THE

AUDIOVISUAL ILLUSION

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This research considers the theoretical and aesthetic scope of the generative audiovisual field. It expands on Michel Chion's brief use of the term 'audiovisual illusion' in describing the irresistible and impossible nature of audiovisual relations. In applying this analogy to the techniques and languages of a variety of audiovisual artists, animators and filmmakers it calls for audiovisual producers to apply dynamic, malleable and structural models of audiovisual synchronisation to much wider range of aesthetic and artistic outcomes.

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INTRODUCTION

Digital media is easily deconstructed, re-produced, converted or combined. Both form and content have become transferable and malleable, media amalgamations now common place. A barely understood field of aesthetic experience now exists, seen in the visualisers of our digital audio devices, the synchronised music, video and laser-light shows of nightclubs and in certain music videos, where sound seems to breathe life into animation. The term 'audiovisual' now represents a wide genre of artistic creation whereby immediate sensory associations, central to the work, explore the instantaneous aesthetic experiences of audiovisual generation, translation and synchronisation. Many have drawn parallels between the induced aesthetic experiences of manipulated audiovisual fusion and the neurological condition of synaesthesia. Although the metaphorical significance is clear and undeniable, the metaphor exits as one of the only conceivable avenues to approach a vast, blurry and difficult to define media field. The scope for varying approaches is wide and unexplored in a field where a full spectrum of aesthetic interactions are likely to be available.

This paper considers the theoretical and aesthetic scope of the generative audiovisual field in particular, considering aesthetic experiences that fall outside the continuous realm of neurological synaesthesia. A new metaphorical connotation is established in an attempt to include the dynamic structural and gestural interactions available to audiovisual synchronisation. French film theorist Michel Chion briefly uses the term 'audiovisual illusion' in describing, 'an illusion located first and foremost in the heart of the most important of relations between sound and image' (Chion, 1990, pp. 5). This paper will expand Chion's notion, comparing the audiovisual artist and his synchronous manipulations to that of the illusionist. To experience an illusion is to experience a powerful distortion, something that simply cannot be real but undeniably is so. While perhaps manufactured, even misleading, illusion is not imaginary or make believe but undeniably, irresistibly and impossibly real. This paper applies the analogy to the techniques and languages of audiovisual artists, animators and filmmakers in an attempt to highlight the aesthetic potential of audiovisual synchronisation and manipulation. It calls for audiovisual producers to apply dynamic, malleable and structural models of audiovisual fusion to a full spectrum of aesthetic and artistic outcomes.

It should first be noted that the search for audiovisual cohesion is not a recent digital fascination. Its rich history dates back at least to Aristotle's and Pythagoras' speculations of a correlation between the musical scale and the rainbow spectrum of hues (Morris, 1997). The lure of harmonious audiovisual relationships is so tempting we have seen inventors, philosophers, composers, painters, animators, filmmakers and programmers all explore the possibility. To name a few instances; Louis Castel's mechanical, candle-lit colour organ of 1730, Richard Wagner's 19th century multimedia operas tagged Gesamtkunstwerk, the (still debated) synaesthesia inspired musical works of Alexander Scriabin, and paintings of Wassily Kandinsky, the many experimental filmmakers and animators of the 20th century, the psychedelic sensory blurring of the sixties, and finally the fascination of many in the computer's ability to translate media and its digital data. Celebrated works of art have come from this quest for cross-modal agreement but history has no hallmark work, or resounding moment of success, for a truly correct audiovisual translation is most likely an impossible fantasy. The quest for audiovisual agreement continues and it begs the question; are today's producers of 'synesthetic media', striving for the phantasmic audiovisual harmony searched for in the past?

