

## An Overview of the Creation of Virtual Reality Animated Short Films

Yuanyuan Ji

Da Lian Jiao Tong University, Dalian, Liaoning, China

31545356@qq.com

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**Abstract:** Virtual reality animation brings audiences immersive experience to watch films from a new interactive perspective. The application of virtual reality technology also raises more challenges to the creation of animated short films. Artists have broken the traditional concept of audio-visual creation, and attempted to explore and study many problems in the creation of virtual reality animation from different perspectives. This paper focuses on introducing and analyzing the creation methods of representative works of domestic and foreign virtual reality animation studios from 2013 to 2019; It raises four questions about virtual reality animation: the change in the lenses language of virtual reality animation, the challenge of narrative logic in virtual reality animation, the redefinition of audio-visual language by virtual reality animation, and the interactive design of virtual reality animation; Then it looks forward to the future.

### Introduction

Virtual reality animation (hereinafter referred to as VR animation) applies the real-time rendering technology of game engine and combines relevant technologies in animation, films, games and other fields in the production. It forms a narrative from the perspective of subjective lens, and also forms a new audio-visual experience and a unique formal law<sup>1</sup>.

The creation of VR animated short films is in its early stages, and it has only been about six years since it appeared in public. The research on creation in foreign countries is earlier than that in China. Google Spotlight Stories, Oculus Story Studio, Baobab Studios, Penrose Studios, Felix & Paul, Within have developed into mature VR studios, and some of their representative works have won many awards in international film festivals; Domestic Pinta Studio outshines others, which is also committed to the creation research of VR animation. Through the introduction of VR animation studios and their representative works, we will explore some problems in VR animation creation and accumulate creative experience.

### VR Animation Studios at Home and Abroad and Their Representative Works

**Google Spotlight Stories.** The Spotlight Stories studio was created by Motorola with the goal of exploring frontier story creation on mobile devices. In 2013, the team joined Google's ATAP advanced technology and product team to create VR animations. It has produced 13 short VR films in different styles, and focused on pushing the boundaries of immersive film production.

Pearl, an animated short from Google Spotlight Stories, premiered at the Tribeca Film Festival in New York on April 18, 2016. In 2017, it won the Emmy Award for Best Innovative Interactive Story and was nominated for the 2017 Oscar for Best Animated Short Film. The film tells the story of a girl and her father, a musician, who wrote the song No Wrong Way Home. The short film is multi-line structure, with several plot triggers in the process, and different endings, and the viewing time varies from 5-7 minutes.

In 2018, three short films of Google Spotlight Stories, Piggy, Age of Sail, and Back to the Moon, participated in the 2018 French Annecy International Animated Film Festival, where it

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<sup>1</sup> Liu Xu. The Combination of VR Technology and Animation in the New Media Era[J]. Cultural Vision, 2017,(5): 107.

premiered Piggy's new experimental story. The film takes the interaction between the characters and the audience to a completely new level.

John kahrs, director of Google spotlight stories, shared a preview of Age of Sail. This film was produced by Gennie Rim (Dear Basketball) and David Eisenmann (Pearl and Son of Jaguar), with Karen Dufilho as executive producer. Age of Sail is the longest and most complicated visual experience ever produced.

**Oculus Story Studio and Fable Studio.** At the end of 2015, Oculus Story Studio produced the landmark VR animated works of Lost, Henry and Dear Angelica. In 2016, Henry won the Emmy Award for Best Original Interactive, and in 2017, Dear Angelica was nominated for an Emmy Award. In early 2017, Facebook closed Story Studio in favor of external production.

In 2015, Henry debuted on Oculus Rift and became the benchmark of Oculus Story Studio. It tells the story of Henry, the hedgehog, who wishes to make friends at his birthday party, but keeps everyone away because of his pricks. Henry won the Emmy Award for Best Original Interactive at the 68th Emmy Awards, which is also the first VR film to win this award.

