immersion focusing on the immersive spectacle, then move to the relationship between interactivity and immersion. I will summarize three main characteristics of immersion based on my observation and practice as following. In the second section, I will explain the definition of emersion based on the field of body ecology and explain how it is related to VR. I will compare immersive and Emersive VR in detail to demonstrate that they are not exclusive to each other. Then, I will take a close look at my own VR project, *Fair Sai Re Pi VR*. Through the lens of my artistic practice, the concept of Emersive VR will be reflected in my work. This paper will end with a discussion of future studies.

II. Immersion

Immersion can be a reading experience traveling in a fantasy world with imagination, a dream, a ride in a theme park, or a flow state, a mental state that an individual is in a feeling of focus, losing track of time. Janet Murray describes the immersive experience as a metaphorical term of being submerged in the water, entering into a new reality in separation from other worlds.⁷ Marie-Laure Ryan sees immersion as a created world that is as real as the physical world, and observers can suspend their beliefs for a period no matter the constructed world is real or not.⁸

⁷ Janet Murray, *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*, updated edition (Cambridge: MIT Press, 2017), 124.

⁸ Marie-Laure Ryan, *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media* (Baltimore: The Johns Hopkins University, 2001), 89.

These environments are “possible worlds” that “it is the set-theoretical idea that reality, the total of the imaginable, is a universe composed of a plurality of distinct elements, or worlds and that it is hierarchically structured by the opposition of one well-designed element, which functions as the center of the system.”⁹ This section will explore the immersive VR experience from the perspective of seeing first, then move to discussing the relationship between interactivity and immersion. At the end of the section, I will summarize three main characteristics of immersive VR: virtual embodiment, completeness, and singularity.

i. Immersive Spectacle

There has been a long history of creating a spectacular immersive environment before the birth of digital technology. The 360-degree fresco and panorama were utilized to create an illusion of being immersed in a different space. The Great Frieze in the *Villa dei Misteri* at Pompeii created in 60 B.C. has a 360-degree painted scene which overwhelms the observer in the chamber, infusing between the human cult follower and the virtual Dionysian divinities depicted in the pictures. Although there is no depth in the images, the 360-degree design incorporates observers into the space of virtual images. The integration between the external images and the observer went further with the invention of the technique of perspective. For instance, *The Sala delle Prospettive* painted by Peruzzi in 1516-1518 creates a spectacle of illusion by painting the exact perspective of the hall with columns in the room.¹⁰ The

⁹ Marie-Laure Ryan, 99.

¹⁰ Oliver Grau, *Virtual Art: From Illusion to Immersion* (Cambridge: MIT Press, 2003), 38.

architectural space and painted images form a uniformed immersive space to draw the observer into the virtual space. Another well-known example of using the technique of perspective to create an illusion space is the baroque-style ceiling, *The Glorification of Saint Ignatius*, by Andrea Pozzo in 1688-1694. Unlike the examples mentioned above, this image is depicted not at horizontal eye level, and observers have to look it up in this vertical architectural space. Oliver Grau argues that this design demonstrates the power and reinforces the “earthbound believers’ duty of obedience of the Holy Church” rather than incorporating observers’ bodies.¹¹ Yet, it is not negligible that it creates an overwhelming immersive experience. Panorama has become more and more popular in the 18th century, especially in interior designs. Panorama paintings were also placed in circular architecture to strengthen the completeness of the image. The world’s first purpose-built rotunda was constructed in Leicester Square on May 14, 1793.¹² A complete panorama painting surrounded visitors hung on the circular wall of the architectural space. These early explorations of panorama entrap observers into another reality and make them believe their bodies in another space.

In the 20th century, artists continued exploring the immersion in their practices to shorten the distance between audiences’ bodies and the artworks. Claude Monet created the panoramic Water Lilly paintings, which were first exhibited publicly at Giverny in 1927.¹³ Rather than submerging audience into the water, this series of

¹¹ Oliver Grau, 49.

¹² Oliver Grau, 58.

¹³ Oliver Grau, 141.

paintings immersed audience by floating above the water surface. Enrico Prampolini, one of the most important artists in the futurism movement, manifested the Polydimensional Futurist Stage that creates a “spherical expansion” of the box-shaped horizontal stage, which enables the stage to be seen from more than one direction.¹⁴

The stereoscope is another important invention to create an illusion of being immersed in a different space. By putting two separate images at left-eye and right-eye, the observer can perceive the depth of an image, which was not achievable by 2D images. Sir Charles Wheatstone invented the mirror-based stereoscope in 1838.¹⁵ In 1861, Oliver Wendell Holmes invented the hand-held stereoscope Holmes Stereoscope.¹⁶ The stereoscope creates depth, but it also scales down the images within a small frame. The stereo images reproduce the “fake, rendered fanciful and fantastic through its minute dimensions and model-like appearance.”¹⁷ Different from the grand panorama enveloping observers’ bodies, observers need to project their imaginations of the scale of the reproduced cityscape or natural landscape when using a stereoscope. The stereoscope is the simulation of the grandness of the scene. It can be considered an early prototype of VR headset, immersing people in a closed space.

With the invention of film, moving images can capture the dimension of the space-time continuum. As a new media at the end of the 19th century and the beginning of the 20th century, the film became the successor of panorama in creating

¹⁴ Oliver Grau, 144.

¹⁵ Oliver Wendell Holmes, “The Stereoscope and the Stereograph,” *The Atlantic*, June 1859, <https://www.theatlantic.com/magazine/archive/1859/06/the-stereoscope-and-the-stereograph/303361/>

¹⁶ Sheenagh Pietrobruno, “The Stereoscope and the Miniature,” *Early Popular Visual Culture* 9, no.3(2011): 172.

¹⁷ Sheenagh Pietrobruno, 178.

an immersive experience. In the 1900 World Exhibition in Paris, *Cineorama*, a 360-degree image projected from ten 70mm films was presented.¹⁸ The invention of the 3D film expands the flatness of moving images and enables dimensionality to be perceived by the audience. The first 3-D film was screened in public in 1897.¹⁹ *Televue* (1921) was the first 3D film introduced to the United States.²⁰ Cinema became a significant space to create a visual illusion. It creates a sense of immersion to audiences by experiencing either 2D or 3D films. Russian director Andrej Tarkovsky claimed film as an “emotional reality,” which is the “second reality” to experience.²¹ Sergej Eisenstein sees stereoscopic cinema as a medium of illusion that can control the audience’s emotions. Film becomes an important analog technology in forming an immersive experience bringing the audience to become part of the virtual moving images.

From early fresco and panorama to stereoscope and film, the audience can experience a sense of immersion for feeling the presence of their bodies in another virtual space. Nevertheless, these images are still static in response to the movement of audience’s body. Observers need to project the presence of their bodies to the virtual space. In this sense, these early explorations of immersive experience are passive immersion, in separation from audience’s body. In 1965, Ivan Sutherland envisioned the “Ultimate Display” that merges the physical and virtual space together

¹⁸ Oliver Grau, 147.

¹⁹ Oliver Grau, 151.

²⁰ Oliver Grau, 153.

²¹ *ibid.*

with the display, like the Wonderland into which Alice walked.²² In 1966, Ivan Sutherland created “Sword of Damocles” the first VR and AR head-mounted display using computer graphics. Different from early immersive experiences, Ivan Sutherland’s invention creates virtual content that is not only a static one, detached from the physical location and audience’s body, but also rendered in real-time and responsive to them. This new technology opens a new door in shortening the distance between the virtual content and the observer. In 1973, a fictional device called recreation room, which is also called Holodeck later, appeared in the *Star Trek: The Animated Series*. Unlike the head-mounted display that simulates the virtual environment through a small screen put on top of the user’s head, it is a large room with black walls which can simulate different VR environments. In 1975, engineer and artist Myron Krueger created the piece *Videoplace*, arguably the first work of art to use virtual reality. In this project, audiences can see their outlines projected on a screen in front of them and can interact with computer-generated virtual critters that are projected in their proximity and that respond to the gestures of the audience. The virtual images are created in real-time, and audiences can interact in the virtual space through video projection. Audiences are not only passive observers, but they can interact with each other and with simulated objects in the computer-generated environment. In 1982, Thomas Furness III developed the VCSAA (Visually Coupled Airborne System Simulator). This is a 6-degree freedom head-mounted display that

²² Ivan E. Sutherland, "The Ultimate Display." Paper presented at the meeting of the Proceedings of the Congress of the International Federation of Information Processing (IFIP), 1965.

allows users to walk in the virtual space isolated from the real world completely. There is a boom of VR technology in 80s, such as VPL research, the first company focusing on VR products founded by Jaron Lanier who coined the term “virtual reality,” first PC based VR system developed by Autodesk in 1989, and BOOM developed by Fake Space Labs in 1989. In 1993, an interdisciplinary team of researchers at the University of Illinois, Chicago, invented the CAVE (Cave Automated Virtual Environment), an immersive VR space realized through projections in a cubic room.²³ There were many different commercial and non-commercial head-mounted displays developed in the 90s, such as Touring Machine (1992) by Computer Graphics and User Interfaces Lab at Columbia University, Virtual Boy (1995) by Nintendo, PARIS (1998) by Electronic Visualization Laboratory at UIC. After a hiatus in the commercialization of VR technology at the beginning of the 21st century, another boom of interest in VR began in the 2010s with the development of high resolution, low-cost VR headsets, such as the Oculus Rift (funded as a Kickstarter in 2012) and commercially available in 2016 and the HTC Vive, also released in 2016.

The emergence of new immersive digital technologies like head-mounted display and immersive video projection since the mid-20th century reimagines the possibility of the relationship between the virtual space and the audience’s body. An immersive environment rendered in real-time allows the audience to situate their

²³ Cruz-Neira, C., Sandin, D., DeFanti, T., Virtual Reality: The Design and Implementation of the CAVE®, Proceedings of SIGGRAPH 93 Computer Graphics Conference, ACM SIGGRAPH, pp. 135-142, August 1st, 1993.

bodies within a virtual world directly. They are subsumed by the immersive spectacle and interact with the virtual content with bodily movement. Users may still be aware of the existence of the hardware, but they can experience the virtual space from the first-person perspective and interact with virtual contents with their bodies. I call this immersive digital experience non-passive immersion since the observers can perceive the presence of their bodies in the virtual space directly without projecting themselves to that world through imagination. Audience can even be able to interact with and change the components in the virtual space through the body gestures. The virtual content is not only an external entity, but it has the potential to become part of human consciousness. These new technologies open a new door to achieve the immersion.

Although the audience can have more freedom in the virtual world in a non-passive immersive experience, it does not mean that users have complete self-subjectivities. Creators still have the authority to control what to present and show in the virtual space. The non-passive immersive experience can still be a completely closed system like the passive immersive experience. Non-passive immersive experience creators have significant powers, but they have opportunity to create the “guiding media” that reflects and refracts what is given to assist audience to transform with it.²⁴ Creators can construct the architecture of the experience for audience to navigate and fulfill the imaginations by themselves. Although non-passive experience has this potential to allow audience to explore in their own pace,

²⁴ David Rokeby, “Transforming Mirrors: Subjectivity and Control in Interactive Media,” *Critical Issues in Electronic Media* (1995), 1-3.

the goal for immersive experience is to fully involve in the virtual space. Both Non-passive and passive immersive spectacle can diminish the audience's physical presence and merge into the virtual world and become the other forgetting the presence of self.

ii. Interactivity and Immersion

Interactivity seems to be an enemy to an immersive VR experience. In an immersive virtual space, users suspend their subjectivities and become the character in the context of virtual environments. The simulation makes them believe that they are part of the immersive world. Nevertheless, when users start interacting in a virtual world, the sense of being part of the virtual space can gradually disappear. The self is not replaced in the immersive environment because of the presence of the actual self in the virtual space, especially in the space without rich narratives and good interactive design.

To reconcile the conflict between interactivity and immersion, it is important to avoid the dimensionality of self-reflexive in the experience.²⁵ One example of immersive interaction is the ritual that is a technique to use gestures, performative speech, manipulation of symbolic objects to create a bond between the people and the other.²⁶ Janet Murray proposed more practical solutions in solving this conflict. One important strategy is to find the border between the virtual and actual world to make

²⁵ Marie-Laure Ryan, 284.

²⁶ Marie-Laure Ryan, 293.

the audience understand that they are entering into a virtual fantasy as a visit.²⁷ This intentionality allows the audience to suspend self-subjectivity actively and create a new belief in the virtual world. For instance, by wearing a virtual avatar, similar to wearing a mask in a religious ritual, participants actively suspend their own beliefs and join in an immersive world. Another example to construct an immersive experience in an interactive virtual space is through building collective participation. Each person plays a role in the virtual world to make a virtual connection with each other.

