DOSSIÊ - FRENCH CINEMATOGRAPHY: FROM THE LUMIÈRES & MÉLIÈS TO VR & AIVR IN FRENCH CINEMATOGRAPHY: THE EXAMPLE OF ALTERATION

VR en la cinematografía francesa: el ejemplo de alteración
VR na cinematografia francesa: o exemplo da alteração

Savo Zunjic¹
orcid.org/0009-0001-1068-9417
savozunjic@gmail.com

Abstract: In my research I am trying to establish the relation between Cinema and VR. The cinematic approach to VR has been particularly strong in France, as a lot of professionals from the world of cinema have been investing themselves over the past decade into finding a way to make VR movies, and in that way to move beyond the limitations of traditional cinema and approach the holy grail of the pioneers of the cinema, defined by Basin as "total cinema". In my text I propose to analyze some example/s of French VR movies, such as in *Alteration*, *Eternal Notre-Dame*, *I Philip*, and *Notes on Blidness*.

Keywords: cinematic VR; future experimental cinema; french VR experiences.

Resumen: En mi investigación estoy tratando de establecer la relación entre el cine y la realidad virtual. El enfoque cinematográfico de la realidad virtual ha sido particularmente fuerte en Francia, ya que muchos profesionales del mundo del cine han estado invirtiendo durante la última década en encontrar una manera de hacer películas de realidad virtual, y de esa manera ir más allá de las limitaciones del cine tradicional y acercarse al santo grial de los pioneros del cine. definido por Basin como "cine total". En mi texto propongo analizar algunos ejemplos de películas francesas de realidad virtual, como en *Alteration*, *Eternal Notre-Dame*, *I Philip* y *Notes on Blidness*.

Palabras clave: VR cinemática; cine experimental del futuro; experiencias de realidad virtual francesas.

Resumo: Na minha pesquisa, estou tentando estabelecer a relação entre o Cinema e a Realidade Virtual (RV). A abordagem cinematográfica da RV tem sido particularmente forte na França, visto que muitos profissionais do mundo do cinema têm investido na última década em encontrar uma maneira de produzir filmes em RV e, dessa forma, ir além das limitações do cinema tradicional e se aproximar do Santo Graal dos pioneiros do cinema, definido por Basin como "cinema total". No meu texto proponho analisar alguns exemplos de filmes RV franceses, tais como *Alteration*, *Eternal Notre-Dame*, *I Philip* e *Notes on Blidness*.

Palavras-chave: VR cinematográfico; cinema experimental do futuro; experiências VR francesas.

From Cinema Pioneers to Cinematic VR

The birth of cinema, as we know it today, is attributed to the Lumière brothers, Auguste and Louis, as their invention Cinematograph has allowed recording, processing, and projection of moving images. Since then, the art and technology of filmmaking continued to evolve, and already in 1900 for the World's Fair in Paris, the Lumière brothers presented several panoramic films using their latest invention, the Photorama. It was a significant step towards immersive projection techniques that would

¹ Université Côte D'Azur (UCA), Nice, France.

later evolve into the panoramic and 360-degree experiences we have today.

Referring to the works of the pioneers of cinema, Bazin identifies this desire to "clone the real", to recreate the world in its own image with sound, color, and relief. This principle of integral realism is embodied in what he calls "total cinema". This same idea we find again in the 60s in the work of director and "the father of virtual reality" Morton Heilig, who introduced this very concept in his quest to create the cinema of the future. Meanwhile, computer scientists have created the concept of virtual reality independently of the world of cinema.

From the very beginning of the cinema, its development has been directly linked to the development of technical materials for filming and projection. Recently, the digitalization of media, has also affected the process of creating and distributing videos and has become the most important accelerator in the development of immersive media. It has enabled the creation of cameras that can film 360° videos and brought back the idea of cinematic virtual reality. Virtual Reality (VR) has revolutionized the cinematic experience, transporting viewers to immersive worlds where they can engage with narratives in unprecedented ways.

