ISSN electrónico: 2172-9077
DOI: 10.48047/fjc.28.01.06

EXPLORING THE ETHICAL DIMENSIONS OF VIRTUAL PRODUCTION: LESSONS FROM *QUEERSKINS: FLY ANGEL SOUL*

Dr. Illya SZILAK.
MD, Medical Director, Rose M. Singer Center, Rikers Island Correctional Facility, U.S.A.
E-mail: iszilak@gmail.com
HTTPS://ORCID.ORG/0009-0002-7957-1166

Fecha de recepción del artículo: 15/02/2024
Fecha de aceptación del artículo: 20/02/2024

ABSTRACT
This paper investigates the potential of virtual reality (VR) technology, known for its efficacy in fostering empathy, to serve as a "moral" agent in filmmaking. We explore whether virtual production can contribute to empathy in cinematic storytelling by analyzing our experimental short film, *Queerskins: Fly Angel Soul*, crafted using three virtual cameras in a responsive virtual mis-en-scene. We also review important neuropsychological and philosophical considerations for promoting empathy in film and virtual reality to provide context.

Key words: film; virtual reality; embodiment; virtual production; empathy

1. INTRODUCTION

"Tracking shots are a question of morality." This was Jean Luc Godard's response to a shot in the film *Kapo*, in which the viewer is brought up close to the body of a Holocaust victim who has just killed herself on an electric fence. He is pointing out that although technology makes this shot possible, it is a perspective that is not human(e). All technologies have the potential to alter how humans perceive, organize, and value their world. One of these, virtual reality (VR), is especially effective in increasing empathy. Whether or not virtual production methods might also be used as a "moral" agent in filmmaking is yet to be determined. Meant to provoke discourse and encourage future artistic and scientific experimentation, this paper describes the artistic process behind creating our 2D short film, *Fly Angel Soul* (https://vimeo.com/926805233/c72b5c1836?share=copy), shot entirely in a responsive virtual mis-en-scene utilizing three types of virtual cameras: a fly, an angel, and a human/soul, each of which sees and moves differently. We created a novel cinematic language at the intersection of theater, film, and video games. Our intention was to heighten empathy for the main character, Sebastian, a gay man who, having lived a peripatetic life, receives a diagnosis of AIDS in Mali at the beginning of the epidemic. At the same time, the film offers viewers the opportunity to consider their own embodied (and mortal) state. To contextualize the hypothetical potential for a VR-informed cinematic language to promote empathy, we also review key philosophical and neuropsychological bases for VR's pro-social effects and the neuropsychological bases for empathy in film. We suggest that cinema informed by spatial computing might also allow audiences to experiment

with and rehearse new pro-social forms of embodiment and new ways of relating in our computer-mediated world.

All technological apparatuses influence the types of information humans access and privilege. Flusser and others have suggested that because most information results from exploring the programs and potential of apparatuses, not of the lived world itself, this information no longer helps us orient ourselves into the world.

> «If they look through the camera out into the world, this is not because the world interests them but because they are pursuing new possibilities of producing information and evaluating the photographic program. Their interest is concentrated on the camera; for them, the world is purely a pretext for the realization of camera possibilities. In short: they are not working, they do not want to change the world, but they are in search of information» (Flusser, 1983, pp. 26-27).

For the first time in human history, dominant technologies have greatly accelerated the rate at which information is created, copied, and consumed. Moreover, most of this data is unstructured; that is to say, it is information that either does not have a pre-defined data model or is not organized in a pre-defined manner (Gantz, 2020, pp. 1-16). Some might object that the internet opens up the world to us, but as Alexander Galloway suggests:

> «In contrast to the cinema, in order to be in a relation with the world informatically, one must erase the world, subjecting it to various forms of manipulation, preemption, modeling, and synthetic transformation. The computer takes our own superlative power over worlds as the condition of possibility for the creation of worlds» (Galloway, 2012, p. 23).

The question at hand then becomes, what kind of worlds are we creating and erasing? What information is being privileged? What is being left behind because a machine cannot simulate it? One obvious consideration is the role of embodiment in machine-generated worlds. Neuroscientists now accept that sentient beings are not just carbon-based computers that cognize by manipulating abstract symbols; as Varela and colleagues first argued, cognition is embodied, and human consciousness arose concomitantly with the evolution of human form and movement (Varela et al., 1991). Spatial computing, of which VR is a type, is distinguished by human-computer interactions that occur in the context of real 3D spaces instead of a 2D screen. Thus, of current media technologies, it is arguable that spatial computing can best simulate how human cognition works. Unsurprisingly, VR is notable for its ability to generate "presence" —that sensation of being in this place and time that seems unmediated. Adapting theories of consciousness from Antonio Damasio, some neuroscientists suggest presence is a primordial consciousness that helps animals distinguish self from others and internal from external stimuli ((IJsselsteijn & Riva, 2003, pp. 3-16). Interactivity, especially action in the world, is critical to facilitating this. An organism creates a motor map of the universe by moving through the world. This map allows it to plan future actions in the light of past knowledge. Basically, presence is a way of organizing incoming sense data into useful knowledge. Although it depends on sensory stimulation and motor activity, data organization is also related to meaning-making and emotion. The process can be modified

by memory and culture. This ability to generate presence seems to make VR so powerful as a tool for promoting empathy (Lee and Li, 2023).

As in video games, the player in VR inhabits two positions, as herself in the "real world" and as an avatar (visible or not), which can interact within the virtual world. The Proteus Effect, described by Yee and Bailenson (2007) is a theory describing how video game avatars can affect player behavior and thought processes even after gameplay has stopped.(Bailenson et.al, 2018) A recent systematic review concludes: "through the PE, it is the characteristics of the avatar rather than the user that has dominance in shaping how a player navigates through a virtual game world, and signals the strength of this phenomenon in influencing behavior and attitudes" (Szolin et. al., 2023, p. 383). Thus, as players engage with VR as a form of reality, VR might be capable of engendering what Vivian Sobchack refers to in film as a "documentary consciousness" and an ethical responsibility towards beings both in that world and in real life.

> «The charge of the real that moves us from fictional into documentary consciousness is always more than a generalized existential formation of the image or the mere "response-ability" of our actual bodies. The charge of the real is also, to varying degrees, an ethical charge, not that calls forth not only response but also responsibility —not only aesthetic valuation, but also an ethical judgment» (Sobchack, 2004, p. 284).

