






# The Experience “Mondrian from Inside”. An Immersive and Interactive Virtual Reality Experience in Art

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**Abstract.** Technology and art can come together to create exciting experiences that bring the general public closer to different types of artworks. Virtual reality experiences are transforming the way cultural heritage institutions exhibit their works of art and the contextual information in which they were conceived. In this manuscript we present a virtual reality experience that combines the world of the sensory and the world of divulgation. The work carried out involved an in-depth analysis of the painting “Composition A” by Piet Mondrian and the design from scratch of a virtual environment based on it that highlights and deepens the nuances of the original painting. The developed experience allows to bring the painting to the public in an original, surprising and interactive way. The user is introduced into a virtual space where the painting takes on a special role, acting as the main element that allows the user to advance in a storytelling made up of ten scenes. When the user interacts with the painting, the virtual space in which they are immersed is modified, allowing them to advance from one scene to the next. Each scene delves into a relevant aspect of the painter’s work and life, presenting the intended information in an attractive way using interactivity as the main tool. The experience is therefore immersive but also interactive, the latter characteristic being the main difference with respect to other virtual experiences related to the world of art that are purely immersive.

**Keywords:** Virtual reality experience · Virtual museum · Interactivity · Immersion

## 1 Introduction

Visual arts are not always easily understood by the majority of the population. In particular, abstract painting is one of the most fascinating forms of art when it is understood that art is more than just an isolated, timeless creation without a context. Sometimes, in order to understand a work of art, it is not enough to

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focus all our attention on the painting and try to find meaning in it; we must also gain a deeper understanding of what the artist wanted to convey.

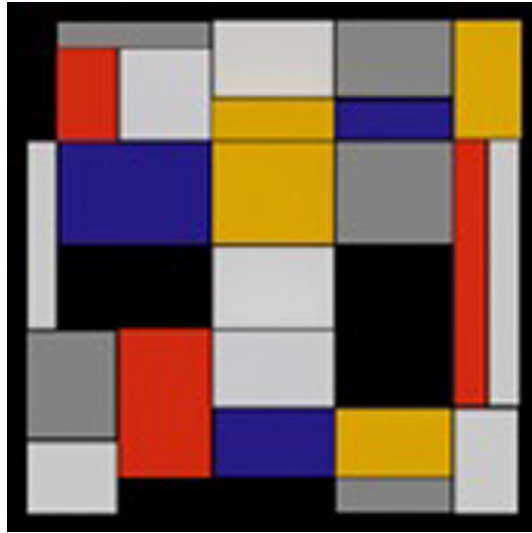
Virtual reality experiences (VRE) in art is a field with a wide range of opportunities. On the one hand, they recreate real or imaginary spaces and landscapes that allow art pieces and their exhibition discourse to be contextualised. On the other hand, they help to fix concepts through playful dynamics so that users can easily understand and remember them. Virtual Reality (VR) is a resource that is already being used in museums and art foundations to provide dynamism and interactivity, improve the experience of their visitors and attract new ones who see these exhibition spaces as something boring, static and old-fashioned [1–4]. Among the different VR applications we can highlight the virtual experiences that help to protect and display historical and ancient buildings [5] as well as VRE to better show cultural connotations of certain museum artefacts [6–8].

VRE can be classified according to three factors: immersion in a recreated real or imagined virtual world, interaction with objects and other agents present in the virtual space, and narration or the ability to choose between different possibilities, paths or even narrative outcomes. In immersive VR experiences one can experience an expanded universe in the first person, acting as visitors who walk through and explore the virtual space in real time. Nevertheless, immersive experiences can be enriched by adding interaction with the virtual environment, which provides a greater engagement for the audience and, at the same time, a deeper understanding of the work, reinterpreting the way people approach the art world.

In this manuscript, we present a storytelling type VRE that allows a user to approach abstract painting as a game or an adventure. VRE conceived with an aesthetic-interactive purpose can be considered playful experiences in themselves, even if they lack the characteristics of video games such as the completion of missions, the advancement of levels or the achievement of certain objectives. The experience developed, named “Mondrian from inside”, has two of the three characteristics above: immersion and interactivity. In it, the user is immersed in the painting “Composition A” by Piet Mondrian and the cultural-historical context in which it was conceived.