SYNESTHETIC TRANSLATION VS. DYNAMIC INTERACTION

In this under-theorised field of artistic practise the relevant history and writing is often linked to the neurological condition of synaesthesia. This rare condition describes "when stimulation of one sensory modality automatically triggers perception in a second modality" (Harrison and Baron-Cohen, 1996, pp.3). These synesthetic perceptions are involuntary and vary greatly in their nature among synesthetes, but remain consistent to the individual over time. Multimedia and musical theorist Nicholas Cook suggests that because of these individual and static qualities that 'Synaesthesia provides some hints as to what multimedia is: but, perhaps more importantly, it supplies an illuminating model of what multimedia is not.' (Cook, 1998, pp. 29). Cook analyses Scriabin's fifth symphony, *Prometheus,* in which a *Tastiera per luce*, or colour keyboard, triggers lights of differing colours, according to his reported synesthetic visions:

The luce part literally does add little... the faster part simply duplicates information that is already present in the music. In neither case is there a substantial degree of perceptual interaction between what is seen and what is heard—which means that, in a significant sense, *Prometheus* does not belong to the history of multimedia at all. And to say this is to suggest there is a definite limit to what the phenomenon of synaesthesia can tell us about multimedia, because synaesthesia consists precisely of the duplication of information across different sensory modes. To demand something other than duplication is to go beyond the bounds of synesthetic correspondence (Cook, 1998, pp. 40).

The translative and ultimately subjective audiovisual techniques of colour organs fail to explain or provide the very feeling that is the appeal of 'synesthetic media'. Richard Cytowic describes the neurological synesthetic experience as being an emotional experience accompanied by a 'sense of certitude', a feeling that the cross modal perception is natural and correct, even perfect. A comparable feeling of 'certitude' accompanies effective 'fused' audiovisual experiences and is the primary aesthetic sensory lure of many forms of 'synesthetic media'. Robin Fox's *Backscatter* DVD provides an example of this immediate feeling of audiovisual completeness. Fox synthesises custom-built digital signals and outputs abstract, glitchy audio signal. He simultaneously sends the same signal, as electric current to a cathode ray oscilloscope. Fox's tweaks, squeals and pops trigger complex, organic, seemingly perfect descriptive movements of green light. The fusion so complete and encompassing it becomes unclear which element is representing which. Instances like Fox's, of what may seem to

be induced synesthesia are rarely achieved through synesthetic means (i.e. static colourto-note translations) but at moments of audiovisual emergence and surprise, whereby dynamic systems surprise the viewer with unexpected but immediately sublime results. The feelings and sensations are perhaps similar to that of actual synaesthesia but are created through means beyond the static, constant and individual nature of synesthetic experience. These synesthetic models depend entirely on strict, unchanging rules and systems whereby word-for-word rendering is executed at the expense of natural expression in the target language. In *The Task of the Translator*, Walter Benjamin explains the impossible nature of translation:

Fidelity in the translation of individual words can almost never fully reproduce the meaning they have in the original. For sense in its poetic significance is not limited to meaning, but derives from the connotations conveyed by the word chosen to express it. We say of words that they have emotional connotations. A literal rendering of the syntax completely demolishes the theory of reproduction of meaning and is a direct threat to comprehensibility (Benjamin, 1955, pp. 78).

Simple pitch-to-colour translations seem to have been long abandoned because of the same cognitive and interpretive transformative effects found in linguistic translations. Benjamin calls instead for means in which the source language powerfully effects and liberates the translation. As models for dynamic equivalence in translation exist so should varying models for multimedia interaction, which Cook attempts to describe in terms of *conformance, complementation* and *contest*. The *conformance* model, the most straightforward of Cook's, includes works of a pure synesthetic nature, describing works based on consistent, translative cross-media relationships. Such audiovisual relationships, even among abstract audiovisual works, are quite rare. Cook's other models better describe the majority of 'fused' audiovisual works, which have little to do with synesthesia beyond the proposed feeling of noesis. These models allow for audiovisual interaction, and the dynamic synthesis of meaning:

> Conformance begins with originary meaning, whether located within one medium or diffused between all; contest, on the other hand, ends in meaning... the association of conformant models with synaesthestic and

metaphysical speculation demonstrates, conformance tends towards the static and the essentialized, whereas contest is intrinsically dynamic and contextual (Cook, 1998, pp103).