Spatial computing might seem to have little to do with using a 2D screen in cinema. However, what connects these is that both the empathy-generating potential of VR and film seem to share a common source—human gesture and movement. In their book, The Empathic Screen: Cinema and Neuroscience, Gallese and Guerra describe the neurocognitive foundations of film, developing a theory of "embodied simulation," in which the viewer, having given up their own mobility to the act of watching the film, participates virtually in the movements of the camera as well as those of the actors through the mirror neuron system (Gallese and Guerra, 2019). Mirror neurons, first described by Giacomo Rizzolatti and his colleagues at the University of Parma, are audio-visual neurons—that fire not only when an action is executed but also when an action is observed or when this action is only heard (Di Pelligrino et. al.,1992). A recent review suggests that evidence shows that "emotional and cognitive empathy are moderately correlated" with mirror neuron activity (Bekkali et. al., 2021). Although a review of types of empathy and the neuropsychological mechanisms underlying them are not the focus of this paper, it is interesting to recall that the psychologist Edward Titchener coined the word in the early 1900s, describing it as a form of "aesthetic sympathy" which allowed audiences to appreciate the abstract movements of modern dance and painting (Titchener, 1909). More recently, filmmaker-researchers have been investigating how specific camera movements affect the sense of audience involvement and emotional response (Yilmaz et. al., 2023).

2. CASE STUDY: *QUEERSKINS: FLY ANGEL SOUL*

EMBODIED CAMERAS

The idea for *Fly Angel Soul* arose from our failure to effectively turn our fully interactive VR experience *Queerskins: ARK* (www.queerskins.com) into a 360-degree video. Failing to capture through optical means what Laura Marks terms "haptical perception," prompted us to consider how we might

use the affordances of virtual production and virtual cameras to craft an immersive, embodied cinematic language for a 2D film (Marks, 2000).

> «Haptic cinema does not invite identification with a figure so much as it encourages a bodily relationship between the viewer and the video image. Thus, it is not proper to speak of the object of a haptic look so much as to speak of a dynamic subjectivity between looker and image. Because haptic visuality tends less to isolate and focus upon objects than simply to be in their presence, it seems to respond…" (Marks, 1998, p. 332).

As interactive storytellers, we have always been interested in types of storytelling that allow the audience to "play" as themselves rather than assume the role of another. In creating FAS, we intended to construct the film to utilize an "embodied" participatory perspective, one familiar from "first-person shooter" video games and from gaming videos in which viewers watch in real-time what someone else sees and does playing a video game. Drawing upon a tradition of gestural camerawork in the films of Max Ophüls, Iñárritu's Birdman, and the work of Maya Deren, as well as the dance theater of Pina Bausch, we explored the potential of VR to recoup a long-standing cinematic tradition of embodiment in which "the moving camera is not only a mechanical instrument, an object of visual and kinetic perception; it is also a subject that sees and moves and expresses perception. It participates in the consciousness of its own animate, intentional, and embodied existence in the world" (Sobchack, 1982, p. 320).

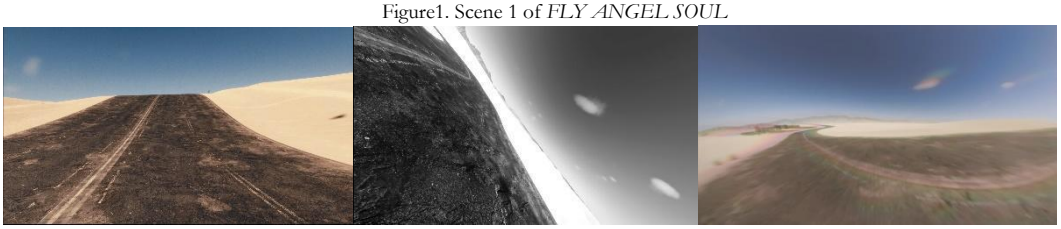
The Meister Eckhart quote, "Let us pray to God that we may be free of God that we may gain the truth and enjoy it eternally, there where the highest angel, the fly, and the soul are equal" (Eckhart, 2009, p.442) which begins *FLY ANGEL SOUL's* first scene, is meant to radically disorient the viewer by suggesting that the epistemological compass by which humans decide a fly is lowly and an angel high is inherently deficient. Eckhart's quote asks viewers to consider the principles by which we ought to (re)organize our understanding/map of true reality. If, as Lakoff and Johnson showed in Metaphors We Live By, abstract human thought and concepts are organized around a mental body map (Lakoff and Johnson, 1980), a realization of Eckhart's transcendent vision will require viewers reorganize of their body map as well.

Using Unity game engine and Cinemachine tools and the directors' descriptions, lead engineer Elliott Mitchell created three types of "embodied" virtual cameras" a fly, an angel, and a human/soul, each of which sees and moves through the same virtual mis-en-scene differently. Although our film privileges the human space-time perspective, it also allows the audience to experience alternative, computer-mediated ways of perceiving the same story. All three cameras function as the "players," both in the video game and theatrical sense. The cameras' real-time "performance" is documented as footage that was then edited to create the final film. Both the fly and the angel cams are purely virtual. The "soul" cam path, however, was based on the real-time experience of creative technologist, dancer, and artist Clemence Debaig who was asked to move through the virtual set with the mindset of certain characters e.g. Sebastian's estranged but loving mother, his cold and distant father, and as herself, a "neutral" observer. Debaig's decisions regarding how she moved through the environments and interacted with the virtual sets determined what was captured in real-time as 2D film footage by the "soul cam" programmed to follow her path and speed. In agreement with Sobchack's description of the

film camera as perceiving "subject," we propose that our soul cam acts like a virtual cinematic avatar, allowing viewers to actively participate in the narrative as it navigates the responsive mis-en-scene.

Originally, the mis-en-scene was to have spatialized sound that the presence of Debaig would trigger as she moved through the landscape and building. We hypothesized that this, in turn, would slow or alter her course in a kind of responsive feedback loop that would further the immersive, embodied experience of the viewer. The score was originally developed as a series of loops that would play or stop depending on the proximity of Debaig to the speaking actors. For technical reasons, however, this turned out not to be possible. For the final film, sound designer Leo Kuraite and composer Christoph Mateka pivoted to creating three unique soundtracks to represent and enrich the viewer's immersion in each of the three perspectives. Importantly, we asked the sound team to play with rhythm and reverberation as sonic manifestations of using multiple space-time perspectives.

