

DEGREE PROJECT
BEYOND: EXPLORING SCI-FI

Submitted in partial fulfilment of the requirements of the degree of

Master of Design, Animation

By

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Guide:
Prof. Sumant Rao



Animation Design
Industrial Design Centre

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY
2015-2017

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INTRODUCTION

"Somewhere, something incredible is waiting to be known."

Carl Sagan

The concept of "Wow!" signals has been intriguing to the science world since its discovery in 1977. The only possible explanation that has not been ruled out for the strange phenomena are unexplained causes which also includes acts of extra-terrestrial intelligence.

With this idea in mind, the story was developed and the film was made. The final product of a short film goes through various steps from the first idea to the final animation. This report lines up the process that went in, the problems that were encountered and the output that was achieved through months of preparation and refining.

DATA COLLECTION

The initial stages of the Project involved a lot of data collection from articles, news, books and research works. Many elements of Sci-fi were considered during this stage.

Online articles that explained many new inventions, discoveries were closely looked upon.

Fundamental concepts of sci-fi and space travel were looked upon. Books by Dr. Michio Kaku, Albert Einstein, Dr. Stephen Hawking etc. paved way for my inspiration behind the space and the cosmos. Speeches by Carl Sagan inspired me to look the cosmos in a whole new way.

WHAT TO INCLUDE?

While thinking of various ideas for the movie, I was keen on working on two main concepts as part of science fiction elements.

Space and Journey got hold of my thoughts. The vast space will be the setting. Anything related to Space is magical and mysterious.

A journey through space will be much more fascinating as it can make viewers wonder upon the beautiful sights and vastness of the cosmos.

I had limited my research works to Space and Journey after the initial data collection phase. This is when the concept of Wow! Signals kicked in and my thoughts went in that direction.

Then my focus turned to developing a story that has a possible explanation of the "Wow!" signals and that includes a space travel and civilizations beyond humans as well.

MINDMAP

Mindmaps were created during the data collection stage in order to get ideas about what to focus and what to avoid. Many basic science fiction ideas popped into the mind during those phases and mindmap helped to organise and connect the dots.