The Dutch painter Piet Mondrian (1872–1944) is one of the greatest exponents of abstraction. Mondrian composed “Composition A” in 1923 in a Neoplasticism style. A digital representation of the painting is showed in Fig. 1. The painting consists of rectangular shapes in red, yellow, blue, grey, white and black separated by very thick black lines. Horizontality and verticality represent the opposite poles of existence: spiritual and material, feminine and masculine, positive and negative. According to Mondrian, “their union is happiness” [9]. Although the chosen work is of a purely two-dimensional nature where traditional perspective disappears, the simplicity of the forms allows for a three-dimensional representation suitable for bringing interactivity to the experience. In particular, the painting has been three-dimensionally modelled by adding different depths to the rectangles that make up the work. In the designed experience, the user is invited to interact with each of the resulting prisms to obtain information about

different aspects of the author’s life, artistic references or to design new scenes that allow the user to play while learning. This experience does not therefore seek immersion in a virtual space that recreates a three-dimensional place represented in a painting, but rather a playful and pedagogical experience for a better understanding of abstract art.



**Fig. 1.** Digital representation of “Composition A” by Piet Mondrian.

The developed VRE combines a number of mixed reality elements, including virtual hands interaction, dynamic environment configuration, audio and room-scale locomotion. In the experience, the user is neither restricted in gaze nor in movement, but can move relatively freely and fluidly through the virtual space. This prototype employs room-scale head-mounted displays (HMDs) Oculus Rift S which is equipped with two Touch controllers allowing to interact naturally with the virtual world and a workstation with a graphics processing unit (GPU).

The organisation of this article is as follows: Sect. 2 presents three immersive works that have served as inspiration for the development of the tool; Sect. 3 details the VR experience, showing the materials and the implemented story-telling through different scenes; and Sect. 4 presents the conclusions.

## 2 Related-Work

Among the different experiences offered by virtual reality, immersive experiences continue to be one of the most popular options for museums and art foundations for displaying and interpreting paintings because of the impressive sensation of being inside a painting. In this section we describe three immersive virtual

reality experiences that have served as inspiration for the development of the application presented in this paper. These three experiences are entitled: “The Night Café: A VR Tribute to Vincent Van Gogh”, “Enter the painting” and “Mona Lisa: Beyond the Glass”.

The experience “The Night Café: A VR Tribute to Vincent Van Gogh” is a virtual environment that recreates and reconstructs the famous painting “Le Café de nuit”. It was developed by Borrowed Light Studios in 2015. Far from being a mere augmented reproduction of the painting, the product simulates the space covered by the painting and expands it to include areas of the café that do not appear in the original canvas, all while evoking the technique and aesthetics of the painting. It also incorporates elements from other paintings by the painter: the famous sunflowers, the chair, an NPC (Non-Player Character) that emulates the figure of Van Gogh and a fragment of his “La nuit étoilée” painting if we look out of the window.

In 2018, the Thyssen-Bornemisza Museum launched a project entitled “Enter the painting” [10] which proposed a visit to paintings from the museum’s collection approached through virtual reality, so that the viewer can move through them. Three paintings were selected from its permanent collection: “Les Vessenois en Auvers” by Vincent van Gogh; “New York City, 3” by Piet Mondrian and “Chinese Glass with Flowers, Shells and Insects” by Balthasar van der Ast. The project visited several Spanish cities throughout 2018 and 2019. The experience, which lasts approximately five minutes, begins inside the Thyssen-Bornemisza Museum in the room where Van Gogh’s painting hangs. On approaching the canvas, the visitor enters the wheat field, walks through it and approaches the houses in which Van Gogh was inspired, feeling the air moving the grain. Suddenly it turns dark and as the light breaks, the floor at the visitor’s feet becomes transparent and he or she enter Piet Mondrian’s painting with the sensation of rising up through a Manhattan made of lines and coloured cubes. The visitor can advance and move through this landscape, which is also a sound approach to the metropolis. Finally, when the visitor is facing the exit, he or she begins to receive the impact of petals, seeds and leaves that fly and even cross his face to compose, at the opposite end, the still life of Balthasar van der Ast.

Another high-quality immersive experience is “Mona Lisa: Beyond the Glass”, which the Louvre Museum is offering in 2019 to commemorate the 500th anniversary of the artist’s death [11]. The seven minute experience immerses us in the actual room where the painting is exhibited, revealing details invisible to the naked eye. The experience recreates the environment painted in the background of the painting and ends by inviting the user to climb into an imagined version of Leonardo’s visionary flying machine and fly through the recreated landscape. It also shows the history behind the painting, information about the techniques used by da Vinci, the identity of the model and other works by the artist.

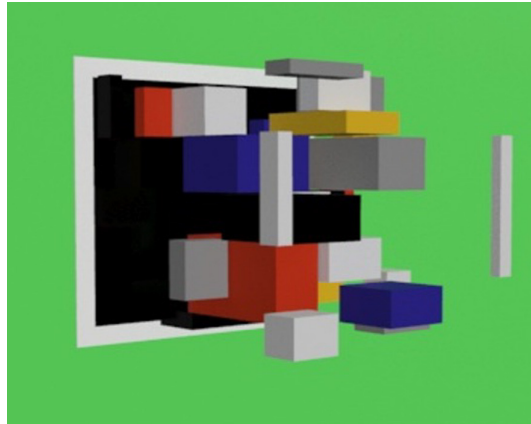
All of these immersive experiences lack user interaction in the sense that the experience is limited to a walk through the space without the possibility of manipulating objects (which appear merely visual), or interacting with characters.