Regarding Brenda Laura's VR project, *Placeholder*, Janet Murray describes it as "doubly costumed". In this project, the audiences wear the actual helmets and body sensors. They enter into the animals' bodies with virtual costumes that the audiences' visions, voices, and movements change according to the changing bodies. Audiences can be embodied with animals like fish and snake. Also, in this project, two players play at the same time and can touch with each other virtually. Participants are immersed in the virtual world by playing the role of different animals in accompanied with another participant actively. In this early VR experience, the immersion is created through becoming the animals in collective participation. Wearing the VR equipment becomes a portal to become animals in another space, demarcating the difference between virtual and real space.

In an interactable virtual space, audiences have more authority to create their own stories. They are not passive observers. They have capability to construct their

²⁷ Janet Murray, 240-250.

own believes actively. Because of this freedom in an interactable virtual world, the interactivity must align with the context of virtual environment to allow participant to suspend the self-subjectivity actively. Otherwise, interactivity will break the immersion. The audiences will perceive the presence of themselves in the virtual world through interaction disconnected to the context and story. In the immersive world, they are not the actual selves, but they become the other, the virtual one in connection with the virtual others. In the immersive VR experience, users play the role set up in the virtual space, suspending the belief as players to become the virtual characters. In many singular VR experiences, audiences play a certain role without interacting with other users, which is different from many other experiences, like watching a film or a play in the theater in which the audience can see each other and respond to the film or play on the stage accordingly. In the simulation VR, like cooking VR game, the player can play the role of the chef. In the immersive VR experience, users can suspend their beliefs as players, and play the roles actively and perceive the virtual worlds through the gaze of the virtual character. The user will not be aware of the presence of body in the physical space anymore as an actual self but become the virtual character in VR. The self-consciousness is gradually displaced by the virtual one within the virtual environment.

iii. Essential Characteristics of Immersive VR

Virtual Embodiment

In VR, users can move their bodies in the virtual environment and interact with virtual objects actively. VR can render an immersive environment responsive to the user's body. The responsive relationship between the user's body and the virtual environment creates a new relationship between the fictional character and the audience. Audiences are not passive viewers but part of the virtual environment and context. Interactivity creates the agency of the audience's body in the VR space.

To play as a virtual character has been widely applied in many commercial games and interactive VR films. Designers can approach the immersive virtual embodiment through two perspectives: ludology and narratology. I will use two commercial VR titles, *Superhot VR* and *Wolves in the Walls: It's All Over* as examples to demonstrate how to enhance immersive virtual embodiment from two different perspectives: ludology and narratology.

In *Superhot VR*, a First-Person Shooting VR game, the player wears two black geometric hands and uses guns to shoot the red low polygon humanoids. Facing the constant attacks from the enemies, the players have to use their hands to grab the gun and shoot them quickly. With the intense background music and responsive special effect of killing red humanoids, there is a certain level of satisfaction and urgency of shooting. Other than shooting, players can also use their bodies to hide and move around the space to attack enemies tactically. The player is immersed in the virtual environment with intense shooting battles facing the waves of enemies. The game mechanics make the player believe that they are in a virtual shooting battle and respond to it promptly. The urgency in attacking enemies and protecting the player

itself leaves little room for noticing the presence of the body in actual space. This strategy of designing intense game mechanics is common in many shooting games, which creates an immersive shooting experience for the players who feel like they are the shooters at that moment. The suspension of body awareness in the virtual space can also be achieved in creative interactive storytelling. One example is the *Wolves in the Walls: It's All Over*, a virtual reality interactive experience that the player plays as the role of the imaginative friend of the main character, Lucy. At the beginning of the story, Lucy draws a hand for the player, and the audience can start interacting with Lucy, such as holding her camera, helping her to make the jam, and marking on the wall. These interactions draw the audience into the story and become the friend of Lucy, and Lucy also asks the audience, "do you believe in me." Based on the audience's behavior, the narrative also expands in different ways. Lucy is not a virtual character, as mentioned by the director Pete Billington, but responsive to audience's behaviour. And the studio is developing a more advanced AI technology to make Lucy become a character who can process natural language and interact with the audience. In this example, the audience is immersed in the story and becomes the imaginary friend of Lucy with the creative design in interactive storytelling. These two examples achieve a level of immersion that suspends the audience's notion of presenting in actual space by using two different approaches. In *Superhot VR*, it is achieved through an immersive game mechanics. Differently, in *Wolves in the Walls: It's All Over*, the immersion is realized by creative interactive storytelling. The body has been replaced by recontextualization in immersive gameplay or storytelling in

VR. The player becomes a shooter in *Superhot VR* and an imaginary friend of Lucy in *Wolves in the Walls: It's All Over*.

The embodiment of the virtual body in VR can transform the participant's body into another being. In the immersive VR world, the participant can become whatever they want, either a humanoid, an animal, or an object. Psychonaut Terence McKenna imagined that he could be an octopus in Virtual Reality.²⁸ Octopus can communicate visually, for example by dancing and changing colors, thus making themselves a naked nervous system. McKenna's fantasy projection of becoming an octopus in VR conveys his hope that VR can be used to explore the higher forms of visual communication to avoid misunderstanding and to "complete the culture," as observed by Jaron Lanier.²⁹ In this vision, there is no separation between object and subject, self and other, and human beings can form a true union by communicating through the mind in VR. McKenna's utopia imagination about becoming an octopus in VR demonstrates the potentiality of VR to transform the physical body into another form beyond our physical bodies. In more recent VR artworks, artists continue to explore the possibilities of becoming the other in the immersive virtual environment. For instance, in Micha Cárdenas' mixed reality performance piece *Becoming Dragon* (2008), she immersed herself in the Second Life with head-mounted display (HMD) for 365 hours.³⁰ With the embodiment of avatar, she explored her gender as outside of

²⁸ Terence McKenna, *The Archaic Revival: Speculations on Psychedelic Mushrooms, the Amazon, Virtual Reality, UFOs, Evolution, Shamanism, the Rebirth of the Goddess, and the End of History* (New York: Harper Collins, 1991), 231.

²⁹ Terence McKenna, 233.

³⁰ Micha Cardenas, "Becoming Dragon: A Transversal Technology Study," *Code Drift: Essays in Critical Digital Studies* 009 (2010): accessed August, 2021, <http://ctheory.net/articles.aspx?id=639>.

the binary thinking of male and female through the bodily expression in the virtual environment. In the *Tree VR* (2016), the player can be teleported into the forest and transformed into a tree to experience the life of a tree from a seedling to a full-grown tree. These examples of becoming other in VR demonstrate the transformative experiences in the virtual world uncoupled from our everyday life experiences.

Through teleporting into another world and becoming the other, participants can project themselves into other virtual forms and inhabit double consciousness and double gaze. But is it possible that the double consciousness (or two forms of body) can work together? Terence McKenna considered the possibility of virtual reality within virtual reality. After awakening from the dream, we cannot tell if we are in the dream or reality. This trope is ancient and can be found in one of the most famous stories of Zhuangzi (476-221BCE). In “The Butterfly Dream” the Classical Daoist philosopher wrote,

Suddenly he woke up and there he was, solid and unmistakable Zhuang Zhou. But he didn't know if he was Zhuang Zhou who had dreamt, he was a butterfly, or a butterfly dreaming that he was Zhuang Zhou. Between Zhuang Zhou and the butterfly there must be some distinction! This is called the Transformation of Things.”³¹

³¹ Burton Waston, *Zhuangzi: Basic Writings (3rd ed.)* (New York: Columbia University Press, 2003).

If we see this butterfly dream as a VR mechanism, over 2000 years ago, Zhuang Zhou experienced a VR with the embodiment of a butterfly avatar. But after the dream or the VR experience, he cannot tell if he is in the VR with the embodiment of a human figure or he is out of VR and back to human.

Although the technology is not as advanced as depriving our capability to recognize the bodies' positions, this question recognizes VR as an out-of-body experience that can alter our body and mind. In VR, by transforming into another virtual being in an immersive environment, participants' perceptions can change. People can channel into the state of altered consciousness to affect their bodies and minds. The bodily presence in an immersive VR not only can temporarily transform the physical body into another virtual character, but it can also affect the consciousness when the users are embodied with other virtual beings.

Completeness

Similar to early immersive experiences such as fresco and panorama I have mentioned before, the imagery needs to keep complete for maintaining the illusion. The image is supposed to maintain continuous and cohesive for rendering a complete and self-contained space. So, audiences can be immersed in this separate world without intervention. The completeness guarantees users are encircled within the immersive world, withholding the belief of becoming part of the virtual space.

In the traditional media, such as 2D film, images are composed within the frame. Audiences look at the pictures framed by the creators with specific

compositions, and they do not have the level of freedom in framing the pictures they want to see. Framing is the gaze, containing the internal power. The gaze, different from looking, is embedded with power and is situated within the social structure. In Michel Foucault's famous discussion of the panopticon, supervisors' inspection gaze has been internalized by prisoners among themselves.³² This internalized gaze becomes the power of discipline and punishment, which imposes on the perception of looking at bodies within the social structure. In John Berger's classic book, *Ways of Seeing*, he argues that the female body has been represented with the intervention of cultural and political ideologies.³³ In Laurel Mulvey's essay, *Visual Pleasure and Narrative Cinema*, she uses Freudian psychoanalysis and writes about the "male gaze" that how the female body is seen in the mainstream Hollywood film through the lens of women's objectification by men.³⁴ Audiences are the passive viewers situated in this power structure, framed by the creators who lead the audience to see the constructed power in the moving images.

Differently, when the complete 360-degree image encircles the audience, looking becomes more active. Audiences have a certain level of power in choosing the part they want to see encountering the 360-degree picture. The completeness of immersive virtual space creates an immersive gaze that offers the audience a chance of actively looking. Audiences can see a fraction of the complete image by their

³² Michel Foucault, trans. Alan Shridan, *Discipline and Punish: The Birth of the Prison* (New York: Vintage Books, 1995), 195-228.

³³ John Berger, *Ways of seeing* (London: Penguin Classics, 2008).

³⁴ Laurel Mulvey, "Visual Pleasure and Narrative Cinema," in *Feminism and Film Theory*, ed. Constance Penley (New York: Routledge, 1988). 57-68.

preferences. Without the complete image presented in virtual space, audience do not have the authority to frame the part they want to perceive. They do not have the opportunity to reframe the immersive space created by the creators. The complete picture is different from capturing several moments of the scene and present them asynchronously. The full image suggests the continuity of space and time that the event happens simultaneously at the same location. This continuity allows all different ways of framing to have equivalent weight. All of them are part of the virtual world at that specific moment.

Active looking in a complete virtual space gives audiences an illusion of the presence. They do not see through the perspective framed by other people, but they see it through their own perspectives. The authority of looking transfers from the creator to the audiences. Nevertheless, it does not mean that the immersive gaze is dissociated with the power imposed by the creator in the immersive VR environment. Audiences have choice of looking in an immersive world, but the space is carefully designed by the creator. The *Battle of Sedan* panorama by Anton von Werner depicted a moment of the battle of Beaumont between French troops and Prussian armies near the fortress of Sedan on August 30, 1870. Although this is a 360-degree image that captures the whole battlefield, the creator picked up a specific composition to capture the idealized Prussian soldiers and the French soldiers as anonymous masses.³⁵ This powerful panorama picture allows each visitor to feel the involvement as an individual and functions as a great tool for promoting patriotism. In this sense,

³⁵ Oliver Grau,93-95.

in an immersive space, power is more associated with world construction. It is less about framing certain moments but presenting the whole virtual world. The audience can perceive the complete and self-contained virtual space, which is embedded with power to be perceived by them.

Singularity

In terms of singularity, there are two perspectives in an immersive VR experience I would like to highlight. First is the singularity of space setting up a clear boundary between the virtual and actual space. Secondly, the embodiment is singular in an immersive VR experience.

Because of the direct bodily response, users are immersed in VR by suspending their consciousness as a player, but their bodies are present in physical space. The immersive VR is singular in that the physical and virtual space in the immersive VR experience is clearly divided. Users are submerged in the virtual reality space in separation from the physical space. As we have discussed, one of the strategies to creating an immersive environment is to let the audience to be acknowledged the boundary of the virtual space. The user's body do not live in between since they suspend their belief as a virtual character who is fully immersed in the virtual space, in separation from the physical world, though their body is present in the physical space.

A well-designed immersive VR experience needs to create a clear boundary of virtual experience based on the physical environment. VR headset becomes a cut

between the physical and virtual space. When the users put the VR headset on, the virtual space will replace the physical space. The users' body movements are re-contextualized within the virtual space. For instance, in the FPS game, holding the controllers and triggering the bottoms are behaviors of shooting enemies in VR, yet these movements are meaningless in the physical space. The body movements are signified differently in the physical and virtual space. An immersive VR space needs to be complete, self-contained, consistent, and singular, without the noise from the physical space. In the immersive VR experience, the binary relationship between the virtual and physical space gives a clear definition to the users where their bodies are located. Users can identify where their bodies are easily, which enables them to be fully immersed within the virtual environment.