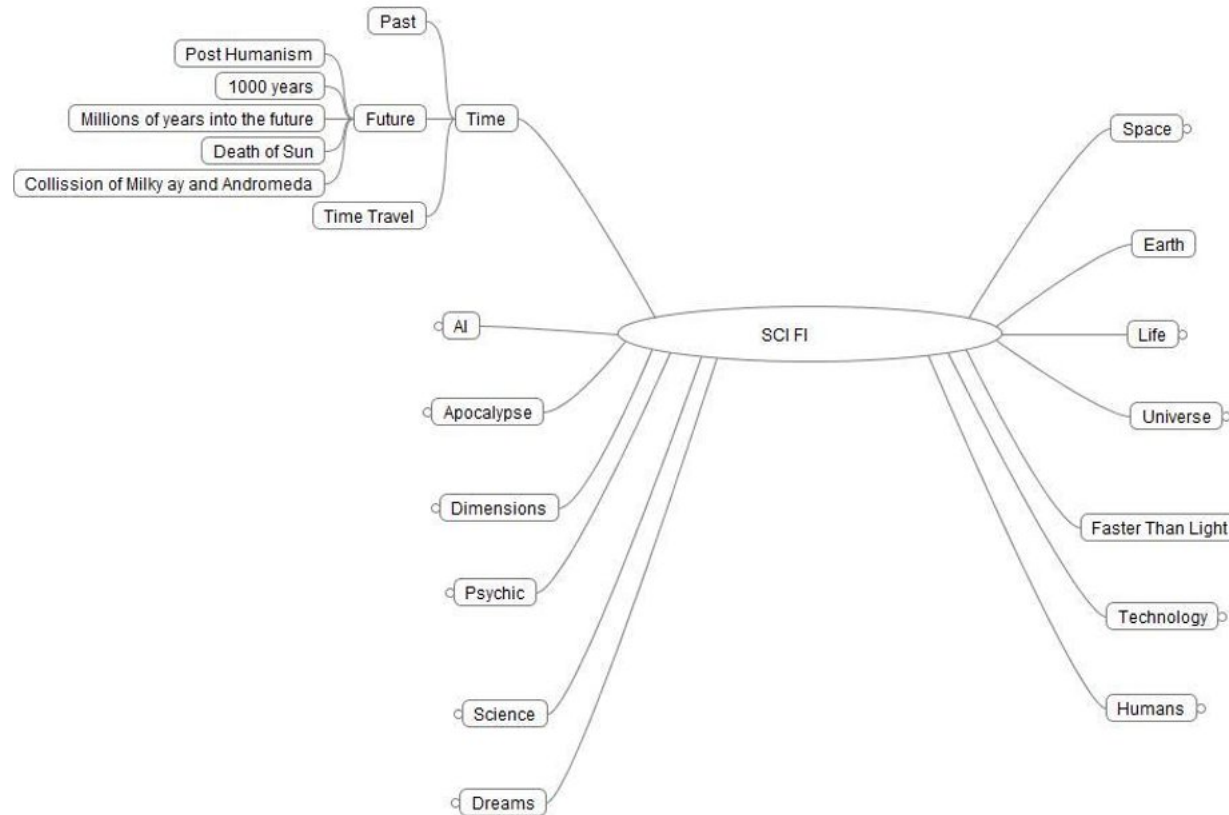