Cinematic VR in French Cinematography

The cinematic approach to VR has been particularly strong in France, as a lot of professionals from the world of cinema have been investing themselves over the past decade into finding a way to make VR movies, and in that way to move beyond the limitations of traditional cinema. This development has been strongly supported by national institution and productions from the domain of cinema like CNC and Arte, permitting the cineastes to experiment and create with this new form of cinematic expression, and France to become a leader when it comes to the cinematic approach to VR.

In recent years, French filmmakers have embraced this innovative medium and pushed the boundaries of storytelling and delivering captiva-ting VR movies, by combining the artistic creativity with cutting-edge technology to offer audiences a unique and transformative cinematic journey. French VR movies are known for their artistic flair, attention to detail, and thought-provoking narratives. They often embody the French tradition of auteur cinema, where directors imbue their personal vision into their works. These films blur the line between reality and virtuality, transporting viewers into mesmerizing worlds that challenge perception and stimulate the senses.

Some of the notable examples of French VR films are: *Notes on Blindness VR* (2016) by Arnaud Colinart and Amaury La Burthe, *I, Philip* (2016) by Pierre Zandrowicz and *Alteration* (2017) by Jérôme Blanquet. These pioneers have embraced VR as a tool to create empathy, explore complex themes, and transport viewers to immersive worlds. The success of French VR movies has inspired collaborations between filmmakers, technologists and storytellers, fostering innovation and the exchange of ideas.

French VR movies have had a significant impact on the film industry by pushing the boundaries of traditional storytelling and expanding the possibilities of cinematic experiences. They have opened new avenues for artistic expression and experimentation and have also contributed to the growth of VR as a medium, attracting a broader audience and garnering international acclaim. In order to illustrate this experimental movement in French Cinematography, in the continuation of this paper we will analyze *Alteration*, as one of the first successful cinematic narrative VR experiences.

The Example of Alteration

Even though it is a French production movie, as it is oriented towards international market it is in English, with an international acting crew. For French and German spectators subtitles are provided. Nevertheless, it seems inconvenient to see them flouting in front of us wherever we look, as it is breaking the illusion of immersion.

Alteration is a social science fiction made in VR, with no possibility of interaction, if we don't count a liberty spectator to choose his own point of view

which is common for all VR experiences. By gaining the power to choose their own frame, users practically take on the role of cinematographers: they can place and move their camera wherever they please. So, in theory, starting from a single experience, we can have an infinite number of different films, but the experience of different users should remain similar. Since they can't act on the story and change it, their attention is always guided by the energy and the flow of the main narrative.

With its 17-minute duration it is a short form compared to the traditional movies where the form and duration are standardized, but the notion of time itself is quite different when one finds oneself inside the VR headset and inside the story itself. At the moment of its creation, it was actually one of the longest narrative fictions ever made in cinematic VR. It is a hybrid form in between 360 videos and digital animation that are resembled in the Unity game engine. The animation gives the possibility to bypass the shortcomings of 360 camera, enabling tracking shots, smooth and interesting transitions and special effects, but eventually also gets a creative role in the experience itself, as a symbolic representation of the digital world of artificial intelligence.

For the content made in VR we usually use the term "experience", but in this case we can clearly speak of VR movie. Not just because it is manly made of 360° videos but particularly because of cinematic approach during the shooting. The *Alteration* was filmed at the classical film set with all the traditional film production rolls now gathered around a 360° camera. The cameras were adapted to have most of the classical film set camera's possibilities including interchangeable lenses, which permitted the image depth and, in that way, added realism to the spectator experience. These 3D images are joined with ambisonics sound which beside realism gives to director a crucial possibility to draw the user attention in 360° environments. Another technical innovation made to create the environment of shooting closer to the traditional set, was a possibility of director to watch the live video inside the VR

headset. In that way he obtained perspective of what the spectator would see, which permitted him to modify his instructions to actors and the crew during shooting. To conclude, all the technical innovations of VR that were used during this project were adapted and included in a classical film production environment.