The mid-point between these two extremes is represented by the third model of multimedia, complementation... as that which exhibits neither consistency nor contradiction... complementation is readily associated with the successive phases of multimedia production. The classical Hollywood film for example, for instance, was in general virtually complete before it was passed onto the composer for scoring: the composer's job was understood as one of complementing...(Cook, 1998, pp. 105)

Minimal visualisation works such as Karl Kliem's visual accompaniment to Noto and Sakamoto's song *Trioon* would tend towards complementation, in which a static black void backgrounds white piano-key like rectangles appearing with irregular piano strikes, as thin white horizontal lines waver to background glitches and pops. Synesthesia has obvious metaphorical relevance, but the work by no means follows synesthetic structures. The animation is void of colour, and follows arbitrary and shifting visual translations rather than strict, repetitive rules. We could further evaluate Kliem's work as a model of contestation, analysing the emergent properties and the dynamic associations and meanings. Cook's multimedia models are fuzzy, something he acknowledges, in allowing media forms to shift between classifications. Cook successfully highlights the need for a wider lens to view cross-media or cross-modal works where audio and visual not only conform or complement one another but mutually interact. Generative visualisation techniques especially require different forms of analysis, because of their naturally dynamic, emergent nature.

GENERATIVE POTENTIAL: GESTURAL AND STRUCTURAL METAPHOR

Experimental filmmaker John Whitney spent decades investigating generative graphics and their ability to express abstract musical qualities. Before computer technology was easily accessible, Whitney was already working to generative processes, making abstract animations using a converted mechanism of a World War II M-5 Antiaircraft Gun; a twelve-foot-high analog computer of amazing complexity involving rotating tables and multiple-axis rotating cameras. After adapting to computer technology Whitney created groundbreaking digital generative forms and saw in computing, "a visual medium which is more malleable and swifter than musical airwaves. That medium is light itself." (Whitney, 1980, pp. 15) In Digital Harmony, the book that describes his life's work, his hypothesis assumes "that the attractive and repulsive forces of harmony's consonant/dissonant patterns function outside the dominion of music." (Whitney, 1980, pp. 5) Whitney's ambition to create a 'universally acceptable visual equivalent to music' while grandiose and conclusive is based on the useful concept that music and generative graphics share two specific qualities; motion and structure. He brings about a poetic and powerful metaphor, that of 'liquid architecture', describing the ability of generative graphics to possess both the fluid and structural qualities of music. He expands his metaphor throughout the book and sees both forms as abstract and expressive, both capable of expressing tension, consonance, dissonance, resonance and emotion.

Whitney's very hypothesis places his work in a metaphorical realm where similarity between audio and vision serve as a means rather than as an end. Musical signs, metaphors and descriptors (such as gesture, composition, composition, harmony, dissonance etc.) provide a less explicit but useful way of thinking about audiovisual relations. Many of these terms are interchangeable between media and form the basis of many media roles. The film sound designer, the VJ, and Whitney himself are involved in a constant search for audiovisual cross-metaphor and rely on the ability to represent a certain quality in two or more media forms simultaneously. The composer Eisler proposes that, "The concrete factor of unity of music and pictures consists in the gestural element.' (Cook, 1998, pp.60) Filmmaker Eisenstein also points to an 'inner movement' in music referring to 'the ability of each of us . . . to "depict" with the movement of our hands that movement senses by us in some nuance of music." (Cook, 1998, pp. 61) It's this 'gestural element' which forms the basis of Whitney's work. The crucial factor is that such hand movements, or generative expressions are metaphorical associations, implicit systems, which cannot hope to translate musical meaning in a literal, linear manner. The movements of Whitney's animations are interpretive and create meanings in themselves, relaying back on to the music. "What is involved is a dynamic process: the reciprocal transfer of attributes that gives rise to a meaning constructed, not just reproduced by multimedia." (Cook, 1998 pp. 97) A two way process of emergence and 'mutual contamination' that Chion (to be discussed later) would certainly agree with.

Whitney's audiovisual pairings employ structural interactions as well as gestural ones. Works such as Arabesque, where generative forms slowly shift and transform with musical tone and tension create a loose but structural connection compared to some of today's generative visualisation techniques involving audio analysis and explicit and concrete audiovisual connection. Digital technologies have enabled audiovisual fusions that are instantaneous, detailed and acute, providing strikingly immediate audiovisual cross-associations. Patric Schmidt and Benedikt Groß's Seelenlose Automaten provides an example of not only immediate, concrete associations but the structural associations that Whitney strived for. The pair created a minimal electro track where MIDI signals trigger both music and visual. As the visual system receives every single structural element of the song, a set of rules maps the musical information to visual output. This minimal but abstract and stylised output consists of greyscale geometric forms gesturally manipulated and shifted by their corresponding instrument. The aesthetic experience is clear and incredibly tight, every element of the song effecting an abstract visual structure. As the song builds and falls, the visual forms dynamically expand, transform and shrink in a malleable three-dimensional form resembling the 'liquid architecture' Whitney called for. Although the audiovisual associations are completely stylised and arbitrary, they seem perfect, representing the song in its entirety. It's this arbitrary, but seemingly perfect representation that strikes a poetic problem for the 'fused' audiovisual

producer. Such works, unable to achieve an impossible pure audiovisual harmony provide an immediate, unique and convincing aesthetic experience.

