**The Virtual Time Machine**

**Subtitle**

**By**

**Nisha Rama Krishnan**

**Abstract**

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A thesis

Submitted in partial fulfillment

of the requirements for the degree of

Masters of Fine Arts

(Department of Digital Arts)

School of Art and Design

Pratt Institute

May 2020

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Received and approved :

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Chair - Peter Patchen

**ACKNOWLEDGEMENT**

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1. Introduction

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**CHAPTER 1**

INTRODUCTION

“Unreliable Narrator!... Unreliable Narrators are considered a device, right? Don't answer. They are. They are and they don't get a lot of literary analysis because it's a gimmick. It's a trick. I mean Canterbury Tales gets a shoutout because, you know, it's good but typically it's used for popcorn crime novels and thriller movies Agatha Christie, Usual Suspects, so on and so forth. But I'm going to argue that every narrator by its very definition is unreliable because when you tell a story there's always an essential distance between the story itself and the telling of said story, right? So therefore every story that has ever been told has an Unreliable Narrator. The only truly reliable narrator would be someone hypothetically telling a story that unfolds before our very eyes which is obviously very impossible, So what does that tell us? That the only truly reliable narrator is life itself. But life itself is also completely unreliable because it is constantly misdirecting and misleading us and taking us on this journey where it is literally impossible to predict where it is going to go next. . . Life as the ultimate Unreliable Narrator.”

---- Life Itself (2009)

This monologue was delivered by the protagonist of the movie ‘Life Itself’ about the life of a New York couple as they go from college romance to marriage and the birth of their first child. The unexpected twists of their journey creates ripples of consequences that echo over continents and through lifetimes. This movie demonstrates by itself the concept of the literary device unreliable narrator.

In literature, an unreliable narrator is a character who tells a story with a lack of credibility. It was first used by Wayne C. Booth in 1961 in *The Rhetoric of Fiction.* Since then, many authors and filmmakers have used the technique to create interest and suspense in their narration. This movie not only demonstrated life as an unreliable narrator but indirectly also about how everything has a cause and effect which effectively connects everything around the world.

In accordance with the same concept, Stephen King’s greatest work ‘11/22/63’ is a story about a young man named Jake who discovers a portal in a diner’s pantry which leads him back to 1958. After a few visits and some experiments, Jake deduces that altering history is possible. However as long as he stays in the past, only two minutes go by in the present. He decides to live in the past until 1963 so he can prevent the assassination of President John F. Kennedy, believing that this change will greatly benefit humanity. After years of stalking Lee Harvey Oswald, Jake manages to prevent him from shooting Kennedy.

Upon returning to the present, he expects to find the world improved as a result. Instead, the opposite has happened. Earthquakes occur everywhere, his old home is in ruins, and nuclear war has destroyed much of the world. Distraught, Jake returns to 1958 once again and resets history.

This story also demonstrates how everything in the world is connected together but through the concept of the butterfly effect.

These stories share the concept that everything in the world is connected through the unreliable narrator of life and the concept of butterfly effect.

The Virtual Time Machine represents life as an unreliable narrator and illustrates its connection to the butterfly effect. It is a virtual reality experience which takes you through the life of the planet Earth personified into a character on a social media platform. With most of life being documented on social media today, the experience encompasses an interactive, fictional, non linear story of the Earth which is subject to change by the audience. The audience participates by choosing an image on the profile of Planet Earth and changing the outcome of it and hence opening the possibility of an alternativepresent due to the butterfly effect.

With the recent developments around the world- CoronaVirus, Fires in the Amazon and Australia, heat waves and floods, wouldn't it be nice to explore the other option from the schrodinger cat’s experiment. What if we could choose differently and see how the world could turn out. Would CoronaVirus have even occurred, if maybe years ago, something might have been done differently?

I want this experience to be a stepping stone to a realization of how actions have consequences which will definitely reflect some way or the other.

**CHAPTER 2**

INFLUENCES/INSPIRATION

The journey of The Virtual Time Machine has evolved over the years to finally become what it is today. Starting from the word energy, butterfly effect, Rube Goldberg machines and then to unreliable narrator.