Inside of experience, inside of head

At the outset, the text sets the context, the information where we are. We're assisting an experiment. We begin in the dark. The protagonist is lost and confused, and he can't feel his body. With these phrases we start to synchronize with his point of view as we are not be able see or use our body during our immersion. Inside of VR we are enchanted, not just because of the consequence of the novelty of the medium, but above all, through the proprioceptive immersion, where our attention, immersed in the headset, is hooked and guided by the narrative, which slowly becomes our only reality. Together with the protagonist we are guided by a female voice. In off we hear the voice of Alejandro as if he replied in our name, which creates the conversation that gives us a certain illusion of interaction.

We are introduced to the third person perspective of the main protagonist Alejandro, it's who we are. The paradox is in the fact that we got it from the first person, or subjective perspective of that same Alejandro. We are looking to his memories through the eyes of a posterior Alejandro, the one that is participating in the experiment, and we see Alejandro as a subject inside these memories. As we normally don't see ourselves inside our memories or dreams, we can define this third person perspective as a transcendent projection of our protagonist, used on the theatrical scene of the experiment. It is a mind-bending experience as we get two points of view of the same person given from different time perspectives.

Our first visual opens to the blurred mystical scene on the beach. The frame is rectangular and limited like in classic cinema and then the scene opens with our gaze to become 360°. The spectator adapts at the same time to virtual re-

ality, to the world around him and to his role in it. Doctor March's voice calls us back from this dreamland to the pool, which is the starting point of the immersion. Our vision is again framed by the effect of blurred water that follows our point of view as we move our head. This special effect is among the others interesting effects and transitions added in post-production by a program that uses artificial intelligence.

In the next scene we get the visual of our two guides, as they are defined in textual description at the beginning of the experiment. Those are doctor March and Elsa, the AI to whose development the experiment is dedicated. The existence of two of them in the same space indicates that Alejandro is already immerged in the first level of experiment. What we see is not the "real" world in which our protagonist lives. It means that we are already in double immersion in our headset and together with Alejandro in the digital environment created for this psychological AI learning experiment.

When we film with 360˚ camera, the traditional out of frame does not exist. There is no place to hide the movie crew and the equipment behind the scenes. At the pool set the creative solution is applied, by representing the movie equipment as the equipment of the experiment, and some of the movie set members stayed at the scene camouflaged as scientists in protective suits. The rest of the crew is hidden outside this experimental lab construction. In some of the scenes even though the central action and actors are filmed, the surrounding and the walls are more often a digital animation. Is it also a way to make out of frame, a place to hide behind the scene?

The deeper immersion is stimulated by the introduction of photos of his key memories. They are the "road map" of the experience, and then as doctor uses hypnosis to put him to sleep, we pass towards the land of Alejandro's memories and dreams, as he is "the dreaming subject." This passage is symbolically represented by the dive into the pool. At the same time, we pass towards the animated environment, which enables the movement of the camera, as we dive deeper into Alejandro's subconscious, which is effectively represented by a building constructed from the ruins of his memories. This whole animation is used as a transition that brings us, as we follow the cables, to the 360˚ video of the first key memory, a "special moment".

In here we meet Nadia, the second principal character, who is the representation of Alejandro's love and life outside of the experiment. She asks him/us another meta question if we like it there? All the long of this film, with questions like this one, the wall between the actors on the scene and the spectator is removed, in the way similar to the immersive theater you're invited to the scene. The actors and the central part of the scene are filmed, but in the surrounding environment we see the animated elements. As the dialogue progresses, we can notice more and more of those gathered with the digital glitches, announcing there's something menacing in the surrounding, until finally everything's freezes for the entrance of the AI Elsa. Our attention is brought to her by voice, but also visually as hers candle becomes the only light in the room. We are in Alejandro 's consciousness, but she is in charge, and she wants to know everything. The whole experiment is actually her playground, helping her to learn about feelings, about what makes us human.