Figure1. Scene 1 of *FLY ANGEL SOUL*



Soul Cam View Angel Cam View Fly Cam View

Unlike the "soul cam, " the angel and fly cameras exist as state machines, pre-programmed virtual entities. The angel cam sees in black and white (a nod to Wim Wenders' Wings of Desire) and can move instantaneously anywhere within the scene. There it remains, for a given period of time, related to the speed of the "soul cam." This mathematical relationship is the only connection to the presence of the human in the environment. In addition, Jarrah Gurrie edited the film such that the angel can "see" the future before it is visible to the soul cam. In sum, the space-time of the angel is distinctly alien, and its relationship to the human is coldly mathematical, yet it is also sublimely beautiful. The fly cam, on the other hand, is playful. It moves quickly, can hover upside down on a ceiling or sideways on a wall, and can see in almost 360 degrees. It is programmed so that it does not pay much attention to the human tragedy playing out. The fly perspective is disorienting but amusingly so. It is meant to provide a subtle comic relief to the experience.

Although our film privileges the human space-time perspective, not only in terms of the amount of footage but also in spatially centering that footage, it also allows the audience to experience alternative, computer-mediated ways of perceiving the same story. We hope that the film offers viewers novel form(s) of embodiment with unique and multifarious ways of moving and seeing through virtual cameras.

Architecting events

The script for FAS is simple. There is little plot. In place of events, it is the main character, Sebastian's understanding and acceptance of his life as a gay Christian man and also his impending death from AIDS that changes. To manifest this outwardly in a way that film viewers could " live ", we devised a narrative structure revealed and experienced through architecture and landscape. This is in keeping with architect Bernard Tschumi's suggestion that "architecture is not about the conditions of design but

about the design of conditions that will dislocate the most traditional and regressive aspects of our society and simultaneously reorganize these elements in the most liberating way so that our experience becomes the experience of events organized and strategized through architecture." (Tschumi, 1996, p.260)

The power of landscape to reveal as well as generate emotional experiences was recognized by the great filmmaker Sergei Eisenstein, who considered landscape "the freest element of film, the least burdened with the servile, narrative tasks, and the most flexible in conveying moods, emotional states and spiritual experiences" (Eisenstein, 1987, p.217). Despite this understanding, it is only recently that the neurocognitive effects of architecture are being investigated. A recent study notes that "the visual brain harbours hidden sensitivities to architectural interiors that are captured by the dimensions of coherence, fascination, and hominess" (Chatterjee et.al., 2021, p. 120).

In *FLY ANGEL SOUL*, we use classic Renaissance architecture manifesting the principles of balance, symmetry, rhythm, and respecting proportions to make the viewer feel physically small and not at home in the world. The lofty architecture is also meant to induce awe and a yearning or fear of something more than human. Like Sebastian, the viewer may feel like an interloper in this space until, at the end, nature returns to undermine the purity of the architectural lines. Working with fine artist Paolo Barlascini, who was trained as an architect, and lead environment and lighting artist Emmy Yupa, we created a virtual set, the journey through which would reflect the evolving interior of Sebastian's state of mind: from blankness to discursive reflection, to confrontation with rigid, conflicting thoughts and emotions, and finally, to an organic acceptance.

The film opens with a cacophony of voices over a dark screen that resolves into a vast desert landscape. This landscape is meant to connote both freedom and danger, the impossibility of orienting oneself in the endless, disinterested sameness of the desert. The only way of orienting, in fact, is a road that leads off into the distance to an unknown destination (the future) or else a distant city (the past). Nearby the starting position stands an archway modeled on the famous entrance arch to Bamako, the capital of Mali, where the film nominally takes place. This archway also functions as an archetypal architecture connoting a threshold, and indeed, in passing through, Sebastian speaks the disorienting Meister Eckhart quote, and the story begins. Since there is only one road, the journey appears inevitable and destined. In fact, the virtual mis-en-scene was built to accommodate a desire to leave the path at any point, as the cameras eventually do. It is important to note that our mise-en-scéne functions like Tschumi suggests architecture should be: "a design of conditions." In actuality, this film could be reshot with infinite variations and infinite paths taken.

In contrast to the disorienting sameness of the desert and cloudless blue sky, the sun and a white dove flying overhead act as fellow travelers, tracking the soul camera's movement and, in a sense, hailing the avatar's invisible presence in the film landscape, making the viewer feel seen. This part of the journey, with its open spaces and clear path, is about discovery. Progressing on the path, the viewer is introduced to the main character, Sebastian, through his tape-recorded diary entries. These intimate glimpses into one man's life are dropped like breadcrumbs along the way. In a sense, the viewer, through her virtual avatar, becomes like Hansel and Gretel, collecting these crumbs as they find their way "home."

"Home" comes into view as an imposing building that can be read as a fortress, cathedral, or mausoleum—it is purposefully hard to tell. Passing into the dark interior, the second scene begins. The interior of the building does not match the exterior—the latter was inspired by a medical clinic in Mali, whereas the former is based on the radial architecture of Bramante's plan for St. Peter's Basilica, 1506.

Figure 2. Plan for St. Peter's Basilica, 1506.

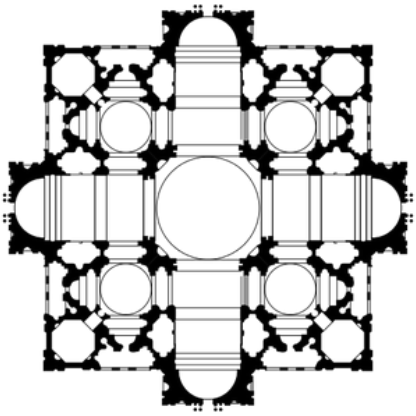
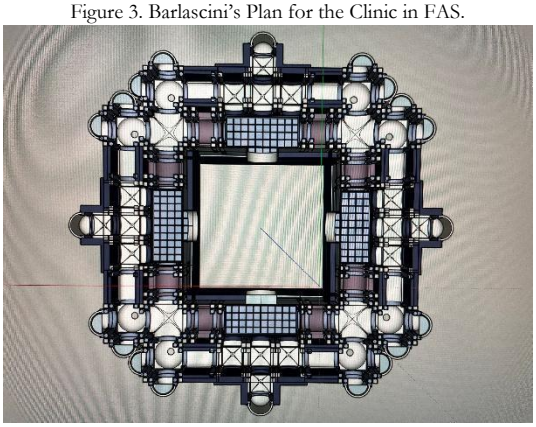


Figure 3. Barlascini's Plan for the Clinic in FAS.