### 3 The VRE “Mondrian from Inside”

The virtual reality experience presented in this paper is designed as a sequential narrative consisting of ten different scenes. Among the different conceptual elements that make up each scene are: interaction with elements of the environment recreated for that scene; the viewing of audiovisual content on virtual screens or the appearance of different three-dimensional models that can move around the virtual world. All of this without forgetting the pedagogical nature of the experience.

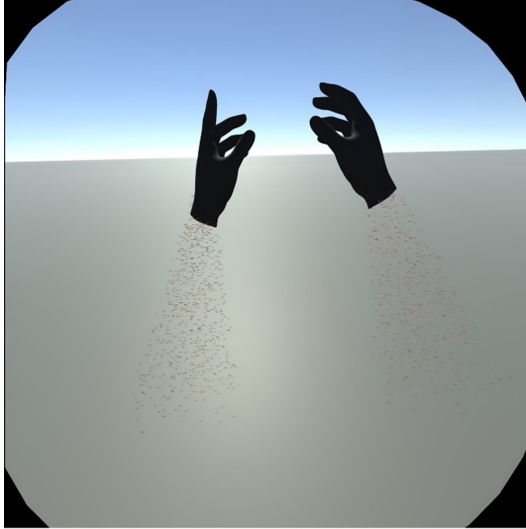
#### 3.1 Materials

The proposed VRE has virtual objects and a 3D environment to interact with. We have used the professional 3D computer graphics software 3DS Max from Autodesk to obtain a three-dimensional model of the painting, showed in Fig. 2, and to model and render various three-dimensional objects with which the user can interact. The Unity 3D game engine have been employe to add interactivity to the experience. As mentioned above, Oculus Rift S headset has been selected for the VR immersion. This device has six degrees of freedom which track the rotation and position of itself and its Touch controllers in 3D space using a system known as Oculus Insight.



**Fig. 2.** 3D model of “Composition A” by Piet Mondrian. Each colour block has been modelled as a rectangular prism of a specific size so that no two blocks have the same dimensions. (Color figure online)

The virtual hands that float in space and are used to interact with the environment have been completed with arms formed by small confetti made up of the four main colours that make up the experience: red, yellow, blue and white. This is depicted in Fig. 3.



**Fig. 3.** Virtual hands and arms. (Color figure online)

Background music has also been inserted throughout the experience to make it more enjoyable. The music chosen, “La valse d’Amélie” by the composer Yann Tiersen [12], evokes the years when Mondrian lived in Paris, where the painter began to develop neo-plasticism. For the creation of the audio guide, the application “Text to speech robot” has been used, which transcribes text to audio in the specified language [13].

### 3.2 The Storytelling of “Mondrian from Inside”

The storytelling is composed of ten scenes, each of them related to a specific historical or artistic context of the author. The transition from one scene to the next occurs when the user presses one green prisms or block in the 3D model of the painting. To guide the user through the story, the block to be pressed can glow, vibrate and/or change colour. In this way it captures the user’s attention. In some scenes the user listens to an audio guide that gives information about the context and meaning of the scene, as well as some very basic instructions for performing some kind of interaction. For the development of the audio guide we have followed some of the recommendations shown in [14].

We will now describe each of these scenes, relating them to various contextual aspects of the artist. The virtual reality experience developed has an approximate duration of 15 min.

The experience initially presents the 3D version of the artwork “Composition A” hanging from a brick wall surrounded by a dark environment with a sky full of stars. From the starting point of view of the user the painting appears to be a bidimensional entity. Nevertheless, as the user gets a little closer or changes its position, he or she can see that it is a three-dimensional model, as shown in Fig. 4a. After a few seconds, the audio guide begins explaining the application use and how the experience will be guided. This initial audio guide makes the user feel comfortable with the environment prior to the experience. When the explanation finishes, one block starts glowing in green. When the user press it, as shown in Fig. 4b, the Touch controls vibrate and the story advances to the next scene.



(a) The user’s point of view when approaching the 3D model of the painting.

(b) User pressing the green block.