This separation is important in the immersive VR design. For instance, before users start using VR, the software always asks the users to clear the playing space and draws the boundary of it. This is for the safety consideration and for the purpose of avoiding the interruption in the process of VR experience. In many VR arcades, the playing zones are clearly mapped out to avoid people's interruptions when the user is immersed in the virtual environment. In the room-scale VR experience, audiences can walk freely in the space. The freedom in moving physically in the VR space can enhance the immersion, yet it becomes a difficulty in level design that the audience may leave the mapped playing zone, which affects the immersive experience. Therefore, many VR designers use many different techniques in constraining the player's moving area in VR to avoid this scenario.

As we have discussed in the part of the virtual embodiment, audience can be transformed into another being in the virtual world. In a complete immersive environment, the virtual embodiment is singular. Audiences will only recognize the singular body in the virtual context and be fully immersed in that world. The perception of the body is singular even if the audience is still embodied with their own physical body. The singularity of virtual embodiment enables people to become the other fully, forgetting the physical presence.

III. Emersion

i. What is Emersion?

Emersion borrows from body ecology, which is based on the philosophies of awakening and consciousness. According to Bernard Andrieu, body ecology is a way of living in the corporeal world and cosmos.³⁶ Through different practices, such as meditation and yoga, practitioners can achieve a reflexive relationship between their bodies and nature. Body ecology is about dealing with the relationship between the body and the environment. Rather than considering them as separation, body and environment exist in a reciprocal relationship. The non-dualistic relationship between body and environment echoes Merleau-Ponty's holistic perspective about the relationship between organism and environment. Merleau-Ponty reveals a reciprocal relationship between the subject and object that "the properties of the object and the

³⁶ Bernard Andrieu and Oliver Sirost, "Central Themes in Body Ecology", in the *Body Ecology and Emersive Leisure*, ed. Bernard Andrieu, Jim Parry, Alessandro Porrovecchio, and Olivier Sirost. (New York: Routledge, 2018), 13.

intentions of the subject... are not only intermingled; they also constitute a new whole.”³⁷ Body ecology is a form of micro-ecology. This field is derived from the body-mind practice since the 1850s in terms of bodily experience of body recreation, outdoor living, and body awakening techniques.³⁸ It describes “how the implicit information processing below the threshold of consciousness determines the action modality, emotions and ecologisation of our body with nature, with others and with space.”³⁹ When we are practicing awakening techniques in nature, we pursue the balance between nature and human body. The human body is a living body that is transformed with nature as part of nature, rather than by the nature.

Eastern philosophy inspires many body ecology scholars to attempt to overcome the binary relationship embedded in modern science that erects distinct ontological boundaries between the body and environment. For instance, Augustin Berque, a French geographer, orientalist, and philosopher, addresses the concept of “mediance” translated from Japanese, “fūdosei,” which means “structural moment of human existence”. The existence of a human being is in a dynamic coupling between the two moments: the individual and their milieu.⁴⁰ The objects and environments do not exist by themselves but in relation to the subject. Meanwhile, the “I” as a subject cannot be separated from the environment. In Japanese, “there is no proper first-person pronoun... but the first person is always circumstantial, contingent, and

³⁷ Maurice Merleau-Ponty, trans. Alden L. Fisher, *The Structural of Behavior* (Boston: Beacon Press, 1963), 13.

³⁸ Bernard Andrieu and Oliver Sirost, 15.

³⁹ Bernard Andrieu and Oliver Sirost, 16.

⁴⁰ Augustine Berque, “From ‘Mediance’ to Places”, *Stream* 04, November, 2017. <https://www.pca-stream.com/en/articles/augustin-berque-from-mediace-to-places-98>

immanent to the concrete scene of enunciation.”⁴¹ Human and environment coexist together, which overcomes the dualism between the subject and object in modern science.

As discussed above, the immersive experience can create a virtual embodiment in the virtual space. Detached from the physical body in an immersive experience, the virtual embodiment is singular. People who are immersed in the virtual space completely can only feel the embodiment of virtual body. Andrieu and Sirost use the survivors in an extreme environment as an example of immersive experience.⁴² In a hostile environment, extreme solo walkers, such as Sarah Marquis, who walked alone from Siberia to the Gobi Desert from 2010 to 2013, use survival techniques and specialized tools to adapt to, and to exalt nature as a whole by discovering the limit of their bodies in the extreme natural circumstance. In this example, extreme solo walkers are immersed in nature and lost their own distinct places in the world. Their consciousness has been displaced by nature. They lose their self-belongingness in a place as they become belonging to the place.

Emersive recreation, different from the immersive experience, intends to reawaken human consciousness through recreational activities. Via various activities, the body can be experienced as a conscious perception as an emersion. This new body ecology provides a new way of thinking about the relationship between the human body and the environment. It overcomes the dualism between body and mind and still

⁴¹ *ibid.*

⁴² Bernard Andrieu and Oliver Sirost, 20.

inhabits one's body. In the emersive experience, people do not lose their self-subjectivities. The bodily experience is a conscious perception of the activity through "involuntary movements, reflexive thrusts and direct feelings."⁴³

In the paper, "Bodies in the Wind: Danca and Nature on Redinha Beach, Ntal, Brazil," Terzinha Petrucia da Nobrega, discusses the relationship between dancer's body and nature by examining dancing projects that perform in nature.⁴⁴ One example is the Arte Praia project that brought contemporary dancing closer to the public. Rather than performing in the spaces like concert hall and theater, the dancers in this project dance at the beach. Dancers came to a new environment and built a new connection between nature and dance. This project not only recontextualizes dance but also changes the experience of the dancers. Dancing on the beach creates a poetic space that the new environment reconfigures the dancing movements. Bringing the dance to a different framework, "it looks for the discontinuity between the living body and lived body, movement, and the gestural repertory create new immersive possibilities for artistic creation and existential experience."⁴⁵ Dancing in nature creates a chasm between the body and the environment, and the divide is operated upon the dancer's body. The dancing movement and the natural environment converge together in the curation of dancing. The dancer's body has memories of dancing in the traditional framework, yet it is transformed by nature. Dancer's body

⁴³ Bernard Andrieu and Oliver Sirost, 22.

⁴⁴ Terzinha Petrucia da Nobrega, "Bodies in the Wind: Danca and Nature on Redinha Beach, Ntal, Brazil," in the *Body Ecology and Emersive Leisure*, ed. Bernard Andrieu, Jim Parry, Alessandro Porrovecchio, and Olivier Sirost. (New York: Routledge, 2018), 179-189.

⁴⁵ Terzinha Petrucia da Nobrega, 185.

exists between the dancing body and natural body, which creates a new aesthetics and choreography: “On the Beach, the wind guides the movement of the dancer, who remains in his mediation before the ‘intimate immensity.’”⁴⁶ The dancer’s body is naturalized by the natural environment, like wind, lights, and the smell of the ocean, while the dancer’s movements change nature. Different from the immersive experience, the dancer’s body exists between two spaces rather than being submerged by a singular one, which generates a new experience for the dancers and audiences.

In this example of dancing in nature, dancers move between the virtual and physical space. The dancing space is a virtual space in the dancers’ memories, while the natural environment is the physical space. These two spaces are different and isolated from each other in the traditional dance performance. Nevertheless, the boundary between the virtual and physical space becomes ambiguous when dancing movements are repositioned in nature. Dancing in the nature is different from the immersive bodily experience in that there is no clear boundary between the virtual and physical space. The assemblage of these two spaces regenerates a new choreography space. The reflexive relationship between these two spaces is different from immersion which has a clear boundary between them. In the concept of immersion, the virtual space needs to remain singular and complete in order to immerse the audience, while hiding the co-existence of other spaces that might intervene in the sense of immersion. By contrast, in an emersive experience, virtual

⁴⁶ Terzinha Petrucia da Nobrega, 187.

space is not an isolated one in relation to physical space; rather, the two are co-present and permeable by design, if not continuous.

ii. Emersion and Differentiability

In an emersive experience, the physical space and virtual space are differential to each other. Differentiability is one of the key concepts in Gilles Deleuze's philosophy. Deleuze's concept of "difference in itself" (pure difference) focuses on one question: how to determine the difference without defining identity or representation. For instance, when we categorize different species, the difference of living beings cannot be determined by a specific categorization that is external to the being itself. One example of the pure difference is the phenomenon of lightning, whose difference is not formed in relation to the sky or ground, but it is formed by itself in a differential process.⁴⁷ The difference derives from the identity of lightning. Deleuze's concept of pure difference is distributed in action, and it is "made, or makes itself, as in the expression 'make the difference.'"⁴⁸ There is a potential to evolve rather than being fixed within a pre-determined structure. Without a pre-determined relationship, the difference is not fixed or structured in a priori, yet things form in relation to each other. The reciprocal determination of difference makes the difference is not for setting up an opposition or negation, but it is an affirmation. It is about how things are becoming different and how they evolve beyond the boundaries

⁴⁷ Gilles Deleuze, trans. Paul R. Patton, *Difference and Repetition* (New York: Columbia University Press, 1995), 28.

⁴⁸ *ibid.*

that have been distributed. Joe Hughes summarizes that “for Deleuze, contradiction is only the phenomenal and anthropological aspect of difference. Consequently, in the place of contradiction Deleuze puts difference. Consciousness does not evolve by contradiction itself, but by differing from itself. Becoming is not governed by a rule.”⁴⁹ Difference in itself or “pure difference” is not to set up an external structure or rule to make the difference, but it is in the process of forming and evolving to differentiate itself.

In the VR experience, the audience's body is situated between two spaces: the physical space their bodies occupy and the space they feel they are present simulated by computer. The spatial difference is drawn by the head mounted display. If we consider this separation as a determined separation, the audience's body is separated into two parts: the virtual body in the simulated world and the actual body in the physical space. This separation forms as an opposition between the virtual and the physical body. What if we break this separation and the boundary between the simulated virtual space and physical space? What if there is no opposition between the virtual and physical body in experiencing VR. Is it possible to differentiate between the virtual and physical space without a pre-determined identity and structure but form following Deleuze's concept of “pure difference?”

I would like to name the body between the virtual and physical space without being defined in a fixed structure as virtually real body. Virtually real body does not occupy a singular space, but in a differential space between the virtual and physical

⁴⁹ John Hugh, *Deleuze's 'Difference and Repetition': A Reader's Guide* (London: Continuum,2009), 49.

space. With the embodiment of virtually real body, there is no separation between the virtual and physical space, but the difference between them unfolds during the audience's bodily experience. VR headset does not separate the virtual and physical space as contradiction. The spatial difference emerges in the process of forming virtually real body in a VR experience. Echoing Deleuze's idea of "difference" without a pre-determined identity, the experiencer is not placed between two spaces, physical and virtual, cut by the VR headset. These two spaces do not have its own identities before the VR experience. The opposition between the virtual and physical space is abandoned in this thinking about VR experience. Virtually real body is a non-singular embodiment, existing in a relation, in a process, and in between.

Although I consider VR experience without separating the virtual and physical space, I do not annul the individuality of virtual and physical space. Deleuze is highly influenced by Gilbert Simondon's individuation in his ontology. For Deleuze being is univocity. The difference is generated within individual. Deleuze distinguishes two different kinds of distribution of univocal being: sedentary distribution and nomadic distribution. Sedentary distribution is the type that "proceeds by fixed and proportional determinations which may be assimilated to 'properties' or limited territories within the representation."⁵⁰ Contrarily, there is no division in the nomadic distribution, and it is always in movement and in the process of becoming.⁵¹ The difference, from Deleuze's perspective, is nomadic. As Deleuze says: "the essence of

⁵⁰ Gilles Deleuze, 36.

⁵¹ Gilles Deleuze, 36-37.

univocal being is to include individuating differences, while these differences do not have the same essence and do not change the essence of being.”⁵²

Therefore, difference emerges through individuality. The difference between virtual and physical space does not exist in a pre-determined separation, but they are becoming different in experiencing VR projects. Audiences experience the virtual simulation in virtual space while they can also feel the physical environment vibe. Audiences, indeed, are immersed in the virtual space visually without seeing the physical space. But they can be aware of their presence in the physical space through other senses, such as smell, sound, and touch. In an immersive experience, they become the virtual character in the virtual environment while they also possess the position external to the virtual embodiment. The virtual and physical space are forming, becoming, and evolving in the experience.