The mis-en-scene functions as what Michel Foucault referred to as a heterotopia, a place "capable of juxtaposing in a single real place several spaces, several sites that are in themselves incompatible" (Foucault, 1984, p.6). Our heterotopia is what Foucault calls a "heterotopia of compensation"—a real space that is other. It is "as perfect, as meticulous, as well arranged as ours is messy, ill constructed, and jumbled" (Foucault, 1984, p. 8).

One aspect of heterotopias e.g. a museum or a library, is they contain multiple times. In our film, past, present, and future coexist. Within Bramante's radial architecture of repetition and return, time becomes pure duration. It passes not through a linear progression from event to event, as in the first scene, but by wandering in literal circles. However, as in life, this eternal return is disrupted by memories. They manifest in alcoves when triggered by the soul cam's presence. These memories are still photographs and hand-held videos. Present time exists as the the cameras' movement through space, which is different for each of them. Future time, too, is present via the angelic perspective.

Another aspect of heterotopias, according to Foucault, is that "heterotopias always presuppose a system of opening and closing that both isolates them and makes them penetrable" (Foucault, 1984,

p.7). Thus, entry is either compulsory or requires some form of ritual admittance or purification. Like Sebastian's approaching his death, entry is compulsory for the film viewer since the virtual avatar of the soul cam is designed to hijack the viewer's relatively immobile body. At the same time, the viewer's agency is given back to them by overtly constructing another spacetime dimension for them to inhabit, for throughout the film, we privilege the no-place of the black screen that surrounds each frame. We also extend the duration of some cuts to create temporal voids. Film viewers can return to their own embodied here-and-now in these pauses and non-places.

After wandering through the memory cathedral, hearing from major figures from Sebastian's past, the viewer approaches the central chamber, where, under an oculus, Sebastian and his friend Bathilde wait. This performance, which will be described in detail below, merges the space and time ofDebaig's performance as captured by the soul cam with that of the actors captured using volumetric video such that both appear to be happening in the present time, not as a filmed performances but as a live theatrical one.

In Scene 3, Sebastian is finally called into the Doctor's office, where he is to meet his fate. Barlascini designed this room to be rigidly rectilinear, severe in its delineation of light and shadows, and narrow and drop in height as the camera moves from the entry down to the desk where the doctor stands. Although not purposeful, the room resembles the fascist architecture in Bertolucci's *The Conformist*.

Figure 4. Still from *The Conformist*.

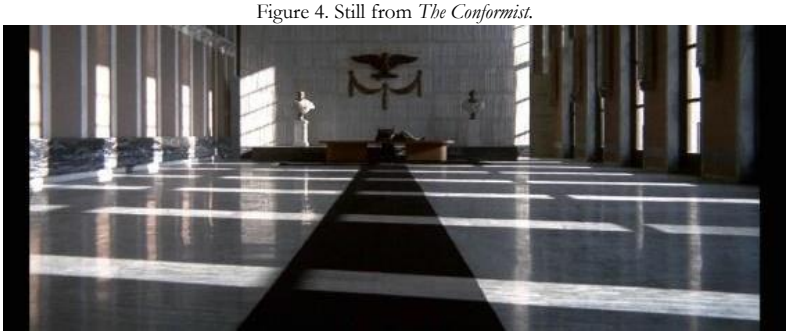


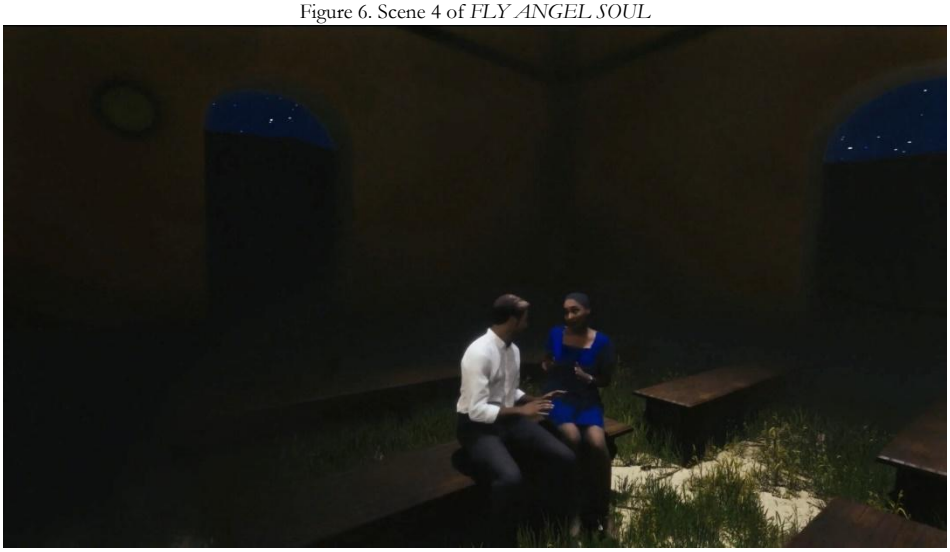
Figure 5. Still from Scene 3 of *FLY ANGEL SOUL*

On one side of this room, floating lace curtains, a blue sky, and a garden offer the possibility of escaping from the constraining binaries of light and shadow, good and evil, deserving and undeserving. Importantly, although, at first, it clings to the windowed wall, the soul camera does not attempt to escape but remains painfully close to the action. In this scene, the doctor questions Sebastian's faith and

the calculus by which Sebastian, rather than accepting God fully, bargains with him—in exchange for his goodness, God will make sure "everything will work out." When the doctor tells Sebastian that God loves all people, good and bad, he challenges Sebastian's belief that his suffering proves he is unworthy of love. By that logic, "old people, children," deserve their suffering. Finally, Sebastian understands his self-hatred is incommensurate with his love for others and God. He must choose. The realization leaves him stunned. He asks the doctor's forgiveness for his tragic error but does not receive it. Whether this is due to the doctor's homophobia or because he knows Sebastian must be the one to forgive himself is left up to the viewer to decide.