I read the book *‘What if?’ by Randall Munroe* a few years ago and some of the questions that came up were eye opening. The book contains ‘serious scientific answers to absurd hypothetical questions’ as quoted by Randall on the cover of the book. Have you wondered - What would happen if the Earth and all terrestrial objects suddenly stopped spinning, but the atmosphere retained its velocity? Or what would it be like if you traveled back in time, starting in Times Square, New York, 1000 years? 10,000 years? 100,000 years? 1,000,000 years? 1,000,000,000 years? What about forward in time 1,000,000 years? These questions made me wonder how things would have turned out if history was different. How would the butterfly effect have panned out in the present if energy anytime in the past was altered. The idea of a hypothetical take on altering energy through time drove this project to tell a story. The story of energy as it moves through a Rube Goldberg Machine. **So what if I build a dynamic Rube Goldberg machine which behaves differently each time thus altering the final outcome every single time.**

**//Image of question from What if?**

**//Life Itself**

As my thesis evolved trying to find the relationship between energy and butterfly effect, I came across the movie *Life Itself*  which opened up a whole new line of thought. It introduced me to the literary device of ‘unreliable narrator’. Life itself compares human life to an unreliable narrator due to its uncertainty into the future and to some extent an unreliable past. Not very acclaimed as a movie this story inspired me to wonder what if we make a Rube Goldberg machine where the object in motion is life instead of energy. **What if we make a dynamic Rube Goldberg Machine of (human) life which behaves differently each time and hence the outcome of the life as seen at any given point is different every time,** just like the way Jake Epping could go back in time through the back of a pantry into the year 1963 to change the present as we know it, in the book *11/22/63* by Stephen King. This book is a perfect example of how butterfly effect could work with human life and how even a single change to the past would resonate differently to everything around us. Each time he went back in time and changed something the present changed accordingly. The ripple effect.

// Image 11/22/63

After having followed one of the most talked about TV shows produced by Netflix, *Black Mirror*, the much awaited interactive movie *Bandersnatch*  became a game changer. It opened up a whole new scope of storytelling in films. *Bandersnatch* was the movie version of *Choose your own Adventure* books that we used to read as children. In *Bandersnatch*, the audience wasn’t going back in time but was able to control what is going to happen next through a set of two options to choose from which appeared on the screen periodically as and when a decision had to be made. This gave control to the viewer to make the film the way they want . This also gave me a platform/medium/ concept/idea?for the Rube Goldberg Machine. A story made out of moving images. **The Rube Goldberg machine now became a dynamic story made of moving images the outcome of which is different each time. The story of life and its many possible outcomes as chosen by the audience.**

**//Bandersnatch options for choose your adventure**

Inspired by *Adam Doughas’s- Hitchhiker's Guide to the Galaxy*  the protagonist of my story became planet Earth. The Virtual Time Machine was hence born.

The theoretical physicist *Sean Caroll* in his book *The Big Picture* deals with the biggest questions, taking in quantum theory and free will along the way. Tim Radford in the Guardian review of the book writes “Some fundamental truths don’t bear thinking about. It is a sublime accident that we are here at all. We are all prisoners of the second law of thermodynamics, on a journey towards ever greater entropy. It is just your luck and mine that part of that universal trajectory from Big Bang to ultimate and inescapable cold and darkness includes an episode in which a little of the inexorable increase in disorder is here and there temporarily reversed, and sustained complexity – the sun, planets, you, me, trees and your friendly neighbourhood cosmic physicist – becomes possible.”

He also writes “....There may be no purpose or direction but once the universe is there, things happen. Just as water can undergo phase transition from vapour to fluid to ice, so the cosmos can go from matter and energy to stars and planets and then from microbial slime to multicellular organisms to consciousness, the origin of language, the invention of machinery and of course to devising theories about the purpose of life.” So what if conditions on earth were not suitable for the microbial slime to become multicellular organisms? Would we have reached the concept of consciousness? Or in fact would we have even existed? That's what The Virtual Time Machine explores.