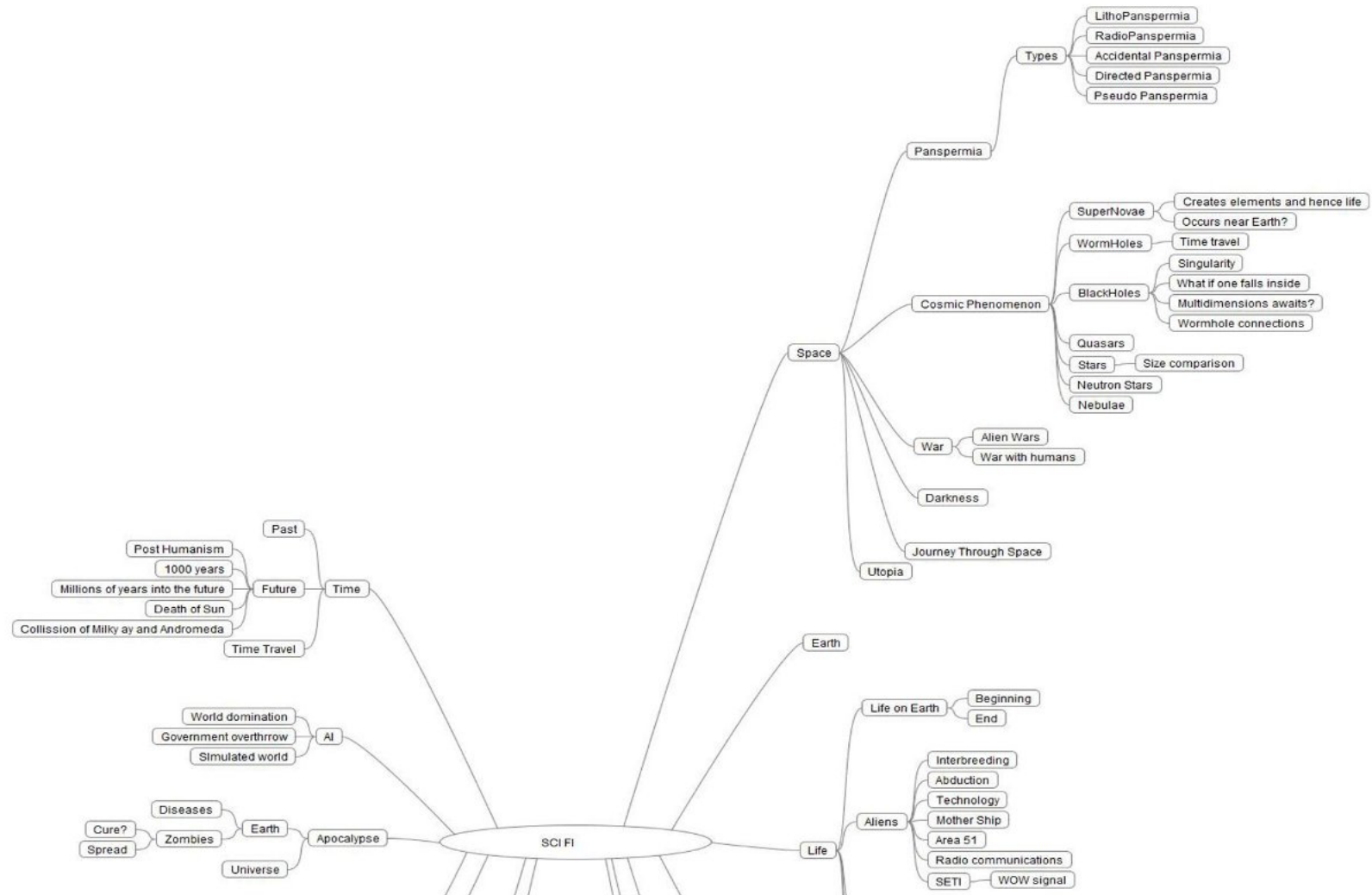