Revealing Sebastian's changed mental state, in the final scene, scene 4, he returns to the place where Bathilde waits to find it changed—both the same and different—here, both the epic and the quotidian coexist. Bathilde sits as he left her a few minutes ago, but now night has fallen, and the outside has come in—grass and sand disrupt the purity of the architectural lines. The earth is now present, a harbinger, perhaps, of Sebastian's death, but also maternal, comforting, and familiar.

Figure 6. Scene 4 of *FLY ANGEL SOUL*



Again, multiple times exist, from the impermanence of grass growing to the eons of the constellations. The epic and the quotidian coexist. The film ends as it began with Sebastian's tape-recorded diary entry. "I am nowhere, but I have no fear; I know I have only to tug on the string to go back, but for now, let me fly." As Laura Marks notes: "tactile epistemology involves a relationship to the world of mimesis, as compared to symbolic representation" (Marks, 2000, p.138). Here, Sebastian likens himself to a kite, soaring in the sky yet still held to the earth. He is both self and object, grounded and free, embodied and transcendent. The film ends with all three cameras taking flight and moving through the oculus into the vast starry sky.

In his essay on gesture, philosopher Giorgio Agamben suggests that by the time Eadweard Muybridge published his photographs that broke down the mechanics of human and animal movement, humans were already losing the naturalness of their gestures. Cinema, Agamben suggests, was an attempt to recoup these (Agamben, 2000). Today, for many of us living online, the swipe, the tap, and the spread,

those gestures readable only by a computer interface, are the ones we use most. Moreover, although emojis —the thumbs up and the smiley face- no longer offer the nuances of human movement, they, too, are machine-readable. For us, as artists, VR and cinema influenced by it offer the opportunity to explore, if not recoup, our relationship as machine-extended humans to gestures and embodiment.

Framing

Heidegger suggests that technology is essentially an "enframing," a way of ordering and revealing the world in which everything becomes a "standing reserve" that is to say, a waterfall or a human is no longer what it is but only exists as something to be used, harnessed, and replaced. Heidegger suggests that art is what can counteract this.

> «But enframing does not simply endanger man in his relationship to himself and to everything that is. As a destining, it banishes man into the kind of revealing that is an ordering. Where this ordering holds sway, it drives out every other possibility of revealing. Above all, enframing conceals that revealing which, in the sense of poiesis, lets what presences come forth into appearance» (Heidegger, 1977, p. 20).

Our film overtly uses framing not only to acknowledge the conventions of cinema but also to suggest the possibility that art might harness technology in service of its own poetic revealing.

Similarly, Raoul Eshelman suggests that artists might use the artifice of "coercive framing" to generate empathic identification between a viewer and a work of art—a technique he calls "performatism".

"The coercive frame cuts off, at least temporarily, from the context around it and forces us back into the work. Once we are inside, we are made to identify with some person, act or situation in a way that is plausible only within the confines of the work as a whole (Eshelman, 2008, p. 2).

Perhaps the film that is a supreme example of performatism is Alexander Sokurov's one-shot masterpiece, Russian Ark in which the viewer is held captive for an hour and 39 minutes within the singular experience of the moving camera as it roams across centuries through the halls of the Hermitage Museum/Winter Palace. The film achieves, through a covert act of framing, the poiesis that Heidegger suggested could be the "saving power" that counteracts the enframing of technology (Heidegger, 1977, p. 13).

As Eshelman suggests, performatist works of art "replace postmodern irony and skepticism with artistically mediated belief and the experience of transcendence" (Eshelman, https://performatism.de/What-is-Performatism). For Eshelman, framing is a key part of these works, "if the performance is successful, then the (viewer) too will identify with it more or less involuntarily – even if he or she still remains incredulous about its basic premises. The (viewer) is "framed" in such a way that belief trumps cognition" (Eshelman, https://performatism.de/What-is-Performatism).

FLY ANGEL SOUL also relies on poetic enframing, but at the same time, it offers viewers spaces for higher-level thought. The latter is primarily achieved through editing. In our film, editing is not used for continuity, as it is in conventional film editing. Rather, it is used to create a Brechtian distancing effect or V-effect (Verfremdungseffekt), so that the viewer is "no longer allowed in any way to an experience uncritically…by means of simple empathy within the play." (Brecht, 1964, p.110) In FAS, editing is used to counteract or complicate the unified vision inherent in our embodied, first-person

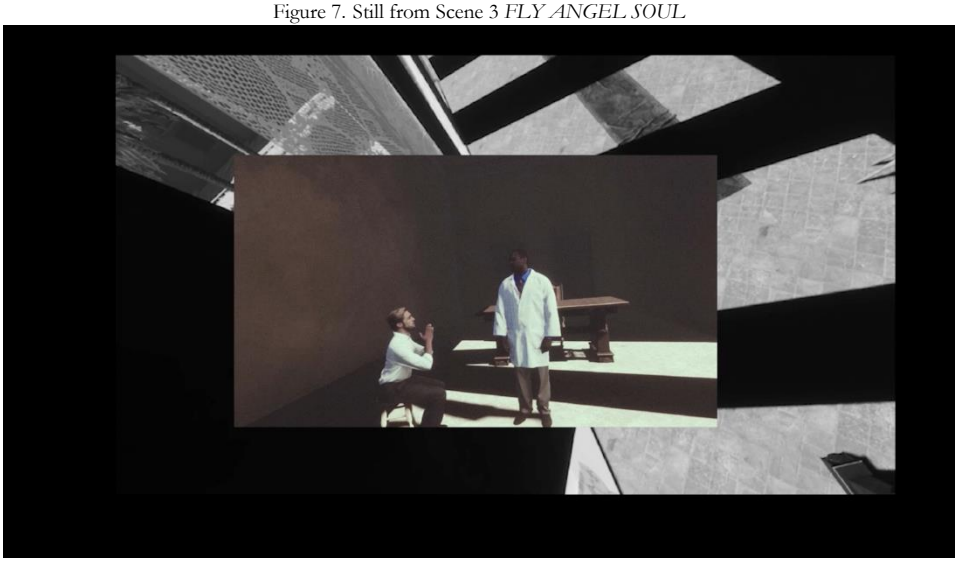
camera approach, which, as Eschelman suggests, generates a forced identification and the experience of aesthetically mediated transcendence.