The 'fused' audiovisual work, demonstrates the willingness for the brain to establish audiovisual connections, but how do works based on subjective interpretation and vague metaphor provide the heightened, 'noetic' and affirming sensory experience that synesthetic media provides? Can this sensory click provide anything more than eye/ear candy, an audiovisual fantasy?

THE AUDIOVISUAL ILLUSION

Chion explains synchresis as -

'the spontaneous and irresistible mental fusion, completely free of any logic, that happens between a sound and a visual when these occur at exactly the same time." (Chion, 1990, pp.63)

Chion's *Audio-Vision*, a study of film sound, highlights the ease with which meaningless audiovisual fusions are constructed, and supports previous argument making the bold claim that there is no "natural and pre-existing harmony between image and sound". (Chion, 1990, pp.9)

Visual and auditory perception are of much more disparate natures than one might think. The reason we are only dimly aware of this is that these two perceptions mutually influence each other in the audiovisual contract, lending each other their respective properties by contamination and projection (Chion, 1990, pp.9).

Chion provides a rare theoretical framework to study audiovisual relationships by foregrounding the seemingly natural, irresistible, but completely misleading effect that audiovisual pairing can have on our perception. A classic example Chion uses is the 'swoosh' sound, found in Star Wars films when space-craft doors open. The sound effect has such suggestive power that in the subsequent sequels the filmmakers did not need to film the door opening and closing. A static shot, of the door shut, followed by the door open, accompanied with a well timed sound effect allows the brain to perceive the door as actually opening. These effects, while illusionary, do little more than trick us; help us ignore a finer detail. The 'audiovisual illusion', has power beyond foolery. Certain artists and filmmakers weave self-conscious audiovisual illusions before our very eyes and ears.

Filmmaker David Lynch, well noted for his strict attention to sound design, provides one of his most remarkable audiovisual moments in his 2001 film, Mulholland Drive. Two thirds of the way into the film, the Club Silencio scene begins with a long shot of a dark alleyway, when windy noise and Lynchian drones kick-in and drive an unsteady, weightless camera into the door of Club Silencio, following the film's two main characters into the club. Protagonists Betty and Rita take their seats in a silent, relatively empty, antique red theatre when a suited man on stage pronounces, "There is no band," in English and in Spanish, "What you will hear are recordings." A trumpet line begins as red curtains behind open and an older man, dressed in a white tuxedo enters the stage 'playing' a trumpet. The man pulls the trumpet away from his mouth and fully extends his arms to the air, as the trumpet continues to play. Before leaving the stage he gives a perfectly synchronised but simulated (although we'll never really know) trumpet blast. The original man now, alternating between left and right hand, reaches to the air, opening his palms as we hear a trumpet, emphasizing his sharp movements. He stops for a moment and slowly reaches both hands to the sky. The man stretches his arms and opens his palms as a loud thunder-crash rumbles. Artificial blue lights flood the room and Betty begins to violently convulse. The man's power while simulated is evident and inescapable, like that of any magician. The audiovisual fusion illogical but undeniably present. Next, an elegantly styled woman enters the stage and begins to 'sing' Roy Orbison's 'Crying', almost unrecognizable without backing, in Spanish, "Llorando". She 'sings' the sorrowful song powerfully, emotionally and convincingly. Betty and Rita, like the viewer, cannot strip the emotion from the perfect and powerful lip-syncing seen before them, as they cry together. The effect is genuinely breathtaking, and Del Rio's a Capella sails through the theatre. After almost two

minutes of stunning and stirring performance, the woman suddenly collapses to the floor. The singing continues.

By initially unveiling the truth of the illusion, Lynch strengthens it, revealing its inescapable nature. Common sense and rationality while present, cannot completely deconstruct the illusion, and strip the sensory association of the man with his magical effects, thunder and lights, or separate the woman from the emotion of 'her' song.