**The dynamic non linear story now became the story of planet Earth the evolution of which is different each time.** **The story of the Earth and its many possible outcomes as chosen by the audience as they jump through time in the evolutionary timeline of the earth.**

The video game *Universe Sandbox*  explores the concept of creating one's own solar system and galaxies, simulating gravity, collision, and material interactions to reveal the beauty of our universe and the fragility of our planet. This gave me a chance to research and understand the evolution of the planet and its dependencies on the various aspects of physics, chemistry and biology to be able to build a story which is fictional but can very well have happened in another parallel universe.

// Universe Sandbox

With the recent outbreak of Coronavirus, social media has evolved to occupy a primary part of our lives. It is through the windows of these social media that we keep ourselves updated with the necessary social distancing movement. This made me wonder what Earth’s social media profile might look like if it was personified. The story of the evolution of planet earth as seen on a social media feed.

Dreams of Dali created by Goodby Silverstein & Partners (GS&P) in partnership with The Dali Museum as part of the exhibition *Disney and Dali: Architects of the Imagination* and Datum Explorer’s interpretation of converting UK’s woodland into digital installation gave context to what the visual context and style of the story might look like. It also made The Virtual Time Machine a VR experience. The experience of jumping through various environments in time and altering future of the planet.

//Image Dreams of dali

//Image Datum

**CHAPTER 3**

EXPERIENCE SUMMARY/THESIS STATEMENT

The Virtual Time Machine is a dynamic, non-linear story about the evolution of planet Earth, the path of which is different each time - the story of the Earth and its many outcomes as chosen by the audience as they jump through time in the evolutionary timeline of the planet. The story is narrated through a social media feed /timeline like that of Instagram where the planet is personified to have a profile where she is recording all the milestones of her evolution in the form of images which translate into various environments as seen in VR. The audience play God and take decisions for the planet which results in the planet taking a new route through its evolutionary process each time.

**CHAPTER 5**

PROJECT PROCESS/METHODOLOGIES

5.1 Concept and Feature Identification

After evolving from the words energy, butterfly effect, rube goldberg machines and unreliable narrator, the project finally revolved around the concept of establishing a relationship between life as an unreliable narrator and butterfly effect.

Features for the experience included :

1. Non linear, dynamic story which does not have a curated direction, and can be started from anywhere and ended anywhere.
2. A Virtual reality system which is able to transport the audience from one environement to another.
3. User Interface which gives the audience flexibility to curate their own story and be able to take decisions by interacting with it.
4. Narration which aids storytelling and background sound to enhance the experience.

5.2 Style of Storytelling

As the story had to be dynamic and non-linear, there was a need to explore other forms of narrative. The Branching tree structure form of narrative fit perfectly. The branching tree structure is said to be derived from a more historic context within the subjects of biology and natural history. For example, the pedigree and human family tree are examples of branching tree form of narrative. The open ended structures have been explored a lot in the literary context, however not so much in the artistic practice until the advent of computer technologies, where hyperlinks could be easily used to create this structure. The reason why the open ended structure have not been successful was due to the fact that any meaningful organisation and creation of a true branching system was laborious and voluminous. However the system where the branch need not spawn new branches but could loop or be a dead end or return the audience to the previous point have been more commonly used and worked.

The story for the experience, had to be flexible enough to start at any point and yet be comprehensible. At the same time, it had to branch out to spawn out new storylines. In order to keep it contained, some storylines could connect back to another storyline or just simply end.

//Image Branching Narrative

5.3 Sample Story of Hansel and Gretel

In order to understand the flow of the narrative, I took a simple linear story that was already written and converted this into a dynamic , branching structure narrative. The story I picked was Hansel and Gretel. The linear story of Hansel and Gretel was twisted and turned to bring multiple fictional storylines. Certain plot points were selected where the decision can be given and from where the story could fork out into different storylines based on the choice of the audience.

For example, what if Hansel and Gretel had actually not found their way back and were lost in the forest forever. Or if the children had escaped the witch’s house on the first night?

Choose your own ending to Hansel and Gretel.