In 2017, Dear Angelica won the Best VR Animation Experience Award issued by Lumiere. It tells the story of a little girl missing her mother. The creation of the short film focuses on the hardware limitations and interactive possibilities based on the current VR system. It develops and guides the audience through the stories and characters of a journey, rather than responding to their every interaction.

In 2017, Oculus Story Studio was closed. In January 2018, former major members of the team announced their new company, Fable Studio. Besides, they completed the project Wolves in the Walls, which was planned at the beginning of Oculus Story Studio in 2015, and premiered at the Sundance Film Festival.

On August 24, 2019, Oculus announced that Wolves in the Walls, a VR work produced by Fable Studio and Facebook, won the Emmy Award for Outstanding Innovation in Interactive Media Content. This is the fifth Emmy Award for the project supported by Oculus.

**Baobab Studios.** Baobab Studios, known as "VR Pixar", was co-founded by Eric Darnell, director of animated films of Madagascar series, and Maureen Fan, former vice president of Zynga's gaming department, in 2015, mainly engaged in VR CG animation creation.

Invasion describes that when human beings are facing the invasion of aliens, they are saved by a small rabbit with big eyes. Then, the audience watch the film from the perspective of a rabbit. In 2016, Baobab Studios brought the characters and stories of Invasion! to the big screen, and this was also the first VR short film to be made into a Hollywood blockbuster.

In 2016, Baobab Studios announced the news of Asteroids! on OC3, and successively landed on many platforms for free watching. Compared with Invasion!, Asteroids! offers audience more time and characters, becoming longer, more complex, and more interactive.

In 2017, Baobab Studios presented a new 8-minute preview of Rainbow Crow at the Tribeca Film Festival. The story is about a bird with a nice voice and colorful feathers who must leave home and bring light to a dark and cold world. The film uses realistic lighting, uses warm and overexposed lights to create emotion, and fully play the advantages of VR with a unique new face.

In 2018, Crow: The Legend based on the Unity engine was a VR animation created by Baobab Studios and the famous musician John Legend. This animation, with VR as a narrative method, won the 2019 Daytime Emmy Awards and the First Anne Award for Best VR Production Awards issued by the Los Angeles Academy of Television Arts and Sciences.

In March 2019, Baobab Studios released its fifth project, bonfire, is a ridiculous alien adventure. The film challenges the limits of technology through real-time rendering, artificial intelligence and interactive narrative system to create a VR experience in which users are the protagonists.

**Penrose Studios.** In 2015, Penrose Studios previewed the first VR short film, The Rose and I. The story is adapted from the French fairy tale "Little Prince". The audience can walk around on the asteroid and even peep at the place where the little boy is hiding through the small holes on the surface. Although there is no dialogue, the short film still shows the protagonist's shudder, fragility and curiosity.

In 2016, Penrose Studios released a video clip of its latest work Allumette. The work is built on the cloud, where a little girl selling magic matches will unfold her story. The director attempts to make the audience feel the feelings of the characters in the work through this technique, so that viewers can penetrate into the world the creator creates.

In 2017, Arden's Wake: The Prologue premiered at the Tribeca Film Festival and won the Best VR Film Award in the VR competition of the 74th Venice International Film Festival. In April 2018, Arden's Wake: Tide's Fall was shown at the Tribeca Film Festival, voiced by Oscar-winning actress Alicia Vikander and famous British actor Richard Armitage.

**Pinta Studio.** In June 2016, Pinta Studio was established. It is one of the few domestic content teams committed to the production of high-quality VR film and television animations. In October 2016, it began preparations for the first work, The Dream Collector. The project was officially started on November 10, and in September 2017 was shortlisted for the VR competition of the 74th Venice Film Festival.