And she blows the candle, the lights are out, and the scene opens to another research objective: from the memory of the beginning of love we move to the memory of Alejandro's first contact with death. We are back in the time when he was a kid, when he found his cat Charly dead in the forest. The atmosphere is dark and bizarre, with a particular digital sound in the background, like in a horror movie. We can feel the presence of Elsa. She's also swinging with no empathy at all, but she wants to understand, so she asks the questions. "How does it feel? Does it hurt?" She understands Charley is no more present, he is now with Alejandro. Does she mean in his memories, or she already indicates that Alejandro, as the main subject of the experiment, is also gone, death. During this dialogue, as she learns about the death she grows, she's becoming a teenager.

Symbolically by learning about emotions she's getting older. But in this scene, we see around the boy two Elsas at the same time, therefore we understand that she is everywhere. Even when we don't see her, she is present, listening, as she's the digital environment that surrounds us all the long of the experiment. Her omnipresence is starting to be creepy and annoying. She uses one of the photos as a window that opens towards the next memory.

This is another lesson about love, but more profound: it's about happiness. We are by the lighthouse at that same pear we saw at the beginning. The main protagonist recognizes this place, it's the one where he always returns. He is again alone with Nadia, and he founds out she's pregnant. We learn his motivation to get involved into the experiment, and to stay in it despite the cost. This is where Elsa comes into the scene, and she starts analyzing, like if she feeds with the couple's felling. She gets overwhelmed by it, and she wants it for herself. She provokes the decomposition of the world around. At first the sound starts to digitalize and then the environment becomes animated and progresses aggressively towards the couple, until the nightmare drawings of the eyes (as AI is doing research of their interior) start to appear on them and the voices start to multiply around them like an echo.

The moment is broken. For the first time the actors on the scene start to be conscious of the malicious presence of Elsa. They start asking what's happening and where they are. Nadia is confused and afraid, but Alejandro already knows they are in a dream in the experiment he volunteered for. They enter a conflict with the AI, but they are powerless. They are subjects, they cannot act, as neither can the spectator. As Elsa refuses to stop, Alejandro becomes conscious of his other self, of the spectator looking at this scene. He recognizes the dreamer, and he decides to wake him up from this nightmare by hitting him with the rock straight in the head. Even if we are shocked by this hit, everything happens too fast to provoke any spectator's emotion. The hit is used as a transition, it returns us back to the pool, the starting point of this dream.

Alejandro is out of the pool (his immersion), and he wants to get out of this experiment, but the doctor tries to talk him out of that, by explaining to him that the risks could be fatal. As the spectator finally obtains the information about the experiment, we find out he is not the first. What happened to the others?

At the beginning of the experience, we are as confused as Alejandro. We are guided but we actually don't obtain any information about what is necessary to progress, the explication about what is happening at this precise moment to us. We start *in medias res*, we are thrown directly into the experiment, into the immersion of Alejandro's memories and dreams, that at the beginning seems completely chaotic and random. Nevertheless, as we progress deeper, we obtain more information, that permits us to recreate the whole story. The memories are given in almost a chronological order, except the scene with Charly. They follow the logic of the linear progress of emotions. As we proceed further, together with our AI host Elsa, we start seeing deeper and more complex states of Alejandro's mind, which is the goal of the experiment.

Alejandro is awakened but not us, we are still watching, so the scene at the pool is also a memory. In that case we are inside of Alejandro's dream in which he is being put to sleep during the experiment so that they could analyze his memories. We are in a dream inside of a dream, like in *Inception* (2010). At the same time, the actor Alejandro, who plays his role on the memory scene, is conscious of his being dreamed of because he also remembers himself participating in the same experiment, being the one that dreams. It looks like an endless loop. How many levels of immersion are there? How many Alejandros dreaming of himself are there? As a matter of fact, there are just three temporalities of the main protagonist. The first one is his representation in his memory, with no consciousness, as a third person view of him. The second is the one that is dreaming of that one, the one that is participating in experiment. The third one is our perspective,

the one that is dreaming now, the one that he's trying to wake up.