Virtual space is a potential space. It is a liminal space that forms, grows, and becomes with the spaces tangential to it. Virtual space is not situated at a different pillar from the actual space, but they are the relational reality that emerges through the experience. In Brian Massumi’s vision of virtuality: “there is a mode of reality that is countable one by one, and there is a mode of reality counts-as-one. These modes come together, as coincident dimensions of the same occasion of experience, with equal immediacy and insistence.”⁵³ The virtual space and actual space cannot be simply counted as two separate spaces, which are counted one by one, during a VR

⁵² *ibid.*

⁵³ Brian Massumi, “Envisioning the Virtual,” in *The Oxford Handbook of Virtuality*, ed. Mark Grimshaw (Oxford: Oxford University Press, 2014), 59.

experience. Like the “mode of reality” mentioned by Massumi, virtual space and actual space needs to be seen as one. Time becomes a significant factor in bringing them together. Virtual and physical space are not just there, but the duration of VR experience “made of a sequential progression that takes time to unfold.”⁵⁴ Virtual space is unfolded during the VR experience, existing in relation to the physical space.

As discussed by Anna Munster, digital aesthetics resonates with the baroque aesthetics against the regularity, completion, and stability but highlights the dynamic multiplicity.⁵⁵ Rejecting the duality of the Cartesian system, Leibniz, the exemplary figure in baroque ideology, highlights the continuity of the differentiated components, such as body and soul, and organic and inorganic. It is like folding a paper that the folded paper forms two planes, connected together by the line between. The differential relationship between physical and virtual space is like the fold. The line between them is not a clear boundary but a trace of the difference between the two spaces. One media artwork that resonates with this idea of differentiability is Jeremijenko’s *One Tree* project. In this project, the cloned trees as repetitions of the original grow into different shapes through time. Although the trees are cloned like a sequence of code, the differences are formed within the repetition. The difference among trees is not set as a predetermined structure, but it evolves organically through time.

⁵⁴ Brian Massumi, 59.

⁵⁵ Anna Munster, *Materializing New Media: Embodiment in Information Aesthetics* (Lebanon: Dartmouth College Press, 2011), 42-47.

In VR, the virtual body is not simply a duplication of the physical body. They are differential to each other, like the difference among cloned tree in the *One Tree* project. The virtual body and the physical body are not singular. The virtual body is not a simulation of a physical body with a computational system. It is a fold. The difference between the virtual and physical body is formed when the person moves. The difference between different embodiment is a potential and a force that is folding with the moving body.

Emersion creates a hybrid space that allows the presence of the body to expand in different spaces. Unlike immersion, which strengthens the singular virtual embodiment, Emersion breaks the singularity of embodiment and allows the possibility of multiple embodiments. In Catherine Richard's pioneering VR work, *The Virtual Body* (1993), the mechanism creates an illusion that one virtual arm replaces the audience's arm. In this project, the discordance between the physical and the virtual body suggests the absence of the referentiality of the body. The digital embodiment is not to transcend the physical body, yet "the virtual dimension for corporeal experience evoked here lies in the way it poses the potential for embodied distribution as a condition of experience for information culture by dislocating habitual bodily relations between looking and proprioception."⁵⁶ In the virtual environment, participants can project their physical bodies into the virtual space. The corresponding movements between a virtually perceived body and an actually lived body bring people into a fantasy place, differentiating from everyday life experience.

⁵⁶ Anna Munster, 90.

Participants' bodies are distributed between the two differential fields instead of occupying a singular one. Their bodies are in flux flowing between the spaces rather than being fixed in one position. The flow of the body helps to expand the bodily experience beyond our bodies.⁵⁷

Emersion is exemplary of differential virtual space. The emersive experience is not realized through a singular form, yet it is in the process of becoming in relation to other spaces in differential to the virtual world. The realization of emersive experience is procedural. The spaces expand in the duration of the experience. Dancing in nature not only annuls the separation between the traditional dancing environment and the natural environment, but it also creates a reflexive new choreography space in between through differentializing these two spaces with dancers' movements. The differentiation between the virtual dancing space and actual natural environment forms through the dancing movements rather than being defined a priori. Emersive experience exists in a form of differentiability. It allows multiple spaces to unfold in a process. In the following sections, I will introduce two different approaches of creating an emersive experience in VR.

iii. Multisensory VR Experience

Other than the visual spectacle rendered in an immersive world, introducing different sensory can expand the VR experience. Through expanding virtual

⁵⁷ Anna Munster, 115.

rendering into other senses, the audience's body can be situated between the virtual and physical, more than singular virtual embodiment.

Media artists have explored multisensory VR experiences by weaving virtual and physical spaces together in order to captivate their audiences. In 1962, Hollywood cinematographer Morton Heilig built a prototype of *Sensorama*, an immersive multisensory arcade-like experience that can be seen as a precursor to VR games and art installations. The mechanical device included a stereoscopic color display, fans, odor emitters, stereo-sound system, and motion chair, that responded to tilt in order to simulate a motorcycle ride through New York. Heilig emphasized the importance of combining all human senses to create a more compelling illusion of a fictional reality. The future of cinema is not visual art but the "art of consciousness." *Sensorama* is the "reality machine," portraying Heilig's imagination to the future of cinema.⁵⁸

Jeffery Shaw's *Legible City* (1989) offers the audience a more actively embodied experience of virtually navigating an urban environment. The center of Shaw's interface is a stationary bike that an audience rides through a simulated city rendered by a computer composed of 3D words projected by a video projector on a large screen. The rider's physical body movement connects between the physical and virtual space, emulating the kinesthetic sensation of riding a bike through a city. Although *Legible City* does not utilize a stereoscopic display, the imagery is

⁵⁸ Morton Heilig, "EL Cine del Futuro: The Cinema of the Future," *Presence: Teleoperators and Virtual Environments* 1, no.3 (1992): 285, doi: <https://doi.org/10.1162/pres.1992.1.3.279>.

generated in real time by a 3D computer graphic simulation to provide a compelling experience.

With the advent of Silicon Graphics computers that were capable of rendering stereoscopic 3D simulations of virtual spaces in real-time, along with advances in stereoscopic head-mounted displays and VR CAVES (Computer Automated Virtual Environment), artists began exploring the aesthetic possibilities of interactive, immersive VR. Canadian artist Char Davies, a founding director of Softimage, a renowned computer graphic software company, developed VR work *Osmose* (1995). Audiences are immersed in the computer-rendered 3D worlds, such as the Pond, the Forest, the Abyss, the Life World, and the Code, by wearing a head-mounted display and a sensor vest in this 15-minute-journey. Davies uses the word “immersant” to name the participant who can use their breath and balance to control their movement in this piece. By breathing in, the immersant floats up in the VR world, as though gaining buoyancy in water. Conversely, by breathing out, they sink. By using breath as a key parameter to modulate movement in virtual space, Davies’ ingenious interface draws the immersant into a profound awareness of their bodily presence in VR, an awareness that can be likened to meditation. Still, one’s virtual body has been reconfigured in the simulated space without the limitations of everyday life, such as gravity. Davies questions the Cartesian binary between subject and object, body and environment. In the poetic virtual reality project, Davies intends to create a sensual space to reconfirm audience’s body. The breath connects between the body present in the physical space and the virtual environment. The “immersants” are embodied with

the virtual character flowing around different virtual scenes and the physical body inhaling and exhaling air.

Brazilian artist Diana Domingues also explores the involvement of bioinformation in her VR work in the VR multimedia installation HEARSCAPES (2005-2009). She creates a synthetic landscape in which biofeedback monitor activates the VR particle system, moves the positions of objects, and changes the colors of the screen. The biofeedback of heartbeats and electrooculograms are transformed into an immersive data space. Domingues call this system an “enactive affective system,” which is the mechanism to extend the human body and to expand perception and consciousness.⁵⁹ HEARSCAPES ‘ interface allows human body to exist between the physical and virtual space, demarcating the boundary between them.

The multisensory VR installations discussed above emphasize and reaffirm the centrality of the human body by creating experiences that connect various senses or bioinformation of the body, rather than emphasizing just the visual aspect of virtual rendering. Physical bodily movement, breath, and heartbeats become part of the system of virtual rendering. Rather than wearing a virtual avatar in VR passively, the human body involves in these experiences. Their bodies are no longer situated in one singular virtual rendering space but interact with the physical world. Virtual and physical space form as a whole while differentiate to each other through audiences’

⁵⁹ Diana Domingues, “Ouroboric perception and the effects of enactive affective systems to the naturalization of technologies,” *Journal of the New Media Caucus* Spring12, no.1 (2016).

perceptions. These two spaces are not separated. The virtual world affects the audiences' bodily movements in the physical space, while the information in physical space affects the rendering in virtual space. The human body is the media to unfold these two spaces together. The body becomes the line between a folded continuous space, forming the two connected but separated spaces. Multisensory VR experiences construct a differential space that expands people's bodies from a singular space. Audiences are not immersed in the virtual space exclusively without being acknowledged the presence of other spaces. The involvement of body awakens the physical body presence. The physical and virtual embodiment in multisensory VR experience annuls the singular embodiment in immersive VR. Yet, I do not mean that all multisensory experiences are not immersive. I will discuss the relationship between immersion and emersion in more detail.

iii. Reflexive Storytelling

A different way to approach the differential relationship between different spaces is through the narrative constructed in VR, and I name it reflexive storytelling.

Reflexive storytelling is to break the singular narrative storytelling in VR. In many commercial VR projects, the audience will be teleported into another world and play as a different person to go through the whole virtual journey. The story is told in VR, and the story ends when audiences take off the VR headset. Audiences experience a singular narrative in VR in a condensed period. They may play as a refugee victim, a teenager with psychological trauma, or a person with a superpower. These narratives are self-contained, sharing the quality of singularity and

completeness, as discussed in the immersion section. Yet, in Emersive VR, the story is told differential to other spaces. The story does not stay in one singular space but is reflexive to other narrative space.

Harun Farocki's third installment of the Serious Games series, named *Immersion*, is a 20 minutes two-channel video work. In this work, one screen shows Kevin's VR PTSD treatment using the program *Virtual Iraqi* whose prototype is based on the game *Full Spectrum Warrior*, created by Dr. Albert Rizz, the director for Medical Virtual Reality at USC's Institute for Creative Technologies (ICT), while the other screen shows his first perspective view.⁶⁰ Farocki draws our attention to the relationship between virtual reality, military, and gaming. At the end of the work, Kevin, who performed as a traumatized veteran, is actually the military psychologist. The twist and reveal create a sense of defamiliarization to audiences and question the reality presented through the work. VR can be effective in curing mental disease, but Farocki re-evaluates the social structure behind the virtual simulation. Ken Johnson comments on Farocki's work that he "invites skepticism about the representation of reality in general. His art is a mediation on the degree to which our world, what we take for reality, is formed by recording and image-making machinery."⁶¹

⁶⁰ Larry Gordon, "Virtual Iraq could help Iraq veterans," Baltimore Sun, Feb. 11, 2007, http://articles.baltimoresun.com/2007-02-11/news/0702110038_1_virtual-reality-iraq-post-traumatic-stress-disorder/.

⁶¹ Ken Johnson, "Unfiltered Images, Turning Perceptions Upside Down," New York Times, Aug. 26, 2011, <http://www.nytimes.com/2011/08/26/arts/design/harun-farocki-video-installation-at-moma-review.html>.

Harun Farocki's project is not a VR project, but I think it is a good example to illustrate my idea of reflexive VR storytelling. This example is a demonstration of the critical perspective toward VR as an immersive virtual rendering machine, breaking the singular narration. Reflexive VR storytelling is not to use VR as a story machine. It uses VR as a medium to tell the story critically. Farocki's project is about the virtual simulation, but it is also a reevaluation of it. The singular narrative is differentialized when Kevin is revealed as a military psychologist. The story about using VR for PTSD broke at that moment, which opens a new space between the reality and virtuality. It constructs a difference between the narrative in the story and outside of the story. The story is not singular anymore but becomes a meta-narrative. This is the reason I use the word "reflexive" that the story is not only self-contained but extends in relation to outside of the VR narration. Reflexive VR is not singular, but it forms a differential space inside and outside of the narration.

Some Videogame documentaries also echoes the idea of reflexive storytelling which captures and "realities" but retell through the game mechanics. The reperformance of realities through gamification has the potential to create a differential space that is between the actual and virtual and the fictional and real. The reperformance of an actual event in the videogame documentary tells the story both from inside and outside. It is about the reality, indexical to the things that happened in the real world. It is also a reevaluation via the game mechanics. The game is the media, while it is also a reevaluation and commentary of the reality. As Ian Bogost argues in the *Persuasive Games*, the procedural rhetoric, the use of processual or

procedural structures in the game, is a powerful tool in game design to construct the argument.⁶² The indexical event is reframed in the videogame. Similarly, VR as an emerging media also has the potential to reframe the story. The reperformance in VR can construct reflexive storytelling that forms a differential space between a real event and the digital storytelling in VR. These two spaces are reflexive, allowing the audience to be immersed within the story told inside and outside of VR.