The 2018 Shennong: Taste of Illusion is the second VR animation work of Pinta Studio. The story is adapted from the Chinese myth "Shennong tasted all kinds of herbs". It tells the story of Yan Emperor Shennong accidentally eating the magic poison hyoscyamus and fighting with the evil animals in the magic realm. The film uses more editing methods suitable for VR, such as scene switching, spatial displacement, etc., to bring the audience a new immersive visual experience of Chinese style.

In 2018-2019, the third VR and AR animation work of Pinta Studios is ELLO. The image of the protagonist Ello is very cute, and under the vast starry sky, it is especially loving. Some interactive designs and reversal of the plot in the work give the audience a real emotional experience.

## Research on Problems of VR Animation Creation

As a new medium, new language and new form, VR opens the door for image creation. Many technical demonstrations and conceptual works of creative teams want to convey the novelty of VR, but the effect of the works presented is very weak<sup>2</sup>. The professional theory and practical experience of VR animation is still shallow, and there are still many problems to be solved. Starting from the creation practice itself, we discuss the creation process of VR lens language, narrative law, audio-visual reconstruction and interactive design so as to provide some help for VR animation creation practice.

**The Change of Lens Language of VR Animation.** The VR animation presents the audience with a viewing angle without dead angles and an observation line that can be moved at will. The traditional lens language is not fully applicable to VR lens language; The units representing the fundamental spatial relationships, such as landscape, have also been greatly weakened<sup>3</sup>. Faced with these changes, the lens language of VR animation needs to be redefined and explored. It is also necessary to further summarize the methods and techniques of lens language through practical creation.

**The Challenge of Narrative Logic in VR Animation.** The biggest problem with VR narrative is that the montage narrative is limited by many factors. In VR animation creation, narrative becomes a process. The change of audience from spectator to participant undoubtedly creates the possibility of multiple narratives, such as guidance narratives, interactive narratives and multi-channel narratives, etc<sup>4</sup>.

**The Redefinition of Audio-visual Language by VR Animation.** Audio-visual language includes image, sound, editing and other aspects. At present, almost all VR animations use long shots, in which the audio-visual language design of VR is quite important. It needs to consciously

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<sup>2</sup> Zhang Weidi. Research on Media Expression of Virtual Reality[D]. Beijing: Beijing Institute Of Graphic Communication, 2010.

<sup>3</sup> Zhang Jinyao, Su Mier. VR Image Narration: A New Aesthetic Journey in Time and Space[J]. Modern Communication, 2017, (6):100-104.

<sup>4</sup> Feng Rui. Narrative Mode and Narrative Logic Innovation of VR Movies[J]. Contemporary Cinema, 2019,(2):153-156.

let the audience's eyes focus on the place they need to see at the first time, so adding guidance information becomes the most important part of VR audio-visual language<sup>5</sup>.

**The Interactive Design of VR Animation.** The interactivity of VR animation is a new way of expression. The production team wants the audience to trigger some kind of interaction accidentally and become part of the experience. There are many kinds of interactive ways in the works, such as sound, head, hand, etc., and these interactions are rather secretive. The transformation of linear narrative media should minimize interruptions during the experience. Thus, the addition of interactive elements is also very secretive to avoid the audience losing the plot during the experience, thereby ensuring the smoothness of the secretive interactive experience.

## Conclusion

In the exploration of VR animation creation, apart from the two hot topics of narrative and interaction, we also need to calmly analyze the practical problems encountered in practical creation. The traditional film and television animation aims to tell stories and convey emotions; However, VR animation is ultimately to experience the story and produce emotional resonance. What is more important to VR animation is to "experience". Thus, the creation must take the organic integration of narrative and interaction as the premise, which cannot ignore the interaction for the sake of narrative; Meanwhile, it can not only focus on the function and form of interaction, and ignore the narrative. The balance between narrative and interaction needs to be summarized by great creative practices. Only in this way can the contemporary, advanced and extensible nature of VR animation be reflected.

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<sup>5</sup> Wang Xiao. Application of VR Technology in 3D Animation Production[J]. Computer Engineering and Applications, 2017(2): 86-87.