The main conflict has begun, the one between AI and life. Alejandro wants to get out, he wants his life back, so he tries to destroy Elsa by unplugging the cables, but instead he creates another transition towards a different memory, as if there is no way out, just an endless jumping from one memory to another. He is back in the forest where he found Charly. The photos of Alejandro's face with different emotions are on the floor, as he is the subject of a study. But this time the world is twisted, as he corrupted it by thorning out a cable. He's yelling, he's desperate to escape from this nightmare and as he sees us again, he wakes up.

Our point of view is interesting, we are flouting over their bed, as if we are flying. We have close-up of their faces, as if we were in bed with them. Then the camera starts de-zooming, and, as we are getting further, we can feel the power of the 3D effect. It is actually, the continuation of a perspective that we had in the previous scene. We are again looking towards the floor, but this time it doesn't feel like the world is upside down. This time this perspective is a good one, as we are oriented the same way as actors and action. He's in his bed beside Nadia, but he is confused, is it a part of the experiment, where is Elsa, is he free, is it reel? But our presence tells us it isn't. She is comforting him, but she's using the same phrase as Elsa: "It's just the two of us". He and Nadia in his memory, but he and Elsa inside the experiment. We know it can't be Nadia, as we are still inside of a memory, and at the same time inside of experiment, a digital construct controlled by AI. We can hear a creepy, piano theme like from the *Shining* (1980). Digital glitches are starting with the stained windows becoming animated. We can feel her presence as the world is slowly decomposing.

The point of view is shifted, without transition, just like in traditional editing, and it doesn't provoke any confusion to us, the spectator. In VR, we cannot simply apply the standard editing techniques from cinema, as there is no frame. So, when editing, we are not simply changing a frame, we are transferring our spectator to another world, another scene where he is always in the center with limitless possibilities of points of view. The solution which is applied here is the one proposed by Jessica Brillhart with her technique of probabilistic experiential editing. In VR everything is about capturing the attention of the spectator, so he would look in the "good" direction, where the main action is happening. The idea is to know where the point of interest of our spectator is at the end of the previous scene, so we could propose the continuation at exactly the same point of the next 360° scene. This is much easier to do when we have the actors involved, like in our example. The transition is smooth because of the continuum of the action. Our attention is on Alejandro's and Nadia's dialog, as it is the most probable point of view, and we will find it again in front of us in the next scene, with the only changes of distance and angle.

From this angle we have a better view on the approaching menace, represented by an animation inspired by a post-impressionist painting - maybe Van Gogh. The effect is underlined by the music accelerating rhythm and the animation is taking out the scene, until it swallows the actors. This is used for transition as Nadia's face emerges from the middle of the drawing. The two perspectives of our main protagonist are finally united, as we are in bed with his love, looking at her through his eyes. We are back in the first person's look, which is the classical subjective perspective, as the two perspectives of Alejandro are merged for the first time.

The final battle is about to start. It is a culmination of the confrontation between two worlds represented by two women. On one side it is a natural human life and feelings, on the other it is the digital world of artificial intelligence. Visually, the first is represented by a video – the photographic medium, which contains the trace of real life. The second is represented by an animation and digital environment made of algorithms. This conflict is personalized in two main female characters, Nadia as a symbol love from analog world and Elsa as a symbol of completely artificial,

digital world. This opposition represented on so many different levels is the principal dramaturgical conflict of this film, but it can also be seen as its main theme.

This conflict culminates in this love making scene, where the faces of the two women are rapidly alternating. The two realities meet at the point where two girls become one. It is actually the visual representation of Alejandro's interior battle, which is an illusion as there is only one entity that is with him inside of this experiment. There is only Elsa, the AI that is in complete control of this digital environment and manipulates Alejandro's senses and feelings. This scene is an emotional peek of the experiment. This is the third and final stage of the research about love, after the beginning of love in her room and then the accomplished faze represented by having a baby, where they are symbolically becoming one. Elsa is getting the deepest possible insight of the human emotion. She's overcoming as everything becomes fantastic digital animation in vivid colors, with only her face remaining. But as she approaches through this last step to the goal, something went wrong.