Figure 1: Mindmap in compressed form

DETAILED MIND MAP



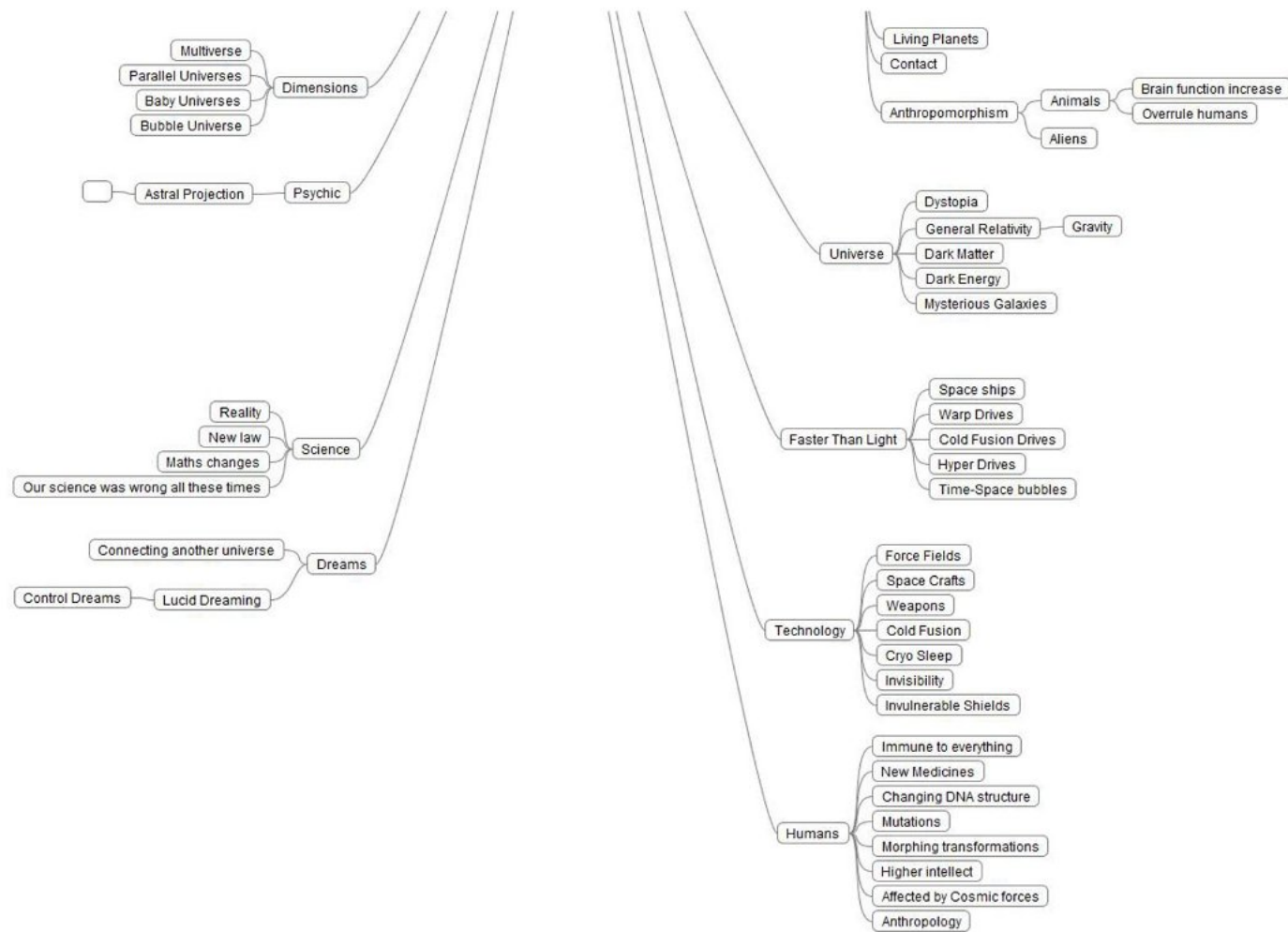


Figure 2 MindMap - Full

SECONDARY RESEARCH

Gathering knowledge from the secondary research was very important for my topic as the field of science is ever growing and every day one new discovery or invention is made.

Being up to date with the happenings worldwide, on research works based on science and cosmos was helping me to gather points that could potentially have a story idea behind them.

The following main interest areas were researched upon while doing the data fetching:

- Civilizations beyond
- Outside the known universe
- Ingredients of life on a comet
- Solution to Black hole information paradox
- 93% extinction
- Alien Megastructures
- Parallel Universe
- Panspermia
- Inside a black hole
- Origin of the "Three-dimensional Universe"
- Space Myths
- WOW Signals

All the information gathered were based on actual facts, and hence bringing the sci-fi element into it was exciting and confusing at the same time.

SECONDARY RESEARCH - SHORT FILMS

Many short films based on science fiction elements were viewed as part of the secondary research. Some of them are given below:

1. LONE



The movie revolves around the story of an astronaut who embarks on a painstaking journey to find life on another planet.

(courtesy: <https://www.youtube.com/watch?v=T2tkpN719GI>)

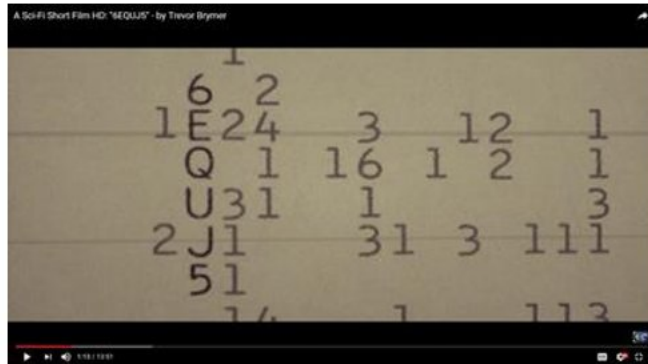
2. The Guardian's Tale



The Guardian's Tale is a CG animated short film loosely based on a Celtic folktale with a sci-fi twist. Featuring a mix of CG animation and lush painted illustrations, The Guardian's Tale is a story of how looks can be deceiving.

(courtesy: <https://www.youtube.com/watch?v=BMd3BxzfmxA>)

3. 6EQUJ5



The story of a couple who tries to find the secret of the WOW signal through the events of unforeseen pain, fears and sufferings.

(courtesy: <https://www.youtube.com/watch?v=FH2t9gI0YUA>)

4. Space Alone



The short Flash animated film is based on the human behaviour of finding friends.

Everyone is looking for a friend. Even in space...

(courtesy: https://www.youtube.com/watch?v=ASrRZ_XMR6s)

5. Goliath



A 2007 short film about a brave woman who attacks a machine and saves her land.

