CAR

Computer-Aided Reverie

Thomas Leloup

Table of contents

ABSTRACT

C.A.R., the title of my dissertation is an acronym. It means Computer-Aided Reverie. This subject has a personal connection to my relationship with computers. I am fascinated by technology and especially its ability to process information much more quickly than the human brain. Computers also offer more realistic simulations than ever before, thanks to their graphic capacity. I have always wanted to understand how computers work and to study if my own interest had common grounds. Therefore, I chose to work on a global scale.

Men want to control their environment. Thanks to different phases, that is to say capture and electro-chemical treatment, they become aware of who they are and where they are within their own environment. But besides, they have psyche. Psyche doesn't use reason and manifests itself in different ways: dream, reverie, daydream[1].

Dreaming is a mental image turned towards the desires of reality. It occurs during our sleep. Reverie is daydreaming but it is close to fantasy and loss of consciousness. Daydreaming is a vagrancy unrelated to reality. Because we feel safe and fine while daydreaming, daydreaming can then be the source of problems. This human mechanism works like a drug. It allows us to escape from reality. It is like Ulysses on the island of Lotus-eaters who feed both the inhabitants and the shipwrecked sailors to make them sleep in peaceful apathy. They forget the reality.

The terms psyche and digital are sometimes misunderstood. The public's feeling is that the digital world can replace psyche. However, digital devices are only used to simulate virtual images. They are considered as a medium to reproduce a human process such as dreaming. In this dissertation, my goal is to understand how digital design can deal with reverie..

To be able to deal with the theme of reverie, it is important to refer to its essence, that is to say information. Information has a component (sign, signal, order), a composition (language, data, code) and an environment. The latter is the area in which information makes sense. If some information disrupts our environment (sound, smell, etc), it prevents our understanding. But if information builds our knowledge, then information makes sense. The complexity of our environment brings to our brain a rich and complex information processing. Cybernetics developed by Norbert Wiener offers analogies between human actions and machine operations. These analogies are based on feedback which enables us to act on our environment according to how we perceive and understand information.

Researchers have managed to develop deep learning[2]. It is a learning method that gives machines a network of neurons. They can analyze and learn by themselves, without human help. Moreover some engineers even say that their machines could be able to dream[3]. In fact, they analyze images and then create virtual images using digital noise.

For now, machines do not have psyche but they can simulate an unconscious state. To transpose reverie onto a computer, it is important to know where this process takes place. Thanks to medical imaging[4], we now know that dreaming happens during REM sleep and we know which active zone of the brain is involved. Thus it seems simple to recreate reverie with a digital device by simply analysing the phenomenon. However, there are obstacles and limits.

1. Serge Tisseron "Rêver, fantasmer, virtualiser", Dunod, Paris, 2012

2. "Deep learning : machines qui rêvent", Educadis, March 29th, 2017, http://www.educadis.fr/formation-a-distance/news-formation-elearning/numeriquedeep-learning-machines-qui-revent

3. Jean-Laurent Cassely, "Voici à quoi «rêve» le réseau d'intelligence artificielle de Google", Slate, June 22nd, 2015, http://www.slate.fr/story/103297/revereseau-intelligence-artificielle-google

4. Mo Costandi, "Brain scans decode dream content", The Guardian, April 5th, 2013, https://www.theguardian.com/science/neurophilosophy/2013/apr/05/brainscans-decode-dream-content

When an artistic creation is exhibited, people don't all react in the same way. We all have expectations before discovering a project. When people are not satisfied, the aesthetic gap[5] that separates the viewer from the work modifies the public's expectations. This transformation initiates new perspectives, new visions for the public. This phenomenon is a source of imagination for everyone. An artistic work makes us have emotions as it calls our imagination and creativity, which allows a sort of reverie. When we are moved by a book, we can imagine the characters, the places, the light, etc, as if daydreaming. This mental process becomes a means of self-construction based on the memory of our subjectivity. Without dreaming, there is no self-construction and no memory.

This form of interdependence can be linked to the theories of Retention, Attention and Protention[6] developed by Bernard Stiegler. Bernard Stiegler is a French philosopher who focuses on the issues of current changes thanks the technological development with digital technologies. He created Ars Industrialis in 2005, which is a community website . On this website, he described his theories. Retention corresponds to memory, attention to experience and time being, and protention to desires and dreams. To access reverie, digital design resorts to interactivity to have the same functions as the human brain.