He is not there anymore. He's just an empty body like Charlie. It's the moment of his death, but also of his liberation, as he finally gains control, obtains the power over his "life". Together with Alejandro, we are shifted back to the original subjective perspective, out of the body in front of us. Everything becomes black and white and pixelated, as we look at two women and a body on the scene in front of us. Elsa has failed. She's angry and she destroys the experiment environment, to go where? As we can still heard her voice, is she together with Alejandro in this purely digital world?

How is it possible that he's dead but he's still here? There is only one possible solution of this paradox, he became an alteration, a digital imprint of Alejandro, of his memories and emotions. So, is he more human or artificial? Did the experiment actually fail, as the final product is artificial intelligence with human emotions? Was all what we have seen just his memories?

At the epilogue we are with Alejandro in his new reality. He is floating through this completely digital world with no colors, represented by an animation in a *Matrix* style. He uses a webcam to communicate with his family. He can see and speak to Nadia and the baby, but he's not there and they miss him. In this transcendental version Alejandro is eternal, but is he alive, is he human? The question remains open to us, as we finally find out who we were in this experience. What was a role we were put in, from whose perspective and through which eyes were we watching this movie?

Problematic and solutions

The first-person perspective in VR is quite different than in traditional cinema, because it is not just a point of view. The spectator is always in the middle of the scene, with limitless points of view at his disposal. Consequently, the perspective is always subjective. Even when the creator intentions are to have neutral third-person perspective, once the user finds himself inside of the film, he starts to ask the question about his own role and position in it. The spectator becomes an actor, a protagonist of the movie. Therefore, he is susceptible to identify with the role he's given inside of VR experience in the way he accepts not only the perspective of protagonist, but also his actions and feelings. In other words, they become immersed not just cognitively, but also emotionally. It is precisely this specific level of engagement, this possibility to become somebody else, to live and feel the reality of others, that inspired Chris Milk to call VR "the ultimate empathy machine".

The creators of *Alteration* are fully aware of this specificity of cinematic VR, and they use it in a creative manner as advantage to this scenario. In this case, our role and perceptive as a spectator is essential for the experience, as it is constantly evolving as the story goes on. From the beginning we are introduced to Alejandro as the main protagonist, and we are aware that we will be seeing the world from his perspective, but his identity is changing and our perspective shifting, so it's not until the end that we'll fully

understand our position. We are his alteration, a digital entity made of memories of someone dead. The question of identity is one of the main themes of this movie. The quality of this scenario is that it is searching for answers developing on all the levels at the same time. As the spectator together with Alejandro is trying to find out who we are, and what's our role in this world, the goal of AI and the experiment itself is to find out what means to be human, and the movie itself is a film experiment that is treating those same questions.

To set up the story of this film inside a digital environment permits a director to contour a lot of inconveniences of cinematic VR as medium. The fact that everything is happening inside the informatic space of experiment and/or inside of the memories and dreams of somebody's alteration, enables the use of digital effects and animations to be accepted by the spectator as an integral part of this reality. This advantage is used to create a fantastic mixed environment, where 360 videos are enriched with the effects and animations inspired by aesthetic of famous artists and movies. The visual imperfection (pixelization) caused by the quality of video equipment, is used in a creative manner by introduction of bugs and glitches, that have aesthetic but also dramatic function, as they are announcing the presence of AI. When our reality starts to cut, to blur, to freeze – it is a mise en abyme, as we can see that we are inside of the VR experience, while we are watching this movie in our headset.