(courtesy:<https://www.youtube.com/watch?v=TPwpOTWKjjA>)

6. AdAstra



Every journey starts with a singular dream. A dream of an astronaut.

(courtesy:<https://www.youtube.com/watch?v=8GL1uCjLZ9k>)

SECONDARY RESEARCH - MOVIES

The inspiration for the short film needed more data collection. The movies and books that I referred came to be handy in developing story concepts.

Some of the movies that I saw as part of the research.

- Domsday Prophecy
- Interstellar
- 2001: A Space Odyssey
- Contact
- Close Encounters of the Third Kind
- Ex-Machina
- Jurassic Park series
- Knowing
- Deep Impact
- Armageddon
- Martian
- The Fifth Element
- The Hitchhiker's Guide to the Galaxy
- Limitless
- Looper
- In Time
- Planet of the Apes series
- Elysium
- Dredd
- Terminator series
- I Robot
- Star Wars series
- Star Trek series
- Independence Day
- War of the Worlds
- Horizon
- Primer
- Predestination
- Back to the Future
- Aliens
- Alien vs Predator
- The Island
- Inception
- Prometheus
- The Matrix series
- Butterfly effect
- Hot Tub Time Machine
- Jupiter Ascending
- Pacific Rim
- The Man from Earth

SECONDARY RESEARCH - BOOKS

Many books by famous writers in scientific fields gave me the inspiration behind the concept of "Cosmos and its vastness".

Out of them, Dr. Michio Kaku, Dr. Stephen Hawking, Dr. Richard Feynmann etc were the most influential.

Some of the books that caught my attention:

- | | | |
|-----|--|----------------------|
| 1. | A Brief History of Time | : Stephen Hawking |
| 2. | Physics of the Impossible | : Michio Kaku |
| 3. | Einstein's Cosmos | : Michio Kaku |
| 4. | Parallel Worlds | : Michio Kaku |
| 5. | You are Here | : Christopher Potter |
| 6. | Hyperspace | : Michio Kaku |
| 7. | Beyond Einstein | : Michio Kaku |
| 8. | Relativity: The Special and the General Theory | : Albert Einstein |
| 9. | A Briefer History of Time: | : Stephen Hawking |
| 10. | The Grand Design | : Stephen Hawking |
| 11. | The Theory of Everything | : Stephen Hawking |
| 12. | Black Holes and Baby Universes | : Stephen Hawking |

ANALYSIS

The below analysis is based on my secondary research materials.

- Almost all sci-fi space movies have science and technology that haven't been developed at present. From Space ships to worm holes, all of these are beyond human reach at present. But it is those futuristic phenomena that makes the sci fi movies more interesting and worth watching, as no one know the actual truth regarding those. Space is unknown in all its glory.
- Speculative fiction includes Weird Tales, Amazing Stories, and Fantastic Fiction.
- Science Fiction explores potential consequences of scientific technology, innovations, etc.
- Somewhat related to science, but recently completely farfetched as well.
- Conventions of Sci-fi movie:
 - Narrative elements: preferably good vs evil or journey, Application of a new technology, new scientific principles, galactic political systems
 - Symbolism: Futuristic props, costumes etc that represent scientific advancement at that time of the setting
 - Setting: different place in space or time or alternate universes or within earth itself.
 - Imagery: Mostly unfamiliar to the common public, Helps in breaking the chain.
- Imagery: Science fiction films make the people believe what they are viewing through their wonderfully crafted imagery. Eg: *2001 Space Odyssey*, *Interstellar*, *Contact* etc.
- Realistic - Even though creators try to make the movies as close to reality as they can, most of the sci-fi that takes place outside the planet requires stretched ideas to make it fruitful, like FTL speeds, time travel, dimensional journeys etc.
- Effects on real world:
 - Most of the sci-fi movies have triggered the creation of props and equipment, which otherwise would not have been thought of, like the Light Saber, HyperDrive, force fields, moving elevators, teleconferencing, mobile phones etc.
- Sci-fi can be categorised as Escapism(just like daydreaming into another world), Social commentary and Hard science. (Refer:<http://blog.smartbear.com/geek/a-warp-speed-analysis-on-the-influence-of-science-fiction/>)
 - Escapism is removed enough from reality, keeps us immersed. You get to learn something or the other.
 - Hard Science: the tools that haven't been invented yet make the sci fi more interesting and easy.
 - Social Commentary: Sci fi can be a manifestation of our wildest dreams or our deepest fears.