Interactivity can have different forms. Digital designers can create apps, software, video games, etc. Their job is to make the best user's experience (UX) and user's interface (UI). They make the user's dream come true. For a digital reverie, the use of video games could be an answer because they offer a form of narrative interaction. Playing video games can allow the self-construction of gamers because it requires thinking before acting. In addition, the challenges of video games, such as competitiveness, challenging the limits of one's skills, embodying an ideal, or immersion, are common characteristics. Immersion makes it possible to enter the psyche of gamers.

The technological devices developed today foster immersion. There are three-eye devices that enable immersion: Augmented Reality, Virtual Reality and Mixed Reality. Augmented Reality offers a layer of information on top of our reality. Virtual Reality immerses us in a simulation of a new reality. Mixed Reality is the combination of the first two.

Since a dream is a mental image, virtual reality seems to be the best device to use because it creates a virtual image that separates us from reality. Somehow it becomes computer-aided reverie.

5. Aziza Ben Zid, "Pour une approche épistémologique des théories de réception", Revues faculté des lettres et des langues, [S.l.], n. 14-15 (2014)

6. Ars Industrialis, Attention, Retention, Protention, http://arsindustrialis.org/attention

In this research, I took a closer look at how daydreaming is developed in the audiovisual field by confronting man to the machine. The work of Anthony Masure[7] was the cornerstone of this part. First of all, science fiction offers soft and obedient machines. They are toys at the service of humans. They must satisfy the desires of their inventors. Then, science fiction reduces the boundaries between humans and machines. The machine becomes man's mirror. It develops an artificial awareness thanks to it artificial intelligence. It can have feelings and has psychic life. Moreover, the fantasies of science fiction can make machines rule over men and endanger human species. Machines can become harmful and dangerous, the new masters of the universe.

7. Anthony Masure and Pia Pandelakis, "Machines désirantes : des sexbots aux OS amoureux", ReS Futurae, November 29th 2017, http://journals.openedition.org/resf/1066, read on December 10th 2017

PROFESSIONAL PROJECT

Before working on virtual reality for my professional project, I tried a digital experience on strolling. This project offers players to walk in an idyllic space. I named it Montagne. exe because its digital aspect must be immediately understood. It is a software that runs on windows. For this prototype, the only actions player can perform are moving and rotating the camera. The main purpose is immersion in a bucolic world where the game design invites to wander, meditate. In a way, interaction gives players a feeling of peacefulness, quietness, while forgetting their surroundings. The environment of the game is a forest dominated by a mountain facing a lake. From an aesthetic point of view, I chose realistic elements for a better immersion. For example, shadows and effects of light when you are looking at the sun, reflections on the water,the wind in the trees, day and night cycles. This video game prototype is developed on PC and can be played with a mouse and a keyboard.

After this project, I chose put aside the digital world. I made a card game. The game offers different organic forms and color gradients. The shapes are abstract. The purpose of this game is to imagine what we can think about the cards. For this project, I decided to focus on the ability of humans to imagine things. The player gives meaning to what he sees. I used pareidolia which consists of seeing a familiar mental image in a vague form. Visual pareidolias are part of optical illusions. Like the Rorschach test, I asked the players what they seemed to see and perceive. I did not analyze the reasons why they thought of such an object, thing, animal, etc. My goal was to build a graphic universe around a shape. I wanted to create a cobweb to link each form of the game to the mental images of the players. After getting their answers, I realized that some cards developed the same mental images for all the players. On the other hand some shapes revealed heterogeneous and original answers.

Through this experience I felt an urge to study the singular imagination of the players. It is no longer the designer who has the answer, only the user. The most important aspect is to allow the mind to think before acting, to spend some time to meditate and think.

My professional project is a sensory experience. The viewer is immersed in a universe in virtual reality. Reverie is at the core of the subject. To speak about it, I chose to develop different scenes in which we can find real elements like objects, nature, characters, etc. The graphic range goes from abstract to realism. Each scene triggers a particular emotion. Each emotion leads our thoughts. We can be frightened, happy, ashamed, in love, angry, etc. However, there is no direct link between each scene, which causes breaks and tensions. The goal is to make the viewer feel lost so that he can find a way out, an answer to what he sees.

I let the imagination of the player find the story that the scenes develop. The first scene, the only scene to remain in this position, is in the dark. An old clock strikes and shows a different scenes at each strike. One scene invites the player to fly and touch the clouds. Another projects the player into a forest in the middle of the night. A third scene places him / her next to a gigantic idol. A fourth scene leads to an island and its mysteries. Although there is no direct connections between each scene, I have hidden elements that can link all the scenes and thus guide the possible stories. Moreover, between each scene, a black transition from two seconds and ten seconds, makes it possible to further disturb the spectator's mind. And to go even further, when you launch the activity again, the scenes are not presented in the same order. The spectator cannot interfere on what he sees, he is as passive as a spectator at the cinema. The only difference lies in the fact that the participant cannot come out of this simulation. In a way, the player undergoes the design that I have designed. Just like the card game. I took some notes of what the spectators felt while participating. The purpose of my project was to study the relationship between what the designer has created and what the receiver understands.