The famous 'Red Room' of Twin Peaks provides another example. In these surreal and famous scenes a small 'man from another place' communicates in a voice, obviously manipulated, with strange rhythms and accentuations. The process involved the actor learning and speaking his lines in reverse, and in post production, having his shots reversed again to make it comprehensible but decidedly strange. The viewer can tell, even feel, distortion and manipulation has occurred, but again, without choice, sound and image fuse to strikingly surreal aesthetic effect. Consider the audiovisual performance of a ventriloquist and its reflexive, acknowledged nature. The audience knows they are to witness illusion, yet, the performance is stronger, even possible for this reason. In fact, much of the humour is based on the very unreal nature of the performance. The ventriloquist who actually tried to fool his audience, or believed he could, would be laughed at, not with. This begins to highlight the range of effects and aesthetic outcomes, from humour to horror, made possible through audiovisual synchronisation and manipulation as uncensored illusion.

Illusion in its essence sets out to explore fantasy and 'reality', functioning to reveal something about its nature. Club Silencio, a strong example, marks a turning point in the film, where the main characters weep, for they have been exposed to the illusion that is the dream-world nature of their existence in the first two thirds of the film. The film continues the dream-world severely altered but typically Lynchian and surreal. Perhaps Lynch is pointing out that illusion and fantasy is inescapable, even essential to reality?

THE AUDIOVISUAL 'GAP'

In *Cyberspace*, or the Unbearable Closure of Being, Slavoj Zizek investigates the workings of cyberspace, and virtual reality, and sees the computer monitor as a 'fantasy screen', a simulated reality behind which exists chips, electric current and subjectless computation. He sees this relationship as not dissimilar to the way we perceive 'reality'. We have a grasp on, but do not completely comprehend the mechanisms behind our 'reality', interfaces, illusions and fantasies. The gap between mechanism and 'reality' though is incomprehensible:

What is a fantasy screen, an "interface"? Sometimes we find it even in nature, as in the case of the Cerknica lake in Slovenia: this intermittent lake (during its seasonal eruption, the water throws fishes into the air) was experienced as a kind of magic screen, a miracle of something emerging out of a void. As early as the seventeenth century, this phenomenon intrigued natural scientists—a Slovene author, Janez Valvasor, became a member of the British Royal Academy for providing an explanation of this mystery (an intricate network of underground channels with different pressures). Perhaps, this is the most elementary definition of a mechanism: a machine which produces an effect in the precise sense of a 'magical' effect of sense, of an event which involves a gap between itself as the raw bodily materiality—a mechanism is that which accounts for the emergence of an "illusion." The crucial point here is that the insight into the mechanism does not destroy the illusion, the "effect," it even strengthens it insofar as it renders palpable the gap between the bodily causes and their surface-effect (Zizek, 1999, pp.99).

Previous examples highlight the gap between surface effect (emotional singing or an inanimate doll talking) and reality (lip syncing) and in doing so they highlight something about the nature of the audiovisual gap. We are exposed to its irresistible illusionary power, and its impossible nature as a gap, a void only to be 'rendered' or conjured into existence. In *Plague of Fantasies* Zizek sees such voids, if manipulated correctly, as the central component of an artwork:

This constitutive gap between the explicit symbolic texture and its phantasmic background is obvious in any work of art... the 'trick' of an artistic success resides in the artist's capacity to turn this lack into an advantage – skilfully to manipulate the central void and its resonance in the elements that encircle it.

The artifice of 'true art' is thus to manipulate the censorship of the underlying fantasy in such a way as to reveal the radical falsity of this fantasy.

The central, missing component of an artwork fantasised but correctly manipulated, can reveal powerful untruths. 'Club Silencio' serves as a perfect example. The highlighting of a phantasmic effect and its central untruth is what Zizek would consider to be the difficult goal of the philosopher, artist - what about the generative audiovisual producer?