PRE-PRODUCTION : STORY CONCEPTS

Based on the research work done and the analysis made, I landed upon a few Story concepts.

- 1.) Panspermia: Humans are aliens, and they landed in space ship after destruction of their home planet
- 2.) Finding life – Journey
- 3.) Ancient Astronauts -
- 4.) Dreams – How they connect to another universe
- 5.) How small human thoughts and actions are à zoom out to the space, from actions of humans like war and stuff.
- 6.) Search for life outside, visuals from earth, spaceship
- 7.) Dream of a boy to become astronaut: becomes: life flashes before him for his journey – reaches faraway place, a new planet
- 8.) SETI – Wow! signals
- 9.) Earth shielded by alien force field, so can't see beyond solar system for life.
- 10.) Life on Mars, ended due to over utilization. Martians among us.
- 11.) Cosmic book falls from the sky, greedy man finds it and uses it to transport to Diamond planet, never to be seen again.

STORY CONCEPTS: BRIEFS

1. **Panspermia**

The whole idea revolves around the theory that life on earth started out from outer space. Asteroids are considered to be the carriers of microorganisms and elements of life.

The story concept is based on Panspermia and is about how human life originated from outside Earth, by an asteroid which collided with the planet a long time ago.

2. **Finding Life - Journey**

This concept is loosely based on a hypothetical trip to the outer solar system in search for the origin of life. After receiving certain clues from earth, the scientists decide to embark on a possibly one way voyage to the deep space to figure out how life came into being and where it originated.

3. **Ancient Astronauts**

This is an existing concept that states that humans had the chance to interact and mingle with visitors from outer space in the past, so that they obtained knowledge and wisdom from them which helped them build marvels of engineering in the past like the Pyramids, Great wall, Stonehenge, Nazca lines etc.

4. **Dreams**

The concept is about how dreams can be windows to other worlds and whatever we dream about are actual happenings in a parallel universe.

5. **Human Thoughts and Cosmos**

This idea is based on the famous speech on "Pale Blue Dot" by Carl Sagan and it is about how small human egos, goals, actions and victories are in the grand scale of the cosmos.

6. **Search for Life outside**

This was supposedly about a journey to space in search for intelligent life.

7. **Boy's dream**

The dream of a boy who views the stars lying on the ground. He becomes an astronaut and embarks on a voyage to find life on another planet. He reaches there and is feeling lonely. He looks upon the stars in search for his home planet.

8. **SETI - WOW Signals**

This concept is about the existing search for the WOW signal which was supposed to be a "created" signal from somewhere deep within the galaxy.

9. **Alien Force Field**

How earth is shielded by an alien force field so as to restrict humans from finding about them.

10. **Life on Mars**

How life on mars ended as a result of human actions and how it is going to end on earth.

11. **Cosmic Book**

This concept is about a guy who discovers a Cosmic Book which allows him to travel anywhere in Space and he uses it to travel into a forbidden planet to be trapped in there for eternity.

SELECTED STORY CONCEPT: WOW! SIGNALS

The concept of WOW! Signals was selected because the topic is relevant in the current context. Many researches are going on around the world to identify the source of the WOW! Signals and other similar signals from outer space.

The recent discovery about the arrival of strong radio signals from Star HD 164595 (around 94 light years from Earth) rose the speculations that the signals were probably created by an alien civilization far more intelligent than humans. The study is progressing in this field.

With the recent discovery of the weird behaviour of the star KIC 8462852, which dimmed by around 22 percent of its brightness, scientists have begun speculating this as a "rare" event, which cannot be explained by any natural causes, which made them think of it as an Alien intervention of some sort.