Reflexive storytelling keeps a distance from the narrative. By folding a differential narrative space in VR, audiences are not passive receivers anymore. They are aware of the virtuality of narration represented with VR technology. Audiences transform from passive receivers to people sustaining their subjectivities during the experience of the virtual stories. They hold critical perspectives to the narration rather than being fully immersed in the story. Keeping the distance to the narrative echoes the aesthetics concept *Verfremdungseffek*, translated as estrangement effect or alienation effect (A-effect), developed by German playwright Bertolt Brecht. He developed the theatrical experimentation named epic theater. The traditional Aristotelian narrative form emphasizes the audiences' engagements in dramatic immersion, blocking their critical thinking and self-awareness. Contrarily, Brecht rejects spectators to engage fully without any critical thinking and project themselves to simple empathy with the characters in a play.⁶³ In Brecht's explorations of

⁶² Ian Bogost, *Persuasive Games: The Expressive Power of Videogames* (Cambridge: MIT Press, 2007), 2-3.

⁶³ Bertolt Brecht and Willett John, *Brecht on theatre: the development of an aesthetic* (New York: Hill and Wang, 1964), 71.

estrangement effects, he uses various techniques, such as *gest* (an acting technique that rejects the explanatory and emphatic movements but conveys social relationship between characters through mimetic and gestural expression),⁶⁴ situating familiar objects in unfamiliar contexts, and creating an inconsistent narrative structure. These techniques allow the audience to be aware of the structure of the play. Reflexive storytelling shares the essential quality of estrangement effects in that audience is not subsumed by the narrative. In Farocki's project, he uses cinematic language to make a Brechtian critique of immersive therapy.⁶⁵ The ending creates an estrangement effect to destabilize the authority of VR therapy, breaking the narrative in the documentary, which constructs a reflexive effect to channel inside and outside of the story.

Reflexive storytelling in VR is under exploring in the practice of VR making. Sojung proposes the embodied spatial montage in VR, which comes from the cinematic tradition of montage but connects to the spatial distribution with bodily engagement.⁶⁶ Spatial montage in VR allows audiences to juxtapose different components in a virtual environment temporarily. The spatial montage is also embodied because it is based on the audience's experience, which creates an intersubjective collaboration between the viewer and cinema. Bahng's embodied spatial montage in VR creates a reflexive relationship between the viewer and creator. Bahng uses the example of *Assent* (2013) by Oscar Raby, a story about the artist's

⁶⁴ Bertolt Brecht, *Brecht on Theater* (London: Bloomsbury Publishing, 2014), 5-7.

⁶⁵ Daniel Grinberg, "Virtual Battlegrounds: the Multiple Realism of Harun Farocki's Immersion," *Jump Cut* 57, fall (2016), <http://ejumpcut.org/archive/jc57.2016/-GrinbergFarocki/text.html#n1>.

⁶⁶ Sojung Bahng, "Cinematic VR as a Reflexive Tool Beyond Empathy," (PhD diss., Monash University, 2020), 34.

father who witnessed the Chilean dictatorship, as an example to demonstrate the idea of embodied spatial montage. In this VR documentary, audiences can use interactive gaze system to create a juxtaposition between different times, spaces, identities, and so on. The audience's gaze is the key to unpack the story which makes audience to be aware of the presence of their bodies. Audiences are always the "other" in this VR documentary.

Another VR experience that reflects the notion of reflexive storytelling is *Carne y Arena* (2017) by Alejandro G. Iñárritu. In this VR experience, audiences will enter into a cold chamber as "detention room" and get instruction to remove shoes and socks. Then, audiences will move forward to a larger space covered with sand and wear a VR headset to walk in the Chihuahuan Desert across the U.S. border in virtual reality space. In the end, a helicopter appears, and a border agent puts the gun in front of the audience's face. The VR experience ends here, but the audience will move to the final part of the experience that a video installation screens immigrants and refugees who narrate their stories. Unlike Sojung's proposal to keep the audience as "otherness" in VR, the audience will go through the journey as an immigrant and meet other immigrants in the virtual world. The whole experience is more emotionally driven by virtualizing the real event into a conceptual VR installation project. The audience will start from a third-person perspective as an outsider, then transforming into a first-person perspective in virtual reality space and ends with a third-person perspective to watch the video. The careful installation design oscillates the audience between self and other with visceral experience. It is not an "empathy

machine” to simply put the audience into the shoes of the other. The audiences are fully aware of their bodies because of the process of removing shoes, the presence of sand, and the final video installation to represent the real story. *Carne y Arena* is reflexive to immigrant and refugee stories, bringing the real and virtual space together in one installation.

Reflexive VR storytelling does not hide VR as an invisible infrastructure. By contextualizing VR in the story, the stories inside and outside of the VR are unfolded. *Virtual Virtual Reality VR* game by Tender Claws reflects this idea more deliberately. In this game, the VR headset is a physical machine, but it also has a virtual presence to escape the manager and explore different realities in the game. By putting on and off the virtual VR headsets, players can enter the metaverse connected to each other in different ways. Audiences traverse different virtual worlds with the virtual VR headset, while the physical VR headset simulate the whole game. What is inside and outside of the VR headset? The virtual VR headset in a VR game is like putting a mirror in front of a mirror, reflecting infinite space without an end. The ambiguity between the inside and outside of the VR headset brings a critical question about reality in VR. Reflexive Storytelling raises the question of the authenticity of the narrative simulated in the virtual world, rather than subsuming audience by the story.

IV. Relationship Between Immersive and Emersive VR

In the previous section, I have discussed emersion and two different approaches in constructing Emersive VR. Different from immersive VR, Emersive VR is not

singular and complete. Audiences are not in a singular space. Their bodies are in a differential space spatially and narratively. Emersion can be understood as the concept of avoiding visual spectacle and escaping from the virtual matrix. It is an experience that is not immersive, and it can be involved with glitches or bad design. Piotr Kubiński proposed three forms of emersive effects in the gameplay: shock, ironic distance, and palimpsestic effect. In terms of shock, it is the poor design or mistakes in the process of development.⁶⁷ For instance, the crash in the gameplay drags the player out from the fictional gameplay. Bringing the audience out from the fictional wall is like breaking the fourth wall in the theater and film. Ironic Distance is coming through by populating the in-game world with reference that point outside of the game's context. Quoted Søren Kierkegaard by Kubiński, "phenomenon is not the essence, but the opposite of the essence."⁶⁸ By creating the opposite context to the game context, a whole new meaning is constructed. Palimpsests were manuscripts written on the material in which the previous text was wiped or scraped out. This refers to Gérard Genette's theory of trans-textuality, quoted by Piotr Kubiński: "on the same parchment, one text can become superimposed upon another, which it does not quite conceal but allows to show through."⁶⁹ The superimposition of information of palimpsests reflects the multiplicity of narrative in the gameplay, which weakens the immersion. The example used by Kubiński is the checkpoint that it remembers all the settings of the game including the story time. Nevertheless, the narrative can be

⁶⁷ Piotr Kubiński, 135.

⁶⁸ Piotr Kubiński, 136.

⁶⁹ Piotr Kubiński, 137.

completely different from the original when you reload the game and re-experience the past events.

These three forms of emersive effect proposed by Kubiński are postmodern gesture of game design and gameplay. Jean-François Lyotard defines postmodernism as “incredulity toward metanarratives” in his classical text, *The Postmodern Condition*. In the postmodern age, “A postmodern artist or writer is in the position of a philosopher: the text he writes, the work he produces are not in principle governed by pre-established rules, and they cannot be judged according to a determining judgment, by applying familiar categories to the text.”⁷⁰ There is no fixed meaning in the postmodern works. The plurality of meanings in postmodernism reflects in all these three forms of the emersive effect that the linear storytelling is broken in the gameplay. The error, inconsistency, and multiplicities of the emersive effect discussed by Kubinski disrupt the immersive storytelling, which causes the birth of the metanarrative in the gameplay. The metanarrative generated through the emersive effect becomes a critique of the meaning of the narrative. In constructing the fragmented context in the gameplay, the emersive effect potentially becomes a tool in separating the signifier and signified in signification, which destabilizes the meaning of the work.

My thinking about emersion is different from Kubiński’s emersive effects in the game. Rather than using the emersive effect as a deconstruction tool to break the

⁷⁰ Jean-François Lyotard, trans. Geoff Bennington and Brian Massumi, *The Postmodern Condition* (Manchester: Manchester University Press, 1984), 81.

immersion, my proposal of emersive VR is to expand the singularity and completeness of immersion to open the potentialities in using VR as an affective media. Emersive VR is not to bring a bad design or unpleasant experience in criticizing the media. It is not a postmodern agenda to deconstruct VR. Instead, Emersive VR evokes imaginations and potentialities through reforming the media. Although emersion is not an isolated and complete space in relation to other spaces, my thinking about emersion is not to reject immersion. Emersion is not the opposite of immersion but an expansive thinking of immersion. Emersion is a way to reconfigure the VR, without being encapsulated in a closed container. Emersion and immersion are not two different sets, but it is an expansion of immersive VR.

Emersive VR is not exclusive to immersive VR. For instance, the multi-sensory experience can situate the audience's body between different spaces, yet this can also be seen as an immersive experience. Combining different human sensory has also been widely applied in many entertainment projects. For instance, in the *Shrek 4D* in the Universal Studio themed park, audiences can feel the dimensionality of the visual presentation by wearing 3D glasses. With perfume and spraying water, audiences' different sensory will be triggered, contributing to a more immersive experience. Some VR projects also expand the virtual space to physical space. For instance, in *Birdly VR*, players can fly in VR with a flying simulation machine. The flying simulation machine enables players to move their arms and hands to mimic the flying movements, and a fan attached in front of the simulator can mimic the wind during the movement. In these two projects, *Shrek 4D* and *Birdly VR*, audiences'

different senses are activated during the experience. Although the installation triggers audience's different senses, the whole experience is immersive for the physical installation re-enhance the virtual context, and they form as a unitary form. The fan in *Birdly VR* simulates the air flying in the sky. The perfume in *Shrek 4D* simulates the food in the story. These multi-sensory experiences trigger different senses and situate the audience's body between the physical and virtual space. It also immerses the audiences into the singular narrative.

One of the essential characteristics of immersion is virtual embodiment. In Immersive VR, the audience is also embodied with a virtual character in the virtual space. The difference is that the virtual embodiment is not singular. In the immersive experience, audience plays a singular role in suspending the belief without being interrupted. Differently, in an Immersive VR experience, the virtual embodiment is not singular. The multi-sensory experience and reflexive VR narrative enable the audience still to maintain the actual embodiment, accompanied by the virtual embodiment.

The intentionality to propose immersion is not to oppose immersion. Immersion is still very important in some virtual experiences to an audience who can temporarily enter into another world. For instance, in the therapeutic VR experience, patients need to be immersed in the virtual environment fully. In 1997, ten veterans who suffered from PTSD volunteered to participate in the VR therapy research conducted by

researchers at Georgia Tech University.⁷¹ These volunteers were transported to the simulation, named “Virtual Vietnam,” and re-exposed to their traumas. This approach is called Virtual Reality Exposure.⁷² Similar to Prolonged Exposure based on Foa and Kozak's emotional processing theory⁷³, users are immersed in the environment that they fear or in which they were traumatized by. Of course now the space is rendered by computer graphics. After a month of treatment, patients exhibited improved mental health. In this example, PTSD patients must be immersed into the Virtual Vietnam environment completely to re-expose the trauma they faced. Another example of using immersive VR for therapy is the “virtual meditative walk,” which combines virtual reality and biofeedback sensors for chronic pain patients.⁷⁴ This study found a positive result for the chronic pain patients by teaching mindfulness-based stress reduction with VR intervention. VR provides an immersive environment to help patients to focus on the treatment without being distracted. The immersive virtual world is a healing space.

Emergative VR is not an antinomy to immersive VR in my proposal. Yet, Emergative VR has a critical perspective by reconfiguring the singularity and completeness of

⁷¹ BO Rothbaum, LF Hodges, D Ready, K Graap & R Alarcon, “Virtual reality exposure therapy for Vietnam veterans with posttraumatic stress disorder,” *Journal of Clinical Psychiatry* 62, no.8 (2001): 617–622.

⁷² A Rizzo, A Cukor, M Gerardi, et al, “Virtual Reality Exposure for PTSD Due to Military Combat and Terrorist Attacks,” *J Contemp Psychother* 45 (2015): 255-264.

⁷³ EB Foa and MJ Kozak, “Emotional processing of fear: Exposure to corrective information,” *Psychological Bulletin* 99, no.1(1986): 20–35.