The choice of virtual reality as a medium for my professional project is relevant. Indeed, this medium is in full expansion, in marketing, communication, medicine, exploration, etc. From an economic point of view, virtual reality offers new perspectives for the entertainment industry. If we consider that the television and video ads are the evolution of written advertising or image marketing, then virtual reality will undoubtedly be the next step. For the first time, the viewer can observes things outside an advertising content, and live the experience from within. The content is more tangible and the experience is more engaging for the viewer. Immersion arouses strong emotions. The novelty of this technology is a real asset. Indeed, virtual reality is a new instrument that most consumers have not yet experienced which brings more interest to this technology in order to understand it and to use it better.

REFERENCES

Tonga Lumina by Moment Factory

This project is a night show in the middle of the forest on Mont-Tremblant, a Canadian winter sports resort. The goal was to design a night walk inspired by different themes from local myths, the natural wonders and legends surrounding Mont Tremblant. The visitors' experience started with an ascent on a chairlift towards a mythic quest to unearth the secret of Tonga. They were plunged into the giant's mysterious realm, where multimedia illusions merged into the forest's dense wilderness to create an immersive participatory experience. The production team used light projection and mapping to draw stories and enliven the night.

I am particular sensitive to the poetic dimension and the highly technical production of this project. Moment Factory offers a kind of augmented reality. The studio transforms reality and overlays another reality from the imagination of its designers.

The rock of lettered person

It is a small, natural, carved stone, traditionally appreciated by Chinese scholars for ages. There are several varieties of stones of all sizes and shapes. These stones were placed in gardens with essential elements like water and mountain. They represent the universe in a miniature way. They used this kind of stone as it originated from the different transformations of the earth. According to Chinese cosmology, it is made of the breath of life. The contemplation of this reduced landscape allows people to escape into a new dream world where everything is made possible.

Lost Highway by David Lynch

This 1997 film is a thriller where Fred Madison, a saxophonist, suspects his wife, Renee, to cheat on him. He kills her and is sent to jail. The way the scenes are chained together makes the film mysterious, incomprehensible and disorderly. The director does not respect the timeline of the story which results in a disjointed and weird universe. David Lynch says there is no answer to his film. Any interpretations of his film are possible. He lets the imagination of the spectators give meaning to his visions, his fantasy.
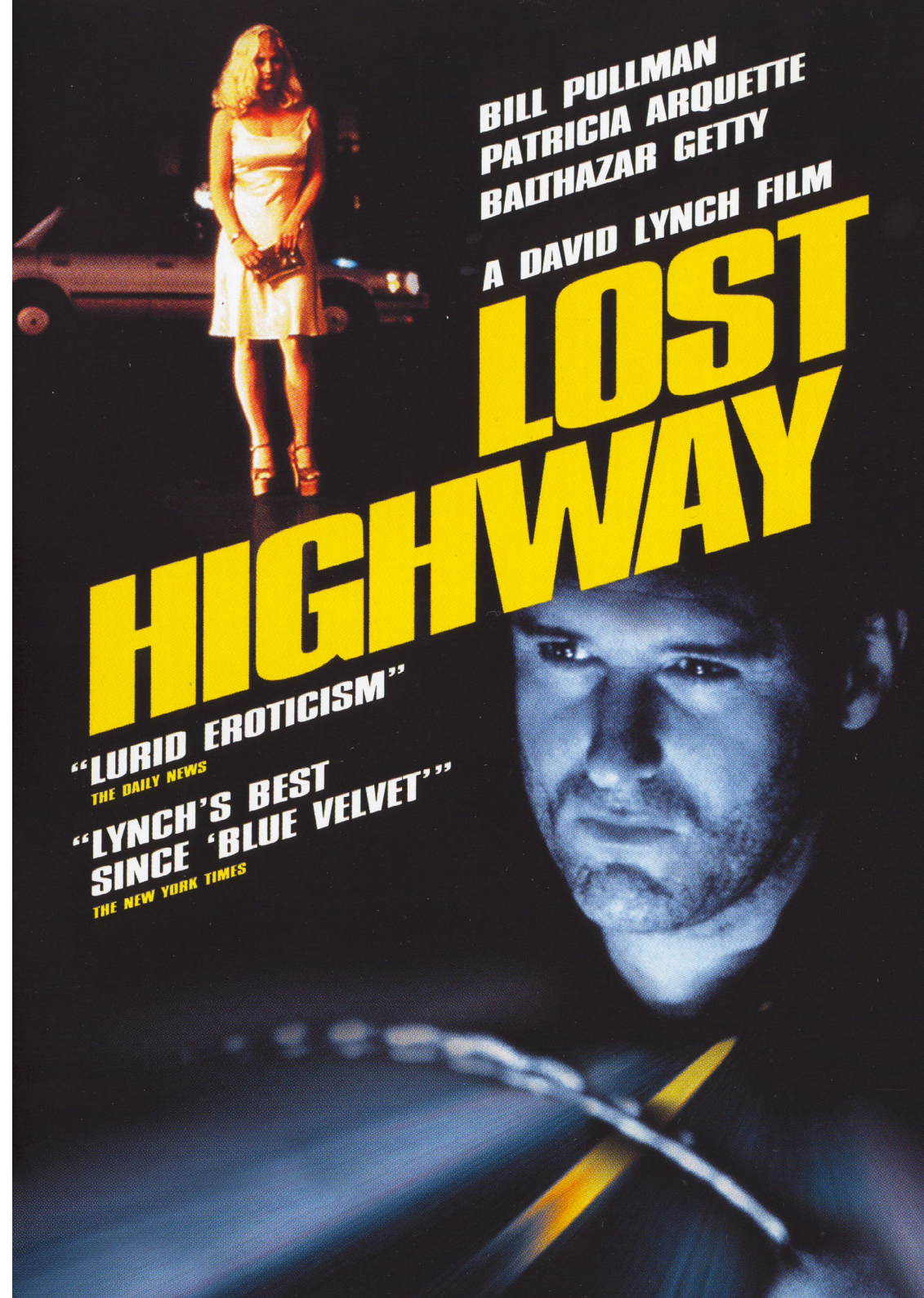
The VOID