These discoveries, along with several other recent news on Cosmology inspired me to go for a topic with signals from outer space.

PRE-PRODUCTION: INITIAL CONCEPT SKETCHES

The story was to be set in space and should include a journey. So I came up with some sample sketches for space ships.

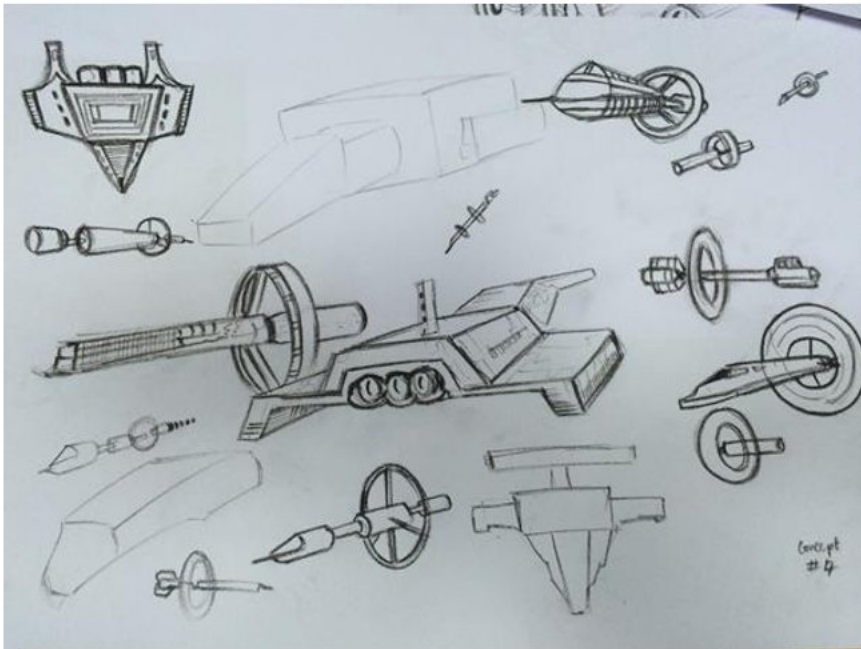


Figure 3 Rough Concept Images

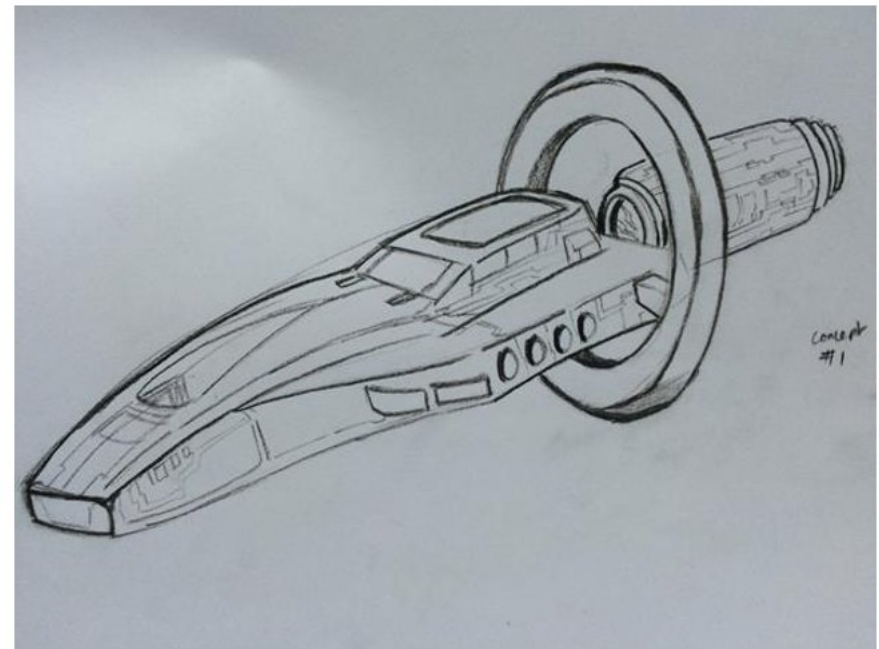


Figure 4 Rough Concept Images

PRE-PRODUCTION: VISUAL STYLE EXPLORATIONS

Below are some of the visual references that inspired me in coming up with my style.