// Image Hansel and Gretel Flow(User Flow)

5.4 Story and Script : Noor

After having gotten a sense of how to write the story, I started brainstorming for what story I want to tell. The brainstorming for the story started with a typical concept of using a human protagonist. The story started with picking a character and then building characters around this main character. The plot point milestones were then decided and the various characters were placed in the various plot points where decisions had to be taken. The multiple storylines were given different emotions so that each and every person gets a chance to take a trip through different emotions through the story and be able to connect differently to the protagonist.

The story is about a 16 year old girl named Noor and what happens through her life. The story begins on her 16th birthday when she makes her instagram account. The audience gets to travel with her through her life's journey and take decisions for her. Should she get on that bus or not. Should she move to Berkley or stay in New York. The audience gets to decide how Noor’s life looks in the present. Toying with her instagram profile due to which every change that the audience makes reflects in her living a different life in the present. The story consisted of three basic storylines of how her life could have turned out differently and multiple subplots leading to abrupt endings.

A human as a protagonist created an already existing connection with the audience as they would be able to place themselves in her shoes during certain situations due to their past experiences and memories.

However there were a few things that were not compelling enough. What was the motivation for the audience to alter a random fictional girl's life? What were they taking away from this experience?

I didn't have the answers to these questions and hence came to a realization that this story was not convincing enough.

//Image Brainstrom of Story

5.5 Story of Earth

This led to the birth of Planet Earth as the protagonist. The idea was to personify the planet earth and give the planet a social media profile which acts as the medium of interaction with the experience. The narrative is the story of the evolution of the panet earth and how the audience can alter the evolution of the earth to generate whole new realities or a whole new present. With the increase in socio- environmental issues causing much harm to the planet earth and depleting its natural resources its time to take a step back and look at our actions. This story will give us a chance to envision a completely different perspective of how evolution of earth would have been if different decisions had been taken.

The story starts 13.8 million years ago when the universe started expanding resulting in the Big Bang and the beginning of everything. There are multiple story lines illustrating various hypothetical scenarios of the various evolutionary paths that Earth could have taken if the ideal case did not exist. Its a take on what the parallel universe might look like.

In Erwin Schrödinger’s experiment, it is believed that as long as there is no observer, the state of the cat is both alive and dead as there is no way of knowing what's happening inside a sealed box. Hence at this point one has to consider an equal probability of all possibilities. But the minute an observer is put in this scenario, the exact state of the cat is revealed and all other possibilities are proved wrong. According to some scientists who believe in the concept of parallel universe, claim that all possibilities are executed in parallel universes. However we are able to only witness one of the possibilities as we have access only to one reality. But what if we can sneak peek into all the other parallel universes?

The Virtual Time Machine does exactly this. It gives us an opportunity to take a peek into another parallel universe where the other possibility takes place.

5.6 Final Story

// Image of brainstorming.

//Image of digitized story

5.7 Technical Requirements

In order to build an immersive experience, it was necessary to break out of the two dimensional space and move into the three dimensional space and hence Virtual Reality was the best way to go about it. I chose to use the oculus quest paired with the development app of Unity3D. Unity software, gave affordance to easy development and quick testing.

I was able to quickly build various environments and then link them such that they are all accessible by a UI using the Oculus Quest controllers. The environments were built on the built in render pipeline of Unity.

//Documentation of Unity

5.8 User Journey

The user journey starts with the user first wearing the headset after which the experience starts with a short introduction to set some context after which the user can start choosing the environments that he wishes to explore and then start changing the future and fate of the planet.

There are mainly 3 ways in which the user can end the experience.

1. When the story abruptly ends due to the storyline of Earth coming to an end
2. When the user finally reaches the present.
3. When the user voluntarily ends the experience.

//User Journey

5.9 Documentation during the making

//Images

//Documentation Video

5.10 The Experience - What is the Virtual Time Machine?

// Trailer Video

//Experience video

**CHAPTER 6**

TECHNICAL ISSUES/LIMITATIONS

**CHAPTER 7**

FUTURE SCOPE OF THE PROJECT

//Instagram

**CHAPTER 8**

CONCLUSION

**CHAPTER 9**

REFERENCE

ANNEX A : Defining the terms used in the sample collection

ANNEX B : Photographs

ANNEX C :