It is a whole-body, fully immersive VR experience that surprises the player all the time. This is unmatched realism that takes you completely out of your own world into another world. Not just visually, but physically and emotionally too. You can feel a breeze across your face. From a technological point of view, this company manages to overlay the real space of play (walls, doors, floors, etc.) on the virtual space. So if you touch a wall in reality, you have the impression of touching the wall of the virtual reality. It is Immersion at its best.

BIBLIOGRAPHY

Jef Akst, "Decoding Dreams", The Scientist, January 1st 2013, https://www.the-scientist.com/?articles.view/articleNo/33726/title/Decoding-Dreams/

Christophe André and Claire Chartier, «Le corps et l'esprit sont très étroitement connectés», L'express, September 27th 2014, https://www.lexpress.fr/actualite/societe/sante/le-corps-et-l-esprit-sont-tres-etroitement-connectes_1578754.html

Ars Industrialis, Attention, Retention, Protention, http://arsindustrialis.org/attention

Aziza Ben Zid, "Pour une approche épistémologique des théories de réception", Revues faculté des lettres et des langues, [S.l.], n. 14-15 (2014)

Jean-Laurent Cassely, "Voici à quoi «rêve» le réseau d'intelligence artificielle de Google", Slate, June 22nd, 2015, http://www.slate.fr/story/103297/revereseau-intelligence-artificielle-google

Mo Costandi, "Brain scans decode dream content", The Guardian, April 5th, 2013, https://www.theguardian.com/science/neurophilosophy/2013/apr/05/brainscans-decode-dream-content

"Deep learning : machines qui rêvent", Educadis, March 29th, 2017, http://www.educadis.fr/formation-a-distance/news-formation-elearning/numeriquedeep-learning-machines-qui-revent

Anthony Masure and Pia Pandelakis, "Machines désirantes : des sexbots aux OS amoureux", ReS Futurae, November 29th 2017, http://journals.openedition.org/resf/1066, read on December 10th 2017

Serge Tisseron "Rêver, fantasmer, virtualiser", Dunod, Paris, 2012

Photographic credit

p.26-27
https://medias.momentfactory.com/2018/03/Moment_Factory_Tonga_Lumina_in_Mont_Tremblant_19-WS.jpg

p.29
https://chine.in/usb/images/upload/images/1448.jpg

p.31
https://www.pinterest.com/pin/66217056991391248/

p.33
https://me.popsugar.com/love/Void-Ghostbusters-Dimension-Vitual-Reality-Dubai-43338762