Importantly, empathy can be thought to exist on a continuum from physical/motor to emotional and mental and from unconscious to conscious processes in which there is a self-other distinction (Gonzalez-Liencresa et. al., 2013). Emotional contagion is one example of a physical/motor involuntary form of empathy, whereas compassion and sympathy are more conscious and emotional/mental processes. In FAS, although our focus on movement and gesture leans towards unconscious empathy, we are also interested in providing opportunities for cognitive empathy, which allows the viewer to consider the content of the film critically.

For this reason, the story begins with a focus on aural rather than visual storytelling—from the historical audio clips heard during the opening credits through the first scene where Sebastian speaks diary entries into a tape recorder. Our goal was to allow the viewer to acclimate to the first-person perspective(s) and the use of multiple frames. There is little visual information in Scene 1; rather, most of the information is auditory. Our goal was to activate the viewer's imagination and invite them into an active storytelling role. Interestingly, research shows that auditory stories are "more cognitively and emotionally engaging at a physiological level" than visual stories (Richardson, et. al., 2020).

Another key decision in editing this film was to reject the unification of the disparate perspectives of fly, angel, and soul into a singular auteur vision. Rather, these are allowed to coexist—to be both the same and different. To facilitate this, we chose to use a split screen. Hypothesizing that most viewers would privilege the human perspective, we acknowledged this by centralizing the soul-cam perspective. In contrast, the angel frame is off-center and large. The fly perspective frame is the smallest, and it playfully moves around the screen field as the film progresses. Infrequently, we allow fly or angel perspectives to coexist with the human.

Figure 7. Still from Scene 3 *FLY ANGEL SOUL*



This gives the viewer a chance to witness for themselves how their attention prefers the human perspective, with the other views serving as a distraction or background at most. It is only at the end of the film that all three perspectives take on the central frame size and location of the soul cam, a realization of Eckhart's equality and an invitation for us humans to expand our acceptance of different perspectives. Frame size is also utilized as an editing device at the end of scene 3 when the doctor brutally challenges both Sebastian's faith and his view of suffering. Here, the frame is narrowed, effectively amputating Sebastian, sometimes leaving only his hands visible. The viewer is put in the position of using her imagination to actively fill in the rest of the missing body, a virtual act of healing.

As one might expect, FAS required little continuity editing. With the focus on movement in this film, most editing was done as a match on action. Additionally, editor Jarrah Gurrie repurposed the cut, drawing it out to create a blank space without visuals. Although the diegetic sound continues, the viewer is suddenly no longer immersed as a virtual avatar in these spaces. She is forced back into her own here-and-now embodied state. By creating a work with spaces for the viewer's imagination and embodiment, two unknowable, uncontrollable elements, we not only hoped to encourage active participation in the viewing experience, which we anticipated would lead to a more profound and lasting impact but also because as Dr. Kate Nash notes, "while there is much to recommend VR as a platform for humanitarian communication, there is an inherent moral risk attached: the risk of improper distance" (Nash, 2018).

The angel camera perspective is programmed as a random series of jump cuts designed to be jarring and unreadable. Because most of what the angel sees does not contain visible action, many of the shots appear as though they were still photographs. Gurrie used the freedom afforded by the angel jump cuts to make it seem as if the angel can "see" into the future by placing these images before the action being witnessed by the soul cam. In sum, we use the techniques of cinematic editing to generate a perspective that is both sublime and deeply unsettling. The fly perspective is unedited except for length. Rather, in post-production, Juan Salvo added a vibrational overlay, a kind of supernaturally fast cut, which not only adds an insect-like liveliness to the perspective but also mimics the flickering of a film. In sum, in FAS, we use editing primarily to disrupt immersion and/or activate and engage the viewers' imagination, harnessing the viewers' own embodied state into the film viewing experience.

Theatricality

For *FLY ANGEL SOUL*, with its responsive mis-en-scene and virtual cameras that "perform" in that space, we were less intent on capturing a visual image in a certain way and more interested in having the camera authentically embody a "character" through gesture. Thus, in line with Artaud's radical proposals for theater, our filmmaking leans into principles of theater as well as film.

> «The typical language of the theater will be constituted around the mise en scene considered not simply as the degree of refraction of a text upon the stage, but as the point of departure for all theatrical creation. And it is in the use and handling of this language that the old duality between author and director will be dissolved, replaced by a sort of Unique Creator…» (Artaud, 1958, p. 93).

Just as in immersive theater, in which the audience moves through a mis-en-scene following the actors, e.g. the hugely popular Sleep No More, in FAS, the distinction between camera as actor and audience is blurred. Indeed, in our film, the audience's performative act—moving in space and time

through the film's mise-en-scéne via the invisible avatar— is meant to seem more "live" than the actors' performances, captured before filming using volumetric video technology—essentially allowing us to capture the actors as 3D moving game-objects that were then placed in the virtual architecture. To accentuate this effect of "liveness" and performativity, the actors remain mostly stationary, whereas it is the camera-viewer that moves around them.

To offer Debaig the freedom to move away from the actors without disrupting the continuity of the actors' performance, the actors' dialogue was created as four short units interspaced with looped gestural movements. Choreographed by DeBaig, these mannered movements, gestural acts expressing the anxiety of waiting, are performed as a seated dance that reveals the characters' personalities. For Sebastian, the movements are dramatic and on the edge of self-harm, whereas for Bathilde, they are small motions of putting right—pulling down the hem of her dress, straightening her posture. Although DeBaig had the opportunity to leave the scene and return to the outer halls of the building, "playing" Sebastian's mother, she naturally stays close. She was not directed to do so to get a close-up, as a director might direct a cinematographer, rather, she felt her way through the shoot.

As in Artaud's Theater of Cruelty, in *FLY ANGEL SOUL*, spoken language is less important than gesture, intonation, and rhythm. Indeed, the dialogue is melodramatic rather than naturalistic. Rather than reveal a plot or develop the characters, the dialogue is meant to prompt the viewer to consider their own position in relation to reality. This, too, is in line with Artaud's assertion that theater and the viewers' imagination be used to "organically re-involve man, his ideas about reality, and his poetic place in that reality" (Artaud, 1958, p.92). As Sebastian contemplates his own mortality, the story he has been telling himself, "who I am, what I will do," falls apart, and even the most fundamental and familiar of elements, water, becomes a cipher. He asks Bathilde if that is what faith is, to hold together the story, Bathilde counters that "there is love," suggesting that love can and ought to be the thing that orients us in making sense of the complexities of life.