Without senses of smell and touch, taste and no visual of our body, as a spectator, we are conscious from the beginning that we are not in the real world, but in a digital concept that has its own rules. It is a world that allows a flying and diving like movement (tracking shots), and transition between scenes and spaces, as in a dream. VR, as a medium, has that same power to instantly move us to another time or place. In VR editing, we're not simply changing frames, but rather a temporal and spatial ellipse, where the viewer is moved to another scene and to another time. To solve the editing inconvenience provoked by this often displacement of the spectator, the director

of this film experiment came up with quite a few different solutions.

As already mentioned, he often uses the continuation of the viewer point of interest from previous scene, but he also uses the discontinuation in the narrative provoked by brutal events, as a rock hit or pulling out the cable, to pass to the next scene by transition of fade in/out. This type of transition represents one of the few possible editing practices that could be integrated directly into the language of VR, as it gives a spectator a precious moment to adapt, like in a blink of an eye. In *Alteration* fade in is often followed by opening in a limited frame surrounded with a flue and wavy effect, that opens towards 360˚ with the movement of our point of view. It is an interesting solution to reduce the space to a classical screen level and keep the point of interest of spectator, as the focus exist only in the area of the current regard. A set of very interesting special effects and animations are implemented in this experience, and some of them are also used for transition, in a kind of ripple dissolve fashion, when face or scene emerge from the previous scene.

After some transitions the spectator is not from the beginning oriented in the sense of action, so he is invited to tourn around and look for the angle where the narration is continuing. In that case the sound or a voice are used to attract our attention in the right direction. In ambisonics environment, sounds are not only positioned in different 360˚ angles around the viewer, but also at different distances, creating an acoustic and visual space that is not only 360˚, but also has a realistic depth. With the disappearance of the traditional frame and the move into the 360˚ environment, the director's main role has become that of directing the viewer's attention, as indicated by J. Brillhart. For this reason, the characteristic of ambisonics sounds to attract our attention has become one of the fundamental techniques in the language of cinematic VR.

The dark atmosphere is underlined by the music used throughout the film to create the right mood in the same way as in traditional cinema, but with a stronger effect on the viewer, since

it's no longer the sound of a film we're watching from the outside, but the soundscape of our own experience in which we're immerged. In *Alteration* the effect of music is reinforced with digital atmospheric sounds, that are used audio pendant of the visual bugs and glitches, that are announcing the creepy presence of the AI.

Not all the stories are adequate to be told in cinematic VR, and in some cases when 360° is not necessarily needed in could be seen as an obvious forcing. To create a successful VR movie, authors must ask themselves if VR is the right form to tell a particular story, and what can we gain in comparing to more traditional visual media? The example of *Alteration* shows us once more, the importance of right choice when it comes to content to be presented in a form of VR movie. The main protagonist in Alejandro's alteration, from who's subjective perspective the spectator is living the experience that takes place is the digital environment of the experiment and that explores themes of identity, memory, and the consequences of tampering with human consciousness. These adequate choices made in pre-production allowed the creation of these immersive and visually stunning environments that have power to transport the user to new realms of imagination.

The game industry is one of the areas where the VR technology is widely used. The game engines created in that purpose also provide tools and capabilities to import, play, and manipulate 360-degree video content within a virtual environment. In the case of *Alteration,* the Unity game engine is used for this film editing. This choice has permitted to creators to overcome some of the limits posed by filming in 360, by enabling tracking shot and creation of a variety of interesting transitions, artistic animations, and special effects. The biggest advantage of the use of this editing tool is that, at the same time, it can be used to mix 360-degree video and computer-generated imagery (CGI), to combine and integrate both elements seamlessly inside of a VR movie. In our example this possibility to blend reality and fantasy have enabled filmmakers to push the boundaries of storytelling and create this visually spectacular cinematic experience.

Computer-generated imagery (CGI) has already revolutionized the world of cinema, allowing the filmmakers to realize ambitious visions and tell stories that were previously unimaginable. In *Alteration,* Jérôme Blanquet and his team, show us the way that this technology can be successfully used for VR movies. The use of CGI as a support for filmed 360° images may just be a solution that will expand the creative horizons for filmmakers, allowing them to realize the entirely new virtual environments, where they can tell stories that were previously unimaginable.