**Fig. 4.** Illustration of two selected moments of the scene 1. (Color figure online)

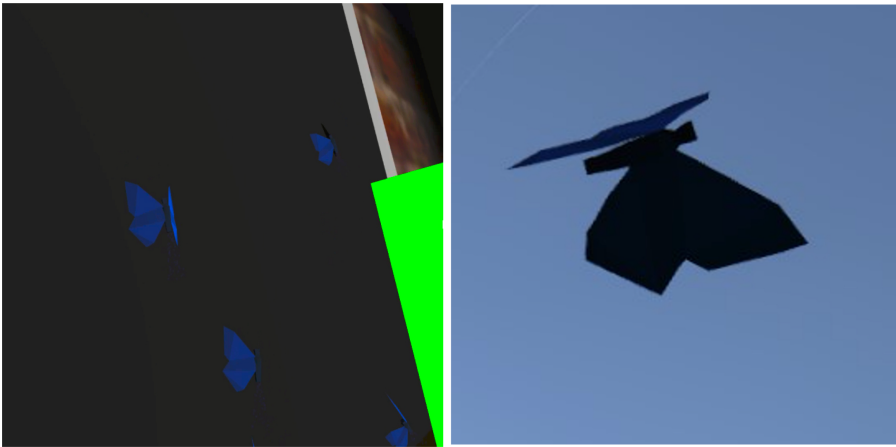
In the second scene the audio guide explains Mondrian’s beginnings, highlighting his birthplace, profession prior to painting and artistic influences from his family, while a Dutch flag appears on the brick wall and a photograph of the artist appears in a spotlight near the painting [15], as depicted in Fig. 5a. When the user touches the photograph, a video begins to play on a large curved screen that appears behind the photograph, as shown in Fig. 5b. The video shows images of Amsterdam, the painter’s birthplace on the dates of his birth [16]. At the end of the video, one of the cubes turns green and starts to glow, meaning that it is time to move on to the next scene.

In the third scene the audio guide explains Mondrian’s beginnings as a painter. His early works, like those of a large number of artists, are naturalistic



(a) Mondrian's portrait. (b) Video projection on a curved screen.

**Fig. 5.** Illustration of two selected moments of the scene 2. (Color figure online)



(a) Blue butterflies emerging from the painting. (b) 3D model of the butterflies.

**Fig. 6.** Illustration of the butterflies of the scene 3. (Color figure online)

in style, based mainly on landscapes. To connect the experience with nature, the user is invited to press one of the blue cubes, which lights up intensely. When pressed, twelve butterflies emerge from different points in the space, following realistic trajectories, as seen in Fig. 6. The butterflies can change their trajectory if the user touches them with their virtual hands or if they collide with any other object in space. Again, one block starts glowing in green to move on to the next scene.



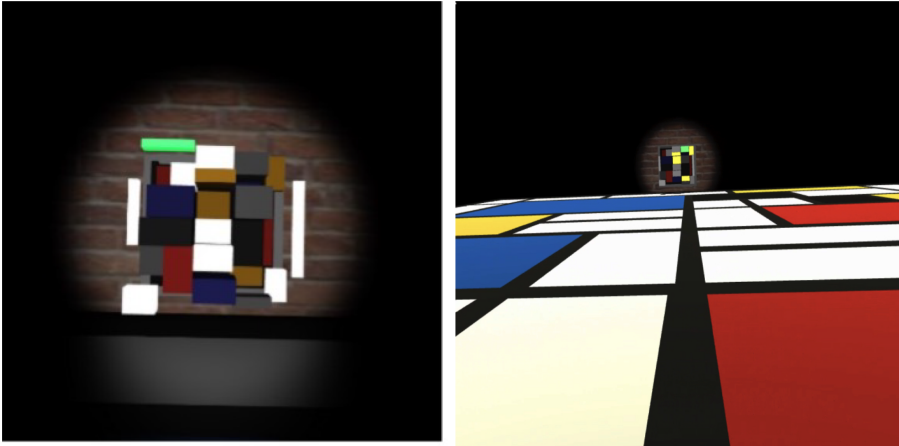
During the fourth scene, the audio guide explains the importance of two journeys, one to Paris and the other to New York, which had a significant influence on the painter’s career. Mondrian moved to Paris in 1911, where he lived for two years, interested in the new artistic trends. During this period Pablo Picasso’s Cubism encouraged him to seek out new artistic trends that led to the style that made him famous, Neo-Plasticism. In 1940 he moved to New York, where he established himself as a great artist and spent the last years of his life. By then his style was more lively and free. Several objects appear in the scene to commemorate these two journeys: a three-dimensional model of the Eiffel Tower [17], the painting “Les Femmes d’Alger (O. J.)” by Picasso [18] which, when touched, activates a video of the streets of New York on dates similar to Mondrian’s journey [19], a USA flag near the painting, and a plane flying through the sky from the Eiffel Tower to the USA flag [20]. To make the experience even more impressive, the aircraft material has been covered with a Mondrian painting in the same style as the “Composition A” painting. All these objects are shown in Fig. 7. Once the audio is finished, another block in the painting turns green and begins to glow and the next scene begins to play when the user presses it.