⁷⁴ X Tong, D Gromala, A Choo, A Amin & C Shaw, “The Virtual Meditative Walk: An Immersive Virtual Environment for Pain Self-modulation Through Mindfulness-Based Stress Reduction Meditation,” in: Shumaker R., Lackey S, (eds) *Virtual, Augmented and Mixed Reality, VAMR 2015*, Lecture Notes in Computer Science, vol 9179. Springer, Cham. https://doi.org/10.1007/978-3-319-21067-4_40

immersion. It provides a different way of thinking about situating the user's body and the relationship between different spaces operated with head-mounted display.

Emersive VR differentializes the immersive VR from a singular and continuous form to a folded space. The criticality of Emersive VR emerges through the differentiability. Rather than constructing a destructive VR experience, such as making the audience to feel dizzy and using extreme virtual content to appall the audience, Emersive VR explores the depth of the media. It does not break it but reconfigures it. In the two differential approaches I have discussed, both of them do not use intentional "bad design" as a strategy to claim the territory of critical media. These two approaches emphasize media-specificity and focus on expanding the media. Both of them using different strategies in constructing a differential space to expand the singularity and completeness of virtual space.

V. Emersive VR: Fair Sai Re Pi VR

i. Fair Sai Re Pi VR

Fair Sai Pi VR (FSRP VR) is based on the therapy sold by Quanjian, a pyramid scheme company that sold medical products in China. In their promotions, the founder of the company, Shu Yuhui, was described as the "revivor of Secret Chinese Traditional Medicine" who collected hundreds of secret formulas all over China. Fire therapy was one of the very first and best-known products released to the market by the company, presumably the most well-known one. In 2016, the annual revenue of QuanJian reached more than 2.8 billion US dollars. At the end of 2018, scandal

erupted following the publication of an article by DingXiang Doctor, a famous Chinese "We Media," that refuted QuanJian's claims that their products could cure cancer and further revealed that the company operated an illegal pyramid scheme. In January 2020, Shu Yuhui was sentenced to nine-years in prison and was fined about seven million dollars. In this project, I fictionalize the company and name it as Fair Sai Re Pi LLC. Fai Sai Re Pi is the transliteration of "Fire Therapy" pronouncing in Chinese, a play on words in the lineage of Marcel Duchamp.⁷⁵

This project comes from my long-term interest in exploring different forms of fire, either a historic fire, a virtual fire, or a physical fire. In my previous project, I retell a historic fire named Wenxi Fire, which happened in my hometown in 1938. In this project, I used short documentary, virtual reality, photogrammetry, and digital print to represent a fire existing in the archive and the memory of the elderly. My short documentary, *Cao's House* (2017-2018), brought back my grandfather to his family mansion in Changsha, China, which was burned down during the Wenxi Fire of 1938. This historic fire is virtually represented by recordings of my grandfather's voice in specific locations related to his memory of this actual historical event.

Pushing this project further, in *Hymn to the Fallen* (2018-2019), I used photogrammetry to reconstruct historically significant architectural structures in my hometown to retell the story of the Wenxi Fire. Audiences can be immersed in VR

⁷⁵ Playing Around with the two languages: English and Chinese, I am interested in how the West is perceived as a superior form in China. For instance, many businesses in China are translated directly from English to give consumer a sense of better quality. This translation responds to QuanJian, who claims to use modern technology to revolutionize traditional Chinese Medicine.

with 3D representations of buildings, archival images, video footage, and interviews with the survivors. The layered information in the VR environment parallels the Manuel DeLanda's Deleuzian description of the formation of sandstone, wherein diverse components converge together organically seemingly without order but cohering as a crystalline structure.⁷⁶ In the *Untitled(Disappearing)* (2018-2019), I start from the photographs taken in a district in my hometown of Changsha, Hunan. Then I transform the prints, which are manipulated digitally and physically, into a VR installation. This process reimagines the relationship between site and history through deconstructing and reconstructing physical and virtual space, "acting in the gap" between them, to quote Robert Rauschenberg. The actual historical event and architecture are virtualized in these pieces, yet these virtual forms represent the real historical event. Fire exists in the virtual form in these digital media, simulating a historic event in 1938.

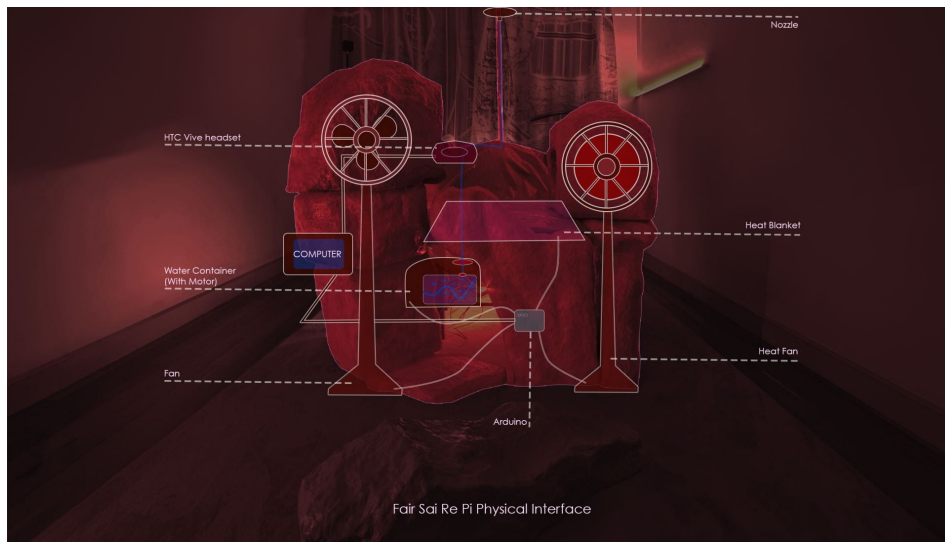
In the FSRP VR, the fire is spread all over a patient's body to cure different kinds of diseases. The fire is fueled by alcohol that patients need to purchase at an overpriced rate. The distribution of the treatment is in a vertical structural business model. Fire therapy burns the patient's biological body, while it is also a social fire in the network of the pyramid scheme structure that burns patients financially. Rather than purifying or mediating between nature and society, philosopher Bruno Latour constructs a new semiotics that deploys the space between nature and society as a

⁷⁶ Manuel DeLanda, *One Thousand Years of Nonlinear History* (New York: Zone Books, 1997).

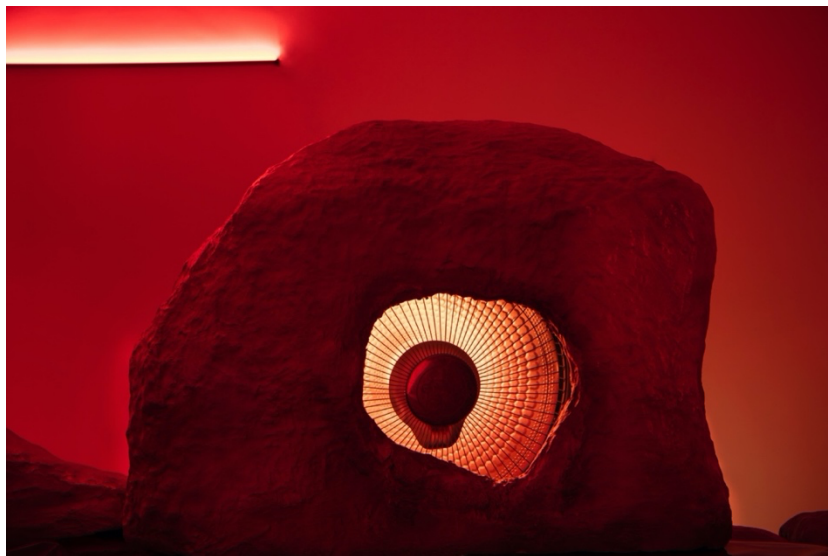
quasi-object. As a principal developer of actor-network theory, considers the “intersubjectivity” of different “actors,” either live or inert beings.⁷⁷

Similarly, in my work, fire exists in the form of such quasi-objects. It exists in the space between nature and culture. The form of fire is not a fixed being but is situated within a network. The “fire” in fire therapy is not a natural fire nor a cultural product. It exists in between. It is placed within the context of a fictional company indexical to Quanjian. The meaning of fire changes when it is in a different context. My previous project, narrating a fire that happened in my hometown, a historic fire is contextualized through multiple works realized in different media. This historic fire performs as an “actor” in this constructed network tracing back to the story that happened in 1938. Fire is an ongoing motif in my artistic practice, while it is also the carrier in my interest of the question of being in the information era.

⁷⁷ Bruno Latour, “On Recalling ANT,” *The Sociological Review* 47, no.1 (1999): 18.



Fair Sai Re Pi VR Installation Image with Mechanism Illustration



Detail Shot of the Installation

Before the audience comes to the therapeutic space to experience FSRP VR, they are asked to sign a safety agreement (see appendix A). In addition to practical and legal considerations, this agreement also interweaves with the narrative of welcoming the audience to this therapeutic virtual fire treatment. The agreement is a contract between the artist and the audience. It is also the prologue of the whole experience. Next, the audience will be invited to the therapeutic space individually by the staff who performs the role of a medical specialist wearing the red uniform. The “therapeutic space” is illuminated by the red lights. A massage bed is positioned at the center of the space, surrounded by anthropomorphic objects and electronic mechanisms that serve a combination of operational and aesthetic functions. These red anthropomorphic objects are shaped with rough texture like rocky organs, yet the artificial color makes them unnatural. They function as containers of the electronic mechanism. By placing them in the physical therapeutic space, audiences will feel they enter another world before entering the virtual space. The whole physical installation forms as part of the narrative of having a therapeutic experience and participating in this fictional company, where the line between reality and fantasy is purposely blurry in order to create ambiguity for the audience. It is a space between the virtual and the real world, not simply an appendant to the VR experience. When audiences come into the “therapeutic space,” they already enter into the first layer of the virtual world constructed with physical material. The physical space keeps a distance to the space we are familiar with, as a constructed surreal therapeutic room.

It is a fictional space. The audience's body is situated between the physical and virtual world even before the VR experience.

In this VR installation, the audience is invited to lie down on a massage bed with an embedded heat blanket underneath, surrounded by a heat fan, regular fan, and water spray, all connected to the Unity program via Arduino. The "medical specialist" helps audience to put the HTC Vive headset (2016 model) on. These electronic mechanisms are bought from Taobao, the biggest e-commerce in China, at a low-price rate. Using a relay to control the high voltage electronics with the low voltage Arduino, the virtual content is in sync with the physical mechanism. For instance, when the audience is immersed in the liquid and bubble fused "Holong Essence," they will feel the actual water being sprayed on them. When the audience is in the "fire scene" surrounded by virtual fire, they will feel the heat coming from the heat fan and heat blanket. In the final scene, when the audience enters the natural world, the fan will start working to enable the audience to feel the presence of the wind. Audiences are immersed in the stereoscopic 3D virtual simulation seen on the VR headset and feel the presence of their bodies triggered by the physical mechanisms. They can feel the heat, wind, and liquid more than visual representations. At the end of the VR experience, the camera at the front of the VR headset will be turned on, enabling the audience to see the physical world. The credits start rolling on top of the physical world captured by the camera and displayed on the HMD, a form of augmented reality. The "medical specialist" then removes the headset and leaves the "therapeutic space." Before audience member leaves, they will be offered a business card and

receive a follow-up email to extend the whole experience (see appendix B). FSRP VR is an expansive VR experience. The experiences before putting VR headset on and after taking it off are integral to the whole experience. The audience's body moves between physical and virtual space smoothly with the fictional storytelling.

Different from many VR experiences in which the audience either sits or stands to see the VR content, in FSRP VR, the audience must lie down on a massage bed to experience it. Some media artists have used the bed as a physical interface. For instance, in Paul Sermon's *Telematic Dreaming* (1992), the audience walked into a dark room and lay down on the bed, on which a video was projected. The video is the live stream of another person – usually unknown to them – in another space. The participants can thus have an intimate relationship with the virtual presence of a stranger lying in bed with them.

Lying is a more comfortable body position with the support of the bed, which is important to the therapeutic nature of my project. It is a comfortable zone to feel relaxed, while it is also a relatively vulnerable position. Lying on one's back is a position of submission, which is exacerbated by wearing a VR headset, which blinds the audience to what is happening in their physical proximity. The massage bed is a relaxing space, but it is also a space of obedience. Lying on a massage bed becomes a metaphorical position of submitting to the pyramid scheme company.