Conclusion

The development of new technologies has from the beginning pushed the boundaries of the cinema and forced the pioneers to experiment in order to find the way to integrate these innovations into the existing language of cinema. With the introduction of colors, sound, editing, SFX or CGI the language of cinema has evolved permitting the movies to become most efficient and powerful storytelling media of today. In the case of 360° video, it is the limitation of the cinematic frame that is in question, and with it the syntax of the cinema as a narrative art itself. This passage to the 360° spherical image, concerns in particularly the framing and editing departments.

Is it a new medium or, as one of the producers of this film Mathieu Kassovitz propose, a new technological challenge that will certainly influence cinema, as it challenges the way we film and tell a story? The answer may lay in the further development and integration of the emerging digital technologies in film industry. Like in our example, where the mixed use of 360° videos and ambisonics audio gathered with CGI and gaming engine have provided filmmakers with a platform for imaginative storytelling, enabling them to explore this new cinematic territory, push visual boundaries, and immerse spectators into this captivating VR movie.

French VR movies have emerged as a captivating and thought-provoking form of storytelling,

showcasing the intersection of art, technology, and narrative. Through their distinct characteristics and innovative approach, French filmmakers have embraced VR to create immersive experiences that engage audiences on a deeper level. With their ability to transport viewers to unique worlds and challenge their perceptions, French VR movies have made a significant impact on the film industry, inspiring new forms of storytelling and opening doors to exciting possibilities in the future.

References

ALTERATION, de Jérôme Blanquet: le making of. [*S. l.*: *s. n.*], 27 jun. 2017. 1 video (5min 58s) Published by Audi talents channel. Available at: https://www.youtube.com/watch?v=wEd8QqkrerU. Accessed on: May 5, 2023.

ALTERATION. Dir. Jérôme Blanquet. Paris: Okio-Studio; Strasbourg: ARTE France, 2017.

BRILLHART, Jessica. *In*: **Medium**, [*S. l.*], 2021. Available at: https://medium.com/@brillhart. Accessed on: Jan 22, 2020.

BUCHER, John. **Storytelling for Virtual Reality**: Methods and Principles for Crafting Immersive Narratives. New York: Routlege, 2017.

FUCHS, Philippe. **Théorie de la réalité virtuelle, Les véritables usages**. Paris: Les Presses des MINES, 2018.

I, PHILIP. Dir.: Pierre Zandrowicz. France: Paris: Okio Studio&Arte, 2016. 3D.

INCEPTION. Dir.: Christopher Nolan. Burbank: Warner Bros, 2010.

NOTES on Blindness VR. Dir.: Arnaud Colinart, Amaury La Burthe, Peter Middleton and James Spinney. Paris: Ex Nihilo; Strasbourg: ARTE France; London: Archer's Mark, 2016.

RHEINGOLD, Howard. **La réalité virtuelle**. Paris: DUNOD, 1993.

THE MATRIX. Dir.: Lana Wachowski and Lilly Wachowski. Burbank: Warner Bros, 1999.

THE SHINING. Dir.: Stanley Kubrick. Burbank: Warner Bros, 1980.

Savo Zunjic

Master's degree in Comparative Literature at University of Belgrade, Serbia; and master´s degree in Pro Engineering of multimedia creation and artistic direction of projects at the University Côte d'Azur (UCA), in Nice, France. Holds a SAE institute certificate in digital video. PhD candidate in Information & Communication Sciences at the University Côte d'Azur (UCA), in Nice, France.

Mailing address

Savo Zunjic

Université Côte D´Azur

Laboratoire de Recherche SIC.Lab Méditerranée

98, bd Edouard Herriot

BP 3209

06204

Nice, France

Os textos deste artigo foram revisados pela SK Revisões Acadêmicas e submetidos para validação do(a) autor(a) antes da publicação.