(a) Video projection on a curved screen behind the painting. (b) 3D model of the Eiffel Tower, USA flag and plane.

**Fig. 7.** Illustration of some objects in scene 4 (Color figure online)

Mondrian also drew on music in composing his paintings during his last period in New York, where he discovered the vibrant rhythms of jazz. In the fifth scene, the eight white blocks of the 3D model of the painting become keys of a piano where each block corresponds to one of the fundamental notes of the C major scale. The user can create his own melody by pressing these blocks, as shown in Fig. 8a. To move on to the next scene, the user simply presses the green cube.



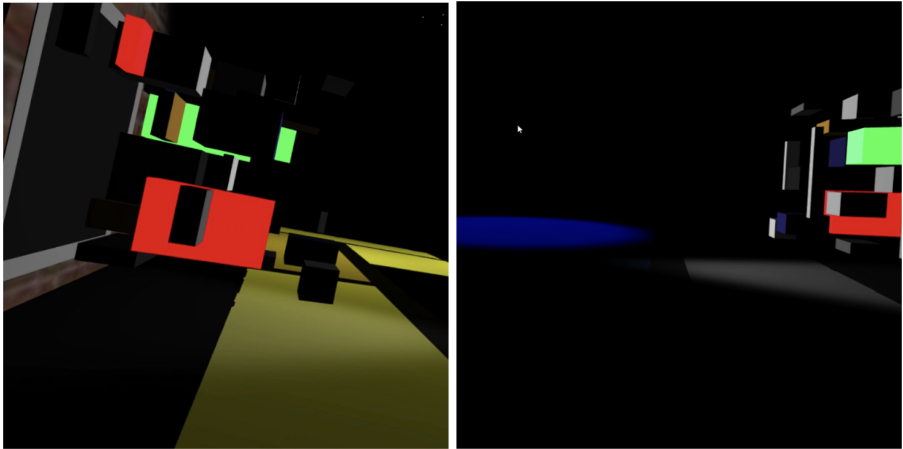
(a) White blocks associated to musical notes in scene 5. (b) Floor and yellow blocks in scene 6.

**Fig. 8.** Illustration of some objects in scenes 5 and 6. (Color figure online)

For Neo-Plasticism, light is fundamental at the conceptual level, it is the spiritual enlightenment that yearns for absolute (or universal) truth. In the sixth scene, the user is invited to play with the light in the room and can modify it clicking on the yellow blocks in the painting. To make the experience more visual, the floor is transformed into a large neo-plastic Mondrian's painting [15], through which the user can walk freely as depicted in Fig. 8b. At the beginning of the scene, the picture on the floor is not visible, so the surprise of its appearance when the user first clicks on the yellow block is striking.

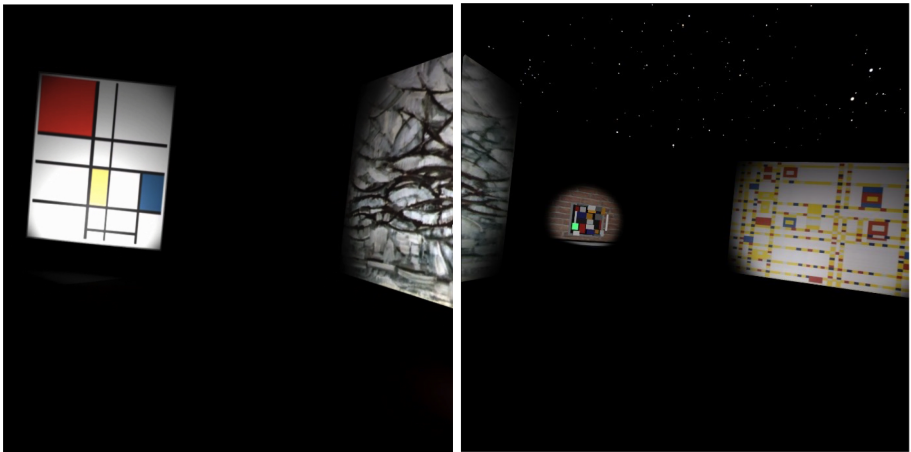
The seventh scene deals with the influence of theosophy on Mondrian's painting which led to the simplification of the pictorial elements in his paintings to lines and rectangular planes of colour and non-colour. In this scene the floor remains the same as in the previous scene and the blocks with which the user interacts are the three red blocks in the painting. Each red block acts as a switch for the three primary colours. The first time the user presses one of the red blocks, a spotlight of one primary colour lights up on each floor block of the same primary colour. If the user presses the same red block again, the light of the spotlights changes from the primary colour to white light. When desired, the user can advance to the next scene by pressing the green cube.