In the VR experience, there are three main scenes: virtual therapeutic room, fire scene, and the natural world. Virtual fire therapy starts from a therapeutic room with anthropomorphic objects and neon lightings. The audience's virtual body

matches with the audience's physical one. In this space, the audience will be prepared for the "real fire therapy." Then, the audience is teleported into the "Fire Scene," representing the cleansing process in fire therapy. In this scene, the presence of virtual body disappears. The audience gets immersed in the space with the visual representation of fire, the symbols used in Chinese Medicine, geometric forms, and the genetic avatar practicing Qigong for cleansing body. After the "Fire Scene," the audience's body "gets transformed" and "becomes part of nature." In the nature scene, audience's head controls the rotation of the massive rock at the front, which suggests the integration between the audience's body and nature. From a surreal therapeutic room to the nature scene, I attempt to create a transformative experience: from a dystopia space to a healing space, from the body's presence to become part of nature.

FSRP VR fictionalizes the product from Quanjian, a company whose goal is to make profits in a pyramid scheme business model. Participants in Quanjian's version of fire therapy are more like a prosumer who is both the consumer and very likely to participate in this vertical structure business as a "leave" to develop its own "branches." Quanjian's version of fire therapy is less about healing but more about consuming products. Participants need to pay for the over-priced products, like towels and alcohol-based essence, claimed as powerful products with significant efficacy used during the treatment. Although this treatment is branded as a heritage of Chinese medicine, its philosophy is not aligned with the philosophy of Chinese Traditional Medicine. The healing is not achieved through the harmonization and the balance of

the patient's internal energy but by the company's overpriced products. The participant's body is alienated by the products as prosumers who participated in the vertical business structure. Pyramid scheme businesses are not uncommon in China. In the neo-liberalism economic environment, entrepreneurship is advocated and widely embraced. People are encouraged to become entrepreneurs to improve the material conditions of their own lives. In the pyramid scheme business model, participants usually identify themselves as entrepreneurs. Expanding the "leaves" of their branches is seen as the behavior of entrepreneurship. Pyramid schemes take advantage of the anxiety of people in the neo-liberalism economic system.

Just as the efficacy of Quanjian's fire therapy is a fictional scam, the formula of FSRP VR is also fictional. In my ironic historical reconstruction, the fictional VR fire therapy company's formula comes from the oldest Chinese Traditional Medicine artificial intelligence, Shennong AI. Shennong is a mythological figure who is considered the father of Chinese Traditional Medicine. I reimagine the Chinese mythological figure and bring it into the narrative of this fictional company. Rather than polarizing the western ideology of modernity and Chinese thought, this project intends to provide a window in revealing a contradiction between them and thinking about the possibility of bringing them together. Philosopher Yuk Hui points out the importance of technodiversity in resituating modern technology in different cosmos realities.⁷⁸ The philosophical difference between Chinese thought and western modernity can be readdressed and rediscovered to respond to the current

⁷⁸ Yuk Hui, *Recursivity and Contingency* (London: Rowman & Littlefield, 2019), 256.

technoculture and technoliberalism. This project criticizes how people appropriate and commercialize Chinese traditions structuring in the western business model. Yet, facing the booming new technologies and contingency of rethinking the position of humanism, the Chinese philosophy of organism can provide another perspective in rethinking the Western thought as proposed by Yuk Hui in his book *The Question Concerning Technology in China*.⁷⁹ The Shennong AI is a fiction that serve as an intervention, a disruption, and a reconfiguration.

Although the Quanjian pyramid scheme capitalized on Fire Therapy, and some Chinese Medicine specialists denied the authenticity of their treatments, fire is a very common component in Chinese Traditional Medicine, for example the therapeutic use of cupping, which involves heating up a cup, then placing on the back of patient's body, which creates a vacuum as the air inside cools, thereby sucking on the flesh and stimulating circulation in that area of the body. Fire can be a very effective cleansing method to make Xie Qi, or Demon Energy, disappear and help the patient to achieve the balance of its body between Yin and Yang, the universal of Qi, and the five elements' harmony.⁸⁰ This reimagined Fire Therapy treatment considers fire as a technique of cleansing in the narrative. FSRP VR fictionalizes Quanjian's version of fire therapy, but it does not intend to discredit Chinese Traditional Medicine. The reconfiguration brings the question about the position of Chinese Traditional Medicine in the modern society structuring in the global neo-liberalism

⁷⁹ Yuk Hui, *The Question Concerning Technology in China* (Falmouth: Urbanomic, 2016).

⁸⁰ CT Holman, *Shamanism in Chinese Medicine: Applying Ancient Wisdom to Health and Healing* (Philadelphia: Singing Dragon, 2020), Chapter 4.

economic system that is remaking the social structure of China. My work is less about Chinese Traditional Medicine itself than about its relationship to a rapidly changing world with the displacing and remaking ancient cultural traditions.

The ideology of Chinese Traditional Medicine is very different from the Western medical system. For instance, in Chinese Traditional Medicine theory, the disease is caused by abnormal weather, an unhealthy diet, or the existence of evil spirit, and there is no sense of sanitation introduced from the West to China.⁸¹ Before introducing Western Medicine into China, the practice of Chinese Traditional Medicine always happened in the familial space without centralizing institution like Western Medicine, which introduced the concept of the hospital to China.⁸² In modern Chinese history, Chinese medicine was considered inferior to Western medicine by many people. Yu Yan criticized Chinese Medicine fiercely and proposed “abolish Chinese Traditional Medicine” in 1929. Although this proposal did not pass, the fights between the “new” medicine and the “old” medicine did not stop. In 2006, Zhang Gongyao, a scholar at the Central South University, published a paper, “Farewell to Traditional Chinese Medicine,” which claims Chinese medicine is a pseudoscience, which drew many controversies and disputed by some scholars. Because of the inferior status of Chinese medicine in modern history, Chinese Traditional Medicine scholars intended to reform and modernize it. In recent decades,

⁸¹ Yang Nianqun 杨念群, *Zai Zao “Bing Ren” 再造“病人”* [Remaking “Patients”] (Beijing: Renmin University of China, 2006), 759-760. (note: this is not the real book page number, this is the page number of my e-book)

⁸² Yang Nianqun 杨念群, chapter II.

in order to establish global recognition, scholars standardize and modernize Chinese Traditional Medicine.⁸³ By technologizing a fictional Chinese Traditional Medicine treatment, the question about the relationship between two different knowledge systems is brought to the table. FSRP VR creates a space in bringing the two systems together in a virtual environment to complicate the relationship between the West and the East.

In the FSRP VR, VR Fire Therapy includes two parts: Virtual Reality and Fire Therapy. VR is the form and carrier, while Fire Therapy is the content and narrative. Virtual Reality is a spatial computing technology, while Fire Therapy is associated with Chinese Traditional Medicine. By bringing them together, I attempt to address how to use VR as a tool to criticize this pyramid scheme company appropriating Chinese Traditional Medicine. Unlike the philosophy of Chinese Traditional Medicine, considering the human body as a healing space without emphasizing hierarchy and order, Quanjian followed the capitalistic logic in exploitation, solidifying vertical hierarchy, and excessive consumption. In this reconfiguration, this is not a certified medical therapeutic treatment, but I take it as serious as an authentic one. I construct a blurry boundary between the potential therapeutic affect and pseudo therapy. This ambiguity is a response to the Quanjian's highly problematic fire therapy. In Quanjian's context, the Chinese Traditional Medicine becomes a symbol that represents traditional wisdom. It is no longer about the authenticity of Chinese

⁸³ Juan Wang, Yi Guo, and Gui Lanli, "Current Status of Standardization of Traditional Chinese Medicine in China," *Evidence-Based Complementary and Alternative Medicine*, Volume 2016: 1. <https://doi.org/10.1155/2016/9123103>

Traditional Medicine, but a simulation of it. The disappearance of the originality and authenticity echoes in my version of Fire Therapy. FSRP VR is not an authentic therapy, but a simulation of the real fire therapy produced by Quanjian, which is also a simulation of the Chinese Traditional Medicine. In this sense, FSRP VR is a simulation of the simulation. It is a simulacrum. As media art scholar Edward Shanken says, the simulacrum is the second order of simulation, which “being simulated is presented and received not as a simulation but as an original.”⁸⁴ The blurry line between actuality and virtuality maps out the disappearance of the boundary between reality and representation. As Jean Baudrillard famously noted, “The territory no longer precedes the map, nor survives it. Henceforth, it is the map that precedes... that engenders the territory.”⁸⁵ The simulation run by the computer responds to the disappearance of authenticity in the context of Quanjian.

Authenticity is beside the point in this project. The goal is not to represent the company but retell the story through artistic gesture in alignment with contemporary aesthetic practices of historical reenactment. FSRP VR is a reenactment of the real company. Reenactment is different from remaking that it is more like a remediation or the act of refashioning, especially in dealing with time-based media.⁸⁶

Reenactment is a reperformance rather than a replication of the real event. It is a

⁸⁴ Edward Shanken, *Survey to Art And Electronic Media*, edited by Edward Shanken (London: Phaidon Press, 2009), 48.

⁸⁵ Baudrillard, Jean. ‘Simulacra and Simulations’, Jean Baudrillard, *Selected Writings*, ed. Mark Poster (Stanford; Stanford University Press, 1988): 166.

⁸⁶ Christina Baldacci, ‘Reenactment: Errant Images in Contemporary Art’, in *Re-: An Errant Glossary*, ed. by Christoph F. E. Holzhey and Arnd Wedemeyer, Cultural Inquiry, 15 (Berlin: ICI Berlin, 2019), 59.

process of virtualizing the reality. Through the gesture of reenactment, the real event in the past is reevaluated, reactivated, and resignified. A new meaning is generated through the virtualized real event. Many contemporary artists have been exploring the idea of reenactment in many different ways. In *RMB City*, Cao Fei created the Asian island city in the virtual world game *Second Life*. It is more than a virtual city created in the virtual world, Cao Fei also organized many in-world activities and live performances. Cao Fei says, "It is a Chinese city, but it mixes the different elements of China. I'm very interested in the city as an organism and have done a lot of research on cities in the Pearl River Delta, and I'm hoping I can use my knowledge to build a Second Life version of my vision of the Chinese city today."⁸⁷ The city in the game is not a representation of the reality, but a reenactment. It is a digital performance of the reality through the simulation. It is more than a digital artefact; it is also a product of the international art world network. The process of construction mimics the construction of real-estate in the real world that the virtual spaces in the work were available to purchase by the collectors. The blurry line between the virtuality and reality in *RMB City* renders a new reality.

Another important perspective in reenactment is role-play. Audiences are not the traditional concept of audience who passive perceive the work, yet they are part of the work. The identity of the audience is transformed to the virtual character in the work. The relational aesthetics between the audience and the work resonate in the

⁸⁷ Samantha Culp, "Interview with Cao Fei," *Artkrush* (February 2008), <http://artkrush.com/160442> (now defunct), **quoted in** Alice Ming Wai Jim, "The Different Worlds of Cao Fei," *Yishu: Journal of Contemporary Chinese Art* 11:3 (May/June 2012): 85.

relational art, coined by the curator Nicholas Bourriaud. In the relational art, the work is not about the object but human relations and social context. Artists recreate the environment in the gallery space to re-access the power and social structure. Through reconstructing the social relations, audiences become part of this constructed temporary social structure. For instance, in the Rirkrit Tiravanija's *Untitled(Free)* project, Tiravanija served rice and Thai curry in the gallery for free. The immersive food Thai food experience is re-positioned in a New York fine art gallery. The gallery space is virtualized into a Thailand curry kitchen. Audiences are the more than the viewers in this project. Their participations, tasting curry, and conversing in the gallery are integral to this work. Although audiences do not perform certain characters, but their identities are virtualized in this temporary space constructed by the artists.

FSRP VR is a VR experience that transforms audience's identity by placing them into a situation in which they play a role in a reenactment of a fictional company and its pyramid scheme. In my reenactment, the fictional company and audience's role are situated between virtuality and reality. Authenticity is undermined on multiple levels through myriad levels of simulation and simulacrum, creating a distance to reality.

ii. Multiplicities and Emersive VR

FSRP VR is an example of my proposal of Emersive VR because of the multiplicities of the whole experience: It is a multisensory experience, a story situated between virtual and actual, and authoring audience with multiple roles.