Gameplay

On the most fundamental level, our film shoot consisted of devising the rules under which the game engine and virtual cameras could play. Indeed, with a simple change of code, Fly Angel Soul could be reshot with almost infinite variation. Our overt use of video game aesthetics in FAS is meant to orient the viewer to this game-like quality of the filmmaking process. Moreover, by overtly referencing video games, we hope the viewer will also take up the invitation to play. As Roger Callois notes, play is defined as any essentially free activity (non-obligatory), separate (defined before play begins as circumscribed in space and time), uncertain (the outcome cannot be determined ahead of time), unproductive (creating neither goods nor services, ends in a situation, identical to the beginning of the game), governed by rules (conventions that suspend ordinary laws), and make-believe (accompanied by player awareness that this is a second reality as opposed to real life) (Calois, 2001, pp. 9-10).

For this reason, as opposed to the naturalistic turn of the Dogme 95 group of filmmakers, we embrace overt artifice. The topics our film explores, homophobia, religion, and suffering, are weighty. Indeed, the brutal actuality of this is acknowledged before the film even begins. As the main credits run, viewers hear historical audio of a preacher railing against homosexuals; although this is from the 1980s, for contemporary viewers, the rhetoric seems disturbingly current. Because FAS is manifestly not "real life," even as it feels quite real on a visceral level, our hope is that viewers, even religiously conservative ones, allow themselves to experiment with new ways of being within what Baudrillard calls a game's "enchanted sphere. "The pleasure of the game is twofold: the invalidation of time and space within an

enchanted sphere… and the parodying of reality, the formal outbidding of the Law's constraints" (Baudrillard, 2001, p. 149).

Interestingly, although empathy has mostly been studied in VR using "realistic" scenarios and perspective-taking, there is, in fact, increasing evidence that aesthetic appreciation is related to the brain's reward centers and might be used to alter behavior (Sarasso et. al., 2023). The ending of our film is meant to induce awe in the viewer, who, having inhabited the earth-bound perspective of the soul-cam, now acquires the ability to fly. There are studies that suggest that scenarios that invoke awe "are associated not only with awe, but with compassion, gratitude, love, and optimism, along with connectedness and self-relevant thoughts" (Nelson-Coffey et al., 2019). Another argument for developing overtly aestheticized experiences as opposed to "realistic" ones—something that virtual production methods readily afford— is that training in negating stereotype associations appears to decrease stereotype activation (Kawakami, et.al., 2000). Our hope is that the impossibility of our mis-en-scene being understood as "real" undermines the stereotyping of Sebastian and subverts dogmatic identity politics as practiced both by social conservatives and liberals. Within the game of the mise-en-scene, conventional criticisms seem to have no place.

3. CONCLUSION

More than a hundred years ago, Italian Futurist Filippo Tommaso Marinetti not only encouraged the development of art as "total" theater in which the distinction between viewer and artwork blurred but also, remarkably, hypothesized in his "Manifesto of Tactilism" that in the future, humans would discover new senses beyond the conventional five (Antonello, 2013). With VR, Marinetti's dream of technology, multimedia participatory spectacle, and new ways of perceiving the world has, arguably, become a reality.

But, technology does not develop in a vacuum; it manifests the Zeitgeist. Just as the Futurists were responding to increasing industrialization and mechanization, we today are responding to the threats of the Anthropocene, a point where we face the possibility of mass destruction, whether through weapons, pandemics, climate cataclysms, or our own technologies (AI). As Malbou suggests, metamorphosis occurs under conditions where there is an impossibility of flight (despite the grandiose galactic aspirations of a few billionaires), and yet flight represents the only solution.

> «In the usual order of things, in classical metamorphoses, transformation intervenes in place of flight. For example when Daphne, chased by Phoebus, cannot run fast enough she turns into a tree. But metamorphosis by destruction is not the same as flight; it is rather the form of the impossibility of fleeing. The impossibility of flight where flight presents the only possible solution» (Malbou, 2012, p.10).

As artists, we see VR as a laboratory for our computer-extended bodies' metamorphosis. Although VR is a valid art form in itself, one with the potential to promote empathy in players, in this paper, we have shown how virtual production methods might be used to incorporate some of the power of embodied presence into the language of cinema, which remains a far more accessible and popular medium. We encourage filmmakers and researchers to use virtual production to explore how aesthetics, game principles, and embodied presence might be used to develop a cinematic language that speaks to us now as machine-extended beings living dual existences in real life and online. Whether VR and VR-

influenced cinema might lead to situations that promote empathy in viewers remains to be seen. What is clear is that these tools must be used ethically. VR represents a particularly powerful tool since even the notion of the viewer's body ownership can become a resource or "standing reserve" for the artwork (Dupraz et al., 2024). Alexander Galloway has argued that "The machine is an ethic because it is premised on the notion that objects are subject to definition and manipulation according to a set of principles for action. The matter at hand is not that of coming to know a world but rather that of how specific, abstract definitions are executed to form a world" (Galloway, 2012, p. 23). Agreeing with this, we have made the human lived experience (Debaig and the embodied film viewer) the foundation for our filmmaking. In our view, the transcendent potential of virtual production must acknowledge the reality of the human, otherwise, as Godard points out, we risk losing our humanity.

4. BIBLIOGRAPHY

Agamben, G. (2000). Notes on Gesture. *Means without End: Notes on Politics.* (V. Binetti and C. Casarino, Trans.) University of Minnesota Press.

Antonello, P. (2013). Out of touch. F.T. Marinetti's Il tattilismo and the Futurist Critique of Separation', in E. Adamowicz & S. Storchi (Eds.). *Back to the Futurists.* Manchester University Press.

Artaud, A. (1958). *Theater and Its Double.* (MC Richards, Trans.) Grove Press Books.

Bailenson, J., Zaki, J., Bostick, J., & Willer, R. (2018). Virtual reality perspective-taking increases cognitive empathy for specific others. *PLOS ONE*, *13*(8).

Baudrillard, J. (2001). *Seduction* (B. Singer, Trans.) New World Perspectives.

Bekkali, S., Youssef, G. J., Donaldson, P. H., Albein-Urios, N., Hyde, C. & Enticott P. G. (2021). Is the Putative Mirror Neuron System Associated with Empathy? A Systematic Review and Meta-Analysis. *Neuropsychol Rev. 31*(1), 14-57. https://doi: 10.1007/s11065-020-09452-6

Brecht, B. (1964). *Brecht on Theater*, (M. Silberman, S. Files and T. Kuhn, Eds.) Bloomsbury Press.