In the eighth scene, the user can view other relevant Mondrian paintings such as "Composition C", "Lookalike", "The grey tree" and "Broadway Boogie-Woogie" [15]. The paintings appear around the subject suspended in the air at an appropriate distance for proper viewing. Each painting is illuminated by its own light in contrast with the darkness of the environment as shown in Fig. 10. The user can rotate to see all the pictures, but the most striking thing about this scene is that the paintings maintain this distance if the subject moves. In this way the art literally accompanies the user (Fig. 9).



(a) Yellow rectangles on the floor illuminated. (b) Blue rectangles on the floor illuminated.

**Fig. 9.** Illustration of some illuminations in scene 7. (Color figure online)

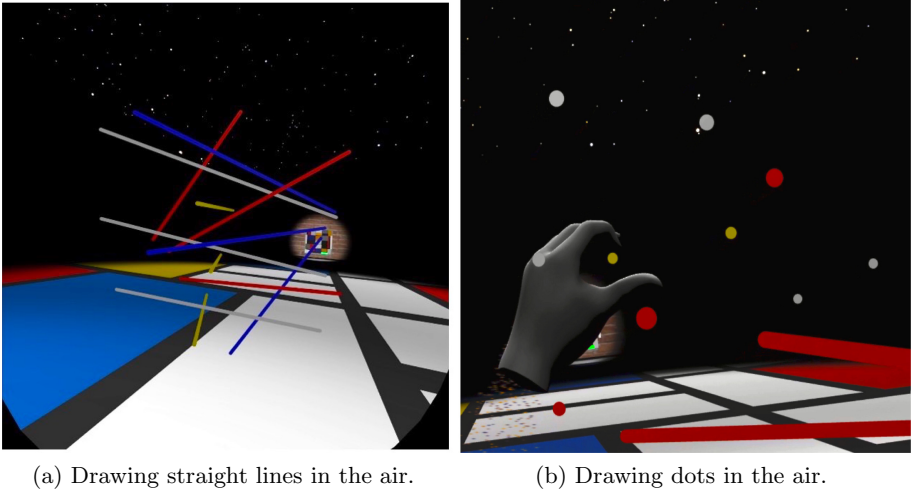


(a) Paintings around the user.

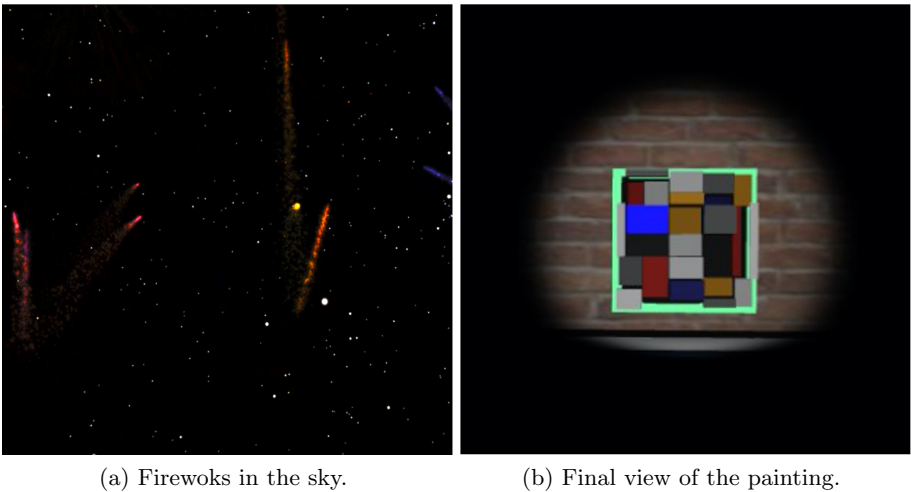
(b) Paintings around the user.

**Fig. 10.** Illustration of some objects in scene 8. (Color figure online)

The ninth scene is perhaps the most complete scene of the experience. Inspired by the successful Tilt Brush application by Google [21] the user is invited to paint in the air with his virtual hands. The Touch controls are then used to draw straight lines and dots with the colours of Mondrian’s paintings. To paint dots on the positions where the virtual hands are located, the user must press one of the front triggers on the Touch controllers. As there are four triggers in total, two on each virtual hand, each trigger corresponds to a certain colour:



**Fig. 11.** Illustration of some lines and dots painted in scene 9. (Color figure online)

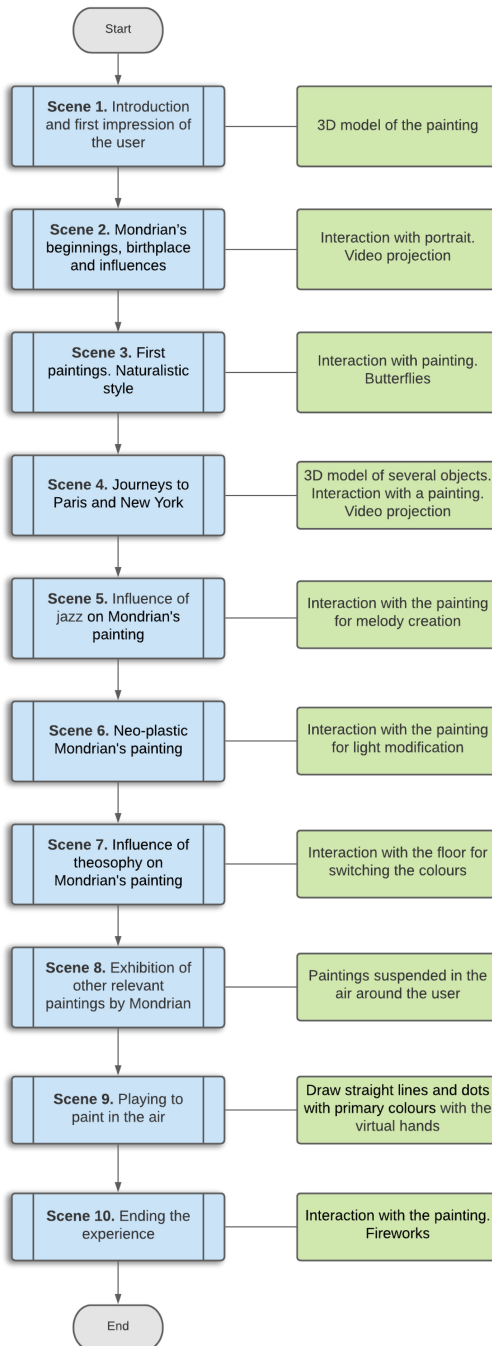


**Fig. 12.** Illustration of the end of the storytelling. (Color figure online)

red, blue, yellow and white. To create straight lines from one virtual hand to the other, the user must simultaneously press two triggers, one from each hand. The colour of the line is selected with the four top buttons on the Touch controllers, two on each controller. Finally, the side triggers on the Touch controllers are used to erase any paint in the air. It is interesting to note that this experience, besides being a lot of fun, can increase interest in art by being able to understand what an artist might feel in the process of creating his or her work (Fig. 11).

## VRE Storytelling

## Scene contents



**Fig. 13.** Storytelling of the developed VRE.

At this point in the storytelling, the user has received interactive and auditory information on many aspects of the author's life and work. In the final scene, the audio guide explains to the user that he has reached the end of the experience and thanks him or her for their interest in the application. Textual words of the painter are also mentioned, bringing the user closer to the artist. To end the experience, one of the blue blocks is highlighted. When the user presses it several red, blue and yellow fireworks can be seen in the sky, as shown in Fig. 12a. Finally, the wall on which the painting hangs turns green, as shown in Fig. 12b, and the user can reset the scene to begin the experience again pressing it. A sequential scheme of the VRE is depicted in Fig. 13.

## 4 Conclusions

Art is continually evolving and its development is increasingly linked to the advance of technology. Interactive VR applications, with their immersive capabilities, can bring art closer to all audiences, especially the youngest. The person experiencing a painting in virtual reality will be able to retain more information about the author, the artistic style, the work itself or the historical context in which it was made, while having fun in the virtual environment.

The famous paintings of the Dutch painter Piet Mondrian featuring his iconic coloured rectangles are one of the ultimate expressions and representations of modern abstract art that have inspired generations of artists. In this paper, we have proposed a virtual reality experience for the study and understanding of one of these paintings, which is entitled "Composition A". In the developed VRE the painting takes on a three-dimensional form where the coloured squares become interactive blocks which, when touched, modify the virtual environment in which the user is immersed. The experience follows a guide designed to relate the action to certain aspects of Mondrian's life and work.

The tool we have developed is just a small example of what technology can offer to the art of the future. Although the designed experience has been based on a two-dimensional artwork, this type of experience can be developed for artworks containing any type of perspective or three-dimensionality. In this case, it would be necessary to recreate a virtual space of the place represented in the work of art through which the user could move and model objects and/or characters with which the user could interact.