In this multisensory VR experience, different senses are triggered in the experience. The audience is not isolated in the virtual spectacle anymore. The heat, wind, and liquid expand the visual experience into a holistic bodily experience. The audience can feel the presence of their bodies with the enablement of different senses through the experience. The audience's body is situated between the physical and virtual space in the virtual treatment. The experience is not situated in a singular space but between the virtual rendering and physical sensory. These two spaces are differential to each other. They function as a whole in the context of fire therapy, yet they also keep their individualities. On the one hand, the virtual rendering displayed by VR headset visualizes a fictional fire therapeutic world. On the other hand, the physical electronics still keep their own identities. The audience can still recognize the electronic mechanisms that are electronics used in our daily life for keeping the logo of them and reveal part of their bodies to the audience. The virtual and physical spaces are separate. But these two spaces come together when the operation of physical electronics matches with the virtual content. The audience can perceive the continuity between visual presentation and physical sensory. Their bodies do not belong to a singular space. Yet, they can feel the bodily presence in between, forming as a new body in the process of transformation through the therapy, and become part of nature as narrated at the end of this virtual treatment. At the end of the experience,

the audience can see the physical world through the camera at the front of the VR headset, which reveals the construction of the VR therapy installation. Virtual rendering becomes the representation of the physical space. Multisensory experience expands the singular immersive visual spectacle and presents an Emersive VR experience. The virtual and physical space are not clearly separated from each other. The difference between these two spaces forms during the audience's bodily VR experience. The differential space folds through the VR experience.

Virtual Fire Therapy exists in a liminal space, defined by Victor Turner as a "state betwixt and between, and the threshold."⁸⁸ A ritual can create a threshold for people to transform them and live beyond their everyday life. This VR Fire Therapy shares a similar quality of liminality in Victor Turner's explanation about rituals in that this fictional treatment exists between the actual and the virtual. It is a VR experience based on an actual event in China, presented as a fictional story in a virtual format. It is indexical to reality, but the reconfiguration virtualizes it. The reality is performed differently, which frames a new narrative compared to the real event. The fictional products in the VR are based on the Quanjian's products, such as "Holong Essence" and "Ai Ke Hou," but they have been reformatted exaggeratedly in virtual presentations. From signing the contract and experience the VR therapy, to leave with a business card and receive a follow-up email, the audience can have a holistic experience which can be validated by itself. It is a quasi-alternate reality

⁸⁸ Victor Turner, "Liminality and Communitas," in *The Ritual Process: Structure and Anti-Structure* (Chicago: Aldine Publishing, 1969), 359.

experience that the fictional set-up is built based on the reality. It is actual: It is indexical to the real company, and it is presented as a real company and legit treatment. It is virtual: the real company has been virtualized into a fictional story with imaginative components and the company is represented in the art context. *Fair Sai Re Pi VR* is not narrated in a singular space, but it plays between the actual and virtual. It creates a liminal space through the VR experience, which lives between fictionality and reality.

Because of the narrative multiplicities, the audience's role in *Fair Sai Re Pi VR* is also multiple. When audiences come to the experience, they are most likely interested in contemporary art or immersive media. Yet, through the whole experience with formal presentation, the audience becomes part of the fictional character of this fictional company. They start playing as a role of participating the Fair Sai Re Pi LLC. They have been virtualized into fictional characters. They are the audience and the participant of this fictional company simultaneously. They are immersed in VR as an audience to experience the piece as an art object. At the same time, they are the participant of the fictional company to receive therapy and "get cured" through VR therapy. Their role is not fixed in one position through the whole VR experience but is situated between an audience and a participant of Fair Sai Re Pi LLC.

Fair Sai Re Pi VR breaks the singularity of an immersive VR experience. Audiences are not just immersed in a visual spectacle with one narrative. Physical mechanics trigger different senses to enable the audience to feel the body's presence

between the virtual and physical space. The audience also plays different roles virtually. The multiplicities of this VR experience differentialize spaces. *Fair Sai Re Pi VR* is critical to the real pyramid scheme company and the complicated relationship between the West and the East. The criticality is achieved via the expansive VR.

VI. Conclusion and Future Study

In this paper, I propose the Emersive VR to intervene in the current mainstream design discourse of VR. Immersive VR design and practice aim to create a singular, complete, and separate virtual world from suspending user's beliefs. In this isolated virtual space, the virtual embodiment enables people to transform into other virtual beings. Differently, Emersive VR breaks the singularity and completeness with one virtual embodiment in the virtual space. In the Emersive VR practice and design, the head-mounted display does not function as a cut between the virtual space and other spaces. There is no clear separation between them. They are differential to each other. This idea of spatial differentiability in Emersive VR practice and design inherits Deleuze's post-structuralist thinking. James Williams comments on the introduction of Deleuze's book *Difference and Repetition*: "The individual is a take on the whole of reality, where reality is not restricted to actual things that we can show or identify in the world. The individual is, rather, a series of processes that connect actual things, thoughts and sensations to the pure intensities and ideas implied by them."⁸⁹ The

⁸⁹ James Williams, *Gilles Deleuze's "Difference and Repetition": A Critical Introduction and Guide* (Edinburgh: Edinburgh University Press, 2003), 6.

individual spaces are not in fixed positions but in the progress of formation in an intensity, so does the difference between them. We do not identify each space, either physical or virtual, but we see their presence in a process and in a movement rather than a representation. The spatial differentiability between virtual space and other spaces is like a fold that the folded trace appears when we initiate the gesture of folding the paper. Emersive VR is a performative thinking about the spatial relationship in VR practice and design. The performativity of VR is reflected in how we see the media, design it, and utilize it in practice. It is different from immersive VR practice and design, which sets a clear spatial boundary to deprive audience's subjectivity to transform into the other. Emersive VR is an expansive and reflexive process to transcend beyond the bounded space through careful design and creative experimentation. The head-mounted VR display is not the end, but one of the components in designing and making Emersive VR context as a holistic design process.

This shift of ontological thinking is important in reconsidering this spatial computing media. We are not only deal with the materiality of the media but also the digital affect. We should not be enchanted by this emerging technology, but reconsider how to contextualize the media concerning the cultural, social, and economic context. The "toxic embodiment" or the idea of VR as an escapism is the consequence of treating the media as a panacea. As I have discussed in the paper, Emersive VR is not contentious to immersive VR. It is an expansive practice in reconsidering VR design and practice. It is to break the headset on top of our head

and make it transparent to reconnect to other spaces. I do not mean to slide VR into Mixed Reality or Augmented Reality which have more direct connection to the physical space. Emersive VR still focuses on utilizing VR headsets, but it intends to reformat the concept of VR design and practice.

In the Emersive VR design and practice, we should not separate VR as an isolated space. I introduce two different approaches to reconnecting VR space and other spaces in this paper: multisensory VR and reflexive storytelling, which are reflected in the *Fair Sai Re Pi VR*. Multisensory VR and reflexive storytelling break the singular VR space and create a space in between. The audience's body is situated in a differential space without a defined position in a priori. The body is between the physical and virtual space, playing the role between the audience and the fictional participants of the company. These two are not the only approaches in Emersive VR practice and design. There are other potentialities in thinking about VR as an expansive practice in association with other spaces. For instance, how to use VR as a collective social space more than a single player experience. Rendever VR is a VR company that uses VR as a platform for the elderly in senior living communities to relive in the places they have lived, reinspire by connecting the world they do not have access to physically, and reconnect to the people in the community by sharing the experience. VR is not a singular virtual experience, yet it forms a new social space among the elderly to help them to live better and healthier senior life.

My research and VR practice aim to experiment with a different way of utilizing this emerging spatial computing technology through breaking the singularity and

completeness of it. My advocate for a different VR practice is also an attempt to consider VR as a critical media. VR is more than an immersive visual spectacle. The strong sensory experience has the potential to create a different way of engagement. This paper introduces an expanded immersive VR practice. Nevertheless, there are many things worth exploring to expand VR practice to give a more in-depth understanding of Immersive VR.

VR is an apparatus rendered with a computer and displayed by the headset. But it has the potential to connect to bio-system, and I may call this bio-VR. Roy Ascott proposed three different kinds of VR: Virtual Reality, Validated Reality, and Vegetal Reality.⁹⁰ Virtual Reality is a singular technology that enables our bodies to inhabit in multiple spaces and deliver sensory immersion and immaterial connectivity. Validated Reality is the reality we encounter in our everyday life, which we are very familiar with. Vegetal Reality, different from Validated Reality, can transform human consciousness through plant technology, which is common in the works of shamans who use ancient knowledge to help people enter into the state of “hallucinations,” operating in the context of healing. Bio-VR is an attempt to expand silicon-based media to plant-based media. By connecting VR to the plants, the information can flow between them. VR is not a singular space but is in association with the organic system. Bio-VR is situated between the organic and the inorganic, and human and non-human. One way to design this system is to use the plant

⁹⁰ Roy Ascott, “When the Jaguar Lies Down with the Lamb: Speculations on the Post-Biological Culture” (paper presented at CAiiA-STAR Symposium: ‘Extreme parameter. New dimensions of interactivity,’ 11-12 July 2001), <http://www.uoc.edu/artnodes/eng/art/ascott1101/ascott1101.html>.

frequency as the input of the data in VR. In this system, VR is driven by the plant data to affect the audience's perception of the virtual space. VR has the potential to transform from singular technology to vegetal reality. Scholars are studying how to leverage VR in clinical practices, such as treating chronic pain, dementia, and ADHA. VR is a virtual rendering and has a direct impact on the user's body and consciousness. In my imagination about bio-VR, it can connect human body to the larger biosystem. The systematic bio-VR design includes both the human body and other organic systems as a whole. It is not a singular VR space but is situated between internal and external organisms. Bio-system is a moist-media as defined by Roy Ascott: it means representing a multiplicity of media including the dry computational system and wet biological processes, extending the sensorium of the self.⁹¹

Secondly, I only mention the interactivity in VR very briefly. But interactivity is a very important component in VR. Using interaction in VR to create dynamics that can break the singular form of VR is very important in future studies. In the section of Immersion and Interactivity, I discuss some strategies in dealing with the contradiction between immersion and interaction. The immersive VR design in terms of interaction enables the audience to forget their own subjectivity. But Emersive VR interaction is to use interactivity as a mechanism to expand the singular virtual space. It is an intentional and careful design to allow interactivity in VR embedded with multiple layers. One speculative design of Emersive VR interaction is to allow users to interact with physical objects in the virtual space. The semantic discrepancy

⁹¹ *ibid.*

between the physical and virtual appearance of the object enables the multiple meanings to be unfolded in the process of interaction. There are many potentialities in expanding the VR to other spaces through interactivity in VR. Thirdly, I have mentioned the Brecht Epic theater briefly in the section on reflexive storytelling. There has been a long history of VR and performance. VR can also be used as a mechanism in theatrical works. The future study of Emersive VR is worth exploring more about digital production and theater with VR.

I am sketching a large umbrella of reconsidering VR as an immersive apparatus in this thesis paper. There are many more perspectives to explore, experiment, and study through artistic practice and research. VR is a very young medium. The technology itself is also immature. The proposal of Emersive VR is an attempt to expand VR practice and design conceptually and utilize this emerging media as a critical tool to address reality in the form of virtuality.

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Appendix A

Safety Agreement

Thank you for coming to Fair Sai Re Pi. In order to give you a safe and effective therapeutic experience, please read and initial each section, and sign below.

1. I understand that some users report dizziness or vertigo from the VR experience, or other effects on the user's sense of balance, sight, and hearing. I agree to report any discomfort or disorientation immediately, so that Fair Sai Re Pi staff can remove the equipment and take appropriate measures to assist me.
2. I understand that I can terminate the VR experience at any time, but I must also listen to the Fair Sai Re Pi staff and follow instructions at all times in order to have a safe and optimal experience.
3. I am aware that the Fair Sai Re Pi experience will involve strong flash and I am not sensitive to the strong light.
4. I am aware that the Fair Sai Re Pi experience is operated with heat and water spray mechanism.
5. By signing this agreement, I affirm that I am fully aware of the risks involved with using the VR program and equipment, and I am assuming all liability and responsibility for my voluntary use of this program and equipment.

I CERTIFY THAT I AM 18 YEARS OF AGE OR OLDER, I HAVE READ THIS DOCUMENT AND I FULLY UNDERSTAND ITS CONTENT. I AM AWARE THAT THIS IS A RELEASE OF LIABILITY AND A CONTRACT AND I SIGN IT OF MY OWN FREE WILL.

Name:

Signature:

Appendix B

Dear ***,

Thank you for coming to Fair Sai Re Pi. We hope you enjoy this experience. You may have been acknowledged that this therapeutic section can be helpful to all different kinds of disease. We treat your body as a whole to balance between Yin and Yang, to enable your body to live in harmony with the universe. You may feel the significant improvement of your health, but we still have a long way to go. In order to achieve the optimum result, you should have multiple sections. We have no doubt that we can help you to achieve your goal.

You have experienced this amazing medical product, why not share with more people! You can introduce your friends and family to join us for having a better life together! You can also make money out of it and become an independent entrepreneur. We have helped so many people to become financially independent by joining our team.

If you want to know more about our company, our product, and our business structure, please join our future headquarter tour in VR! Here is the trailer for this headquarter tour experience.

Looking forward to hearing from you and LET US MAKE A BRIGHT FUTURE TOGETHER!

Best,

CEO of Fair Sai Re Pi