Callois, R. (2001). *Man, Play and Games. (*M. Barash, Trans.)The Free Press of Glencoe, Inc.

Chatterjee A, Coburn A, & Weinberger A. (2021). The neuroaesthetics of architectural spaces. *Cogn Process.* Sep; 22(Suppl 1), 115-120. https://doi: 10.1007/s10339-021-01043-4.

di Pellegrino G., Fadiga L., Fogassi L., Gallese V., Rizzolatti G. (1992). Understanding motor events: a neurophysiological study. *Experimental Brain Research. 91*, 176–180.

Dupraz, L., Bourgin, J., Pia, L., Barra, J. & Guerraz, M. (2024). Body Qwnership and Kinaesthetic Illusions: dissociated bodily experiences for distinct levels of body consciousness? *Conscious Cogn.* Jan;117:103630. https://doi: 10.1016/j.concog.2023.103630. Epub 2024 Jan 5.

Eisenstein, S. M. (1987). *Nonindifferent Nature.* (H. Marshall, Trans.) Cambridge University Press.

Eshelman, R. (2008). *Performatism or the End of Postmodernism.* Aurora: The Davies Group. https://performatism.de/What-is-Performatism

Flusser, V. (1983). *Towards a Philosophy of Photography.* Reaktion Books, Ltd.

Foucault, M. (1984). Of Other Spaces: Utopias and Heterotopias. Architecture /Mouvement/Continuité (J. Miskowiec, Trans.) October.

Vittorio, G. & Guerra, M. (2019). *The Empathic Screen: Cinema and Neuroscience.* Oxford University Press.

Galloway, A. (2012). *The Interface Effect.* Polity Press.

Gantz, J., & Reinsel, D. (2012). The Digital Universe in 2020: Big Data, Bigger Digital Shadows, and Biggest Growth in the Far East. *IDC iView: IDC Analyze the Future,* 1-16.

Gonzalez-Liencresa C, Shamay-Tsooryc SG & Br¨unea M. (2013). Towards a Neuroscience of Empathy: Ontogeny, phylogeny, brain mechanisms, context and psychopathology. *Neuroscience and Biobehavioral Reviews*, 37, 1537-1548.

Heidegger, M. (1977). The Question Concerning Technology. *The Question Concerning Technology and Other Essays.* (W. Lovitt, Trans.) Harper.

IJsselsteijn, W., & Riva, G. (2003). Being there: The experience of presence in mediated environ-ments. In G. Riva, F. Davide, & W. A. IJsselsteijn (Eds.), *Being there: Concepts, effects and Measurements of User Presence in Synthetic Environments,* 3-16. IOS Press.

Kawakami, K., Dovidio, J. F., Moll, J., Hermsen, S. & Russin, A. (2000). Just Say No (to Stereotyping): Effects of Training in the Negation of Stereotypic Associations on Stereotype Activation. *Journal of Personality and Social Psychology 78* (5), 871-888. https://doi.org/10.1037/0022-3514.78.5.871.

Szolin, K., Kuss, D. J., Nuyens, F. M. & Griffiths, M. D. (2023). Exploring the user-avatar relationship in video games: A systematic review of the Proteus effect, *Human–Computer Interaction, 38*(5-6), 374-399. https://doi: 10.1080/07370024.2022.2103419

Lakoff, G., & Johnson, M. (1980). *Metaphors We Live By*. University of Chicago Press.

Lee, H. & Li, B. (2023). So Far yet so near: Exploring the Effects of Immersion, Presence, and Psychological Distance on Empathy and Prosocial Behavior. *Int. J. Hum.-Comput. Stud. 176*.

Malbou, C. (2012). *Ontology of the Accident*, (C. Shread, Trans.) Polity Press.

Marks, L. U. (1998). Video Haptics and Erotics. *Screen, 39*(4), 332-333.

Marks, L. U. (2000). *The Skin of Film: Intercultural Cinema, Embodiment and the Senses*, Duke University Press.

Meister Eckhart. (2009) *The Complete Mystical Works of Meister Eckhart.* (M. O'C. Walshe, Trans. and Ed.) The Crossroad Publishing Company.

Nash, K. (2018). Virtual reality witness: exploring the ethics of mediated presence. *Studies in Documentary Film*, 12:2, 119-131. https://doi: 10.1080/17503280.2017.1340796

Nelson-Coffey, S. K., Ruberton, P. M., Chancellor, J., Cornick, J. E., Blascovich, J. & Lyubomirsky, S. (2019). The proximal experience of awe. *PLoS One.* May 23; 14(5). https://doi: 10.1371/journal.pone.0216780.

Richardson, D. C, Griffin, N. K., Zaki, L., Stephenson, A., Yan, J., Curry, T., Noble, R., Hogan, J., Skipper, J. I. & Devlin, J. T. (2020). Engagement in Video and Audio Narratives: contrasting self-report and physiological measures. *Sci Rep.10*(1). https://doi: 10.1038/s41598-020-68253-2.

Sarasso, P., Francesetti, G. & Schoeller, F. (2023). Editorial: Possible Applications of Neuroaesthetics to Normal and Pathological Behaviour. *Front Neurosci.* Jul 14. https://doi: 10.3389/fnins.2023.1225308.

Sobchack, V. (1982). Toward inhabited space: the semiotic structures of camera movement in cinema. *Semiotica.* 1, 317-335.

Sobchack, V. (2004). *Carnal Thoughts: Embodiment and Moving Image Culture.* University of California Press.

Titchener, EB. (1909). *Lectures on the Experimental Psychology of the Thought Processes*. MacMillan.

Tschumi, B. (1996). *Architecture and Disjuncture*. MIT Press.

Varela, F. J., Thompson, E., & Rosch, E. (1991). *The Embodied Mind: Cognitive Science and Human Experience*. MIT Press.

Yee, N. & Bailenson, J. (2007). The Proteus Effect: The Effect of Transformed Self-Representation on Behavior. *Human Communication Research*, *33*(3), 271-290. https://doi.org/10.1111/j.1468-2958.2007.00299.x

Yilmaz, M. B, Lotman E, Karjus A, & Tikka P. (2023). An embodiment of the cinematographer: emotional and perceptual responses to different camera movement techniques. *Front Neurosci.* 17:1160843. https://doi: 10.3389/fnins.2023.1160843