## References

1. Bekele, M.K., Pierdicca, R., Frontoni, E., Malinverni, E.S., Gain, J.: A survey of augmented, virtual, and mixed reality for cultural heritage. *J. Comput. Cult. Herit.* **2**(11), 36 (2018). <https://doi.org/10.1145/3145534>
2. Raptis, G.E., Katsini, C., Chrysikos, T.: CHISTA: cultural heritage information storage and reTrieval application. In: Ioannides, M., et al. (eds.) EuroMed 2018. LNCS, vol. 11197, pp. 163–170. Springer, Cham (2018). [https://doi.org/10.1007/978-3-030-01765-1\\_19](https://doi.org/10.1007/978-3-030-01765-1_19)

3. Shehade, M., Stylianou-Lambert, T.: Virtual reality in museums: exploring the experiences of museums professionals. *Appl. Sci.* **10**, 20 (2020). <https://doi.org/10.3390/app10114031>
4. Kang, Y.; Yang, K.: Employing digital reality technologies in art exhibitions and museums: a global survey of best practices and implications. In: Guazzaroni, G., Pillai, A. (eds.) *Virtual and Augmented Reality in Education, Art, and Museums*, pp. 139–161. IGI Global, Hershey (2020)
5. Walmsley, A.P., Kersten, T.P.: The imperial cathedral in Königslutter (Germany) as an immersive experience in virtual reality with integrated 360° panoramic photography. *Appl. Sci.* **10**(4), 1517 (2020). <https://doi.org/10.3390/app10041517>
6. Schofield, G., et al.: Viking VR: designing a virtual reality experience for a museum. In: *Proceedings of the Designing Interactive Systems Conference, ACM DIS Conference on Designing Interactive Systems 2018*, Hong Kong, China, pp. 805–816. Association for Computing Machinery (ACM), New York (2018)
7. Fassi, F., Mandelli, A., Teruggi, S., Rechichi, F., Fiorillo, F., Achille, C.: VR for cultural heritage. In: De Paolis, L.T., Mongelli, A. (eds.) *AVR 2016. LNCS*, vol. 9769, pp. 139–157. Springer, Cham (2016). [https://doi.org/10.1007/978-3-319-40651-0\\_12](https://doi.org/10.1007/978-3-319-40651-0_12)
8. See, Z.S., Santano, D., Sansom, M., Fong, C. H., Thwaites, H.: Tomb of a Sultan: a VR digital heritage approach. In *3rd Digital Heritage International Congress (DigitalHERITAGE) Held Jointly with 2018 24th International Conference on Virtual Systems & Multimedia (VSMM 2018)*, pp. 1–4 (2018). <https://doi.org/10.1109/DigitalHeritage.2018.8810083>
9. Sylvester, D.: *About Modern Art: Critical Essay, 1948–1996*. Henry Holt and Company (1997)
10. Enter the painting Homepage. <https://www.museothyssen.org/thyssenmultimedia/entrar-cuadro>. Accessed 1 Jun 2021
11. Mona Lisa: Beyond the Glass Homepage. [https://arts.vive.com/us/articles/projects/art-photography/mona\\_lisa\\_beyond\\_the\\_glass/](https://arts.vive.com/us/articles/projects/art-photography/mona_lisa_beyond_the_glass/). Accessed 1 Jun 2021
12. Yann Tiersen, R: La vals d’Amélie.Piano Cover (2019). <https://www.youtube.com/watch?v=uj9BihmugmI>. Accessed 1 Jun 2021
13. Text to Speech Robot App. <http://texttospeechrobot.com/tts/es/texto-a-voz/>
14. Carrozzino, M., Colombo, M., Tecchia, F., Evangelista, C., Bergamasco, M.: Comparing different storytelling approaches for virtual guides in digital immersive museums. In: De Paolis, L.T., Bourdot, P. (eds.) *AVR 2018. LNCS*, vol. 10851, pp. 292–302. Springer, Cham (2018). [https://doi.org/10.1007/978-3-319-95282-6\\_22](https://doi.org/10.1007/978-3-319-95282-6_22)
15. Piet Mondrian; Wikimedia Commons, the free media repository Homepage (1899). [https://commons.wikimedia.org/wiki/Piet\\_Mondrian](https://commons.wikimedia.org/wiki/Piet_Mondrian). Accessed 1 Jun 2021
16. Shiryaev, D.: [60 fps] A Trip Through the Streets of Amsterdam, Poland (1922). <https://www.youtube.com/watch?v=6tykGHGhC00>. Accessed 1 Jun 2021
17. Printable\_models: Eiffel Tower V1. Free3D Homepage (2018). <https://free3d.com/3d-model/-eiffel-tower-v1-470573.html>. Accessed 1 Jun 2021
18. Picasso, P.: “Les Demoiselles d’Avignon”. HA! Homepage (1907). <https://historia-arte.com/obras/las-senoritas-de-avignon>. Accessed 1 Jun 2021
19. Shiryaev, D.: [4k, 60 fps] A Trip Through New York City in 1911, Poland. [https://www.youtube.com/watch?v=hZ1OgQL9\\_Cw](https://www.youtube.com/watch?v=hZ1OgQL9_Cw)
20. Printable\_models: Airplane V1. Free3D Homepage (2018). <https://free3d.com/3d-model/airplane-v1-79106.html>. Accessed 1 Jun 2021
21. Tilt Brush Homepage. <https://www.tiltbrush.com/>. Accessed 1 Jun 2021