CONCLUSION

At first glance the audiovisual disjunctions of David Lynch seem to sit at the opposite end of a spectrum to the audiovisual artists mentioned so far. Lynch's audiovisual disjunctions seen to highlight and target the audiovisual gap, the audiovisual 'fusionists' impossibly attempting to colour it in. In fact their premise is the same. All aim for acute aesthetic experiences, through audiovisual manipulation and synchronisation. The examples from Lynch films relay the same illogic, 'immediate' and 'natural' feeling of synchresis, that incorrect but nonetheless undeniable feeling of certitude that generative audiovisual experiences can provide. The difference so far seems to be Lynch's informing of, at the very least his not hiding of, the true nature of his manipulations; that of illusion. But again, this is not the case. Applying Zizek's thoughts to generative visualisation allows the work to function beyond the level of pure sensation, and speak of its central void, gap or lack.

The viewer of synesthetic media, like that of the magician or ventriloquist is also knowingly viewing an uncensored illusion. Although direct and tangible audiovisual connections exist, like the puppeteers hand they function to render visible an impossible gap. The visual form of *Seelenlose Automaten* perfect example, essentially no different to the singer of Club Silencio, or the ventriloquist's puppet; a character in itself, brought to life as the result of robust generative techniques, synchresis, structural and gestural metaphor. *Seelenlose Automaten* is in fact more inherently reflexive and clearly constructed than Lynch's *Red Room* scenes. The *Seelenlose Automaten* viewer does not wonder if some sort of audiovisual trick has taken place, it's clearly obvious, the viewing experience naturally involving an internal investigation into the processes and systems in place. The piece goes a step further in that the website that hosts the video explains its creation and processes extensively, giving the viewer a firm grasp on the mechanisms in place. This in turn strengthens the illusion, creating aesthetic experiences of both immediate sensory experience and structural aesthetic outcomes.

Zizek points out that fantasy 'teaches us how to desire', a quality that is crucial to *Seelenlose Automaten* and the effective examples shown earlier. We learn as we experience an audiovisual fantasy of the dynamic structures and mechanisms in place. This creation of a knowingly untrue but irresistible audiovisual fantasy is a successful experiment in manipulation of the audiovisual gap, inherently highlighting its central void. Systems that tell us how to desire (such as the colour organ), rather than teach us, fail to create a fantasy at all. The unsuccessful audiovisual work instead separates audio and visual and highlights their aesthetic differences. The experience of viewing any of the common visualisers attached to Winamp or iTunes will provide this disappointing experience. As the viewer anticipates a substantial structural change in the audio he or she anticipates an equivalent change in the automated visual output. These automated systems rarely fulfil these structural expectations.

Seelenlose Automaten avoids this problem by mapping all the possible information within the audio; notes, pitch, volume and length allowing structural change within the

song to bring dynamic, unexpected changes in the visual. In fact, the system was specifically designed to connect structurally and emphasize the dramaturgy of the song. Accessing structural information such as midi signals is not the only way to sustain audiovisual fantasy. Lynch's technique of disjunction provides another possible technique. It is when Lynch reminds us of the illusion that we are proved submissive to it. There lies the potential for generative audiovisual works to do the same. Openly changing the visual structure and audiovisual relationship can liberate the viewer's fantasy, highlighting the arbitrary, but effective nature of the previous relationship and teach the viewer to fantasize all over again.

While this doesn't even begin to cover the potential possibilities of weaving audiovisual illusions, it highlights the malleable and dynamic approaches that rely on more than mere temporal synchronisation. It also importantly highlights a range of aesthetic outcomes from pleasure through to discomfort. For Lynch the pairing of immediate audiovisual illusion and metaphorical association creates powerful and surreal unrealities whereas for Grob and Schmidt it provides aesthetic pleasure through the experience of 'liquid architecture'. The obvious difference then lies in the purpose of the aesthetic experience.

A good portion of the contemporary 'fused' audiovisual works in the field fall under a similar aesthetic banner. Most likely due to cultural ties within the experimental electronic and digital scene, generative audiovisual works often pair visual with minimal electronic music or experimental noise. Many other aesthetic avenues exist and are less explored. Examples exist such as Peter Newman's *Paperhouse* which explores the sensory pairing of dark, lush abstract graphics and experimental distortions and darker drones but this area is far less explored than the visualisation of minimal electronic tracks. This paper calls for 'fused' audiovisual producers to apply these dynamic, malleable, structural and metaphorical models to the full spectrum of aesthetic outcomes including the highly stylised, darker aesthetic experiences that Lynch explores.

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