PRE-PRODUCTION: STORIES – REJECTED

A. WOW Signal - Space Journey (Futuristic movie)

- * History of WOW Signal shown - Flashback
- * A lonely research facility in the future. One fine day
- * A lone Scientist jumps with joy after reception.
- * His son gets amazed and asks father "Have you got it?".
- * Father explains "Yes. Handshake from the other world"
- * Kid gets super excited, runs out screaming, he looks up the stars lying down, awaiting the people from far away.
- * Father tries again and again, calls people
- * Kid asks him daily "Did you get them?" (beeping fades)
- * Years passed by, kid grew up to be a scientist, took up WOW signal research (Father's photo nearby)
- * Close to finding a signal, he loses it. Nothing works and he is frustrated every time
- * He realises a pattern in the earlier signals and finds that it is from the direction of a certain planet far away.
- * Decides to set up station somewhere outside the planet sec
- * Sets on a journey in space ship (waves good bye to family)
- * Lands on a planet, sets his camp. Waits for weeks.
- * Nothing found so far.
- * Feels lonely, lies down, looks up to see stars, planet Earth.
- * Leaves the device behind, heads back
- * The signal beeps, his watch beeps. He smiles.
- * His kid is shown at the end looking up the skies, smiling when his mom shouts of joy behind.

B. The Messages (Futuristic movie) - 2

- * History of WOW Signal shown - Flashback
- * Year 2044.
- * A lonely research facility. One fine day...
- * The kid is shown viewing the skies saying "One day..." as if he were hoping for something
- * A lone Scientist jumps with joy after reception.
- * His son gets amazed and asks father "Have you got it?".
- * Father explains "Yes. Handshake from the other world. This could be our key to escaping this planet"
- * Kid gets super excited, runs towards him and watches carefully for another signal.
- * Both of them watches for a long time, but nothing happens. Father gets tired and leaves. Says we will see tomorrow.
- * Kid stays resisting to leave.
- * After some time, he sleeps there.
- * Suddenly he hears another **beep** and wakes up, checks the machine. It starts beeping again and again. He calls dad. He is not coming.
- * Kid gets curious, and touches the device, suddenly he sees the world around him changes.
- * War zone appears, kids are crying, bombs blasting, suddenly Nukes fly everywhere and blasts the world.
- * Kid cries "Daddy"
- * His dad wakes him up and wipes his tears. He hugs him and asks what happened. He explains.
- * Dad tells him it is just a dream, and checks the machine.
- * He is amazed to see the readings peaked many times over.

- * Dad gets curious, and checks the beep sounds again.
- * It doesn't sound anything, kid stares with crying eyes.
- * Suddenly it beeps. WOW signals come again and again.
- * Kid starts crying, but father is clueless.
- * He touches the kid and suddenly realises that he is inside the dream.
- * He hears voices and sounds, cries of help.
- * He sees himself with his son floating in the vastness of space time.
- * The machine keeps on beeping and data seems to be pouring out.
- * After a while, he and his son wakes up and realises it was a dream.
- * But then he sees machine filled with varying data.
- * He decodes this and receives a message saying,

"This is a message from the future. The transmission required a brain with less clouded thoughts for initiation. We have been trying to send signals for quite long to random corners of the world. The future of humankind is disastrous. Religion, Politics and War and fight for water have wiped out humanity that left a few survivors. The rest of the survivors clouded thoughts for initiation. We have been trying to send signals for quite long to random corners of the world. The future of humankind is disastrous. Religion, Politics and War and fight for water have wiped out humanity that left a few survivors.

The father looks at his son, both are stunned.

- * Father says "We have to let the world know and believe"
- * They hear huge noises and the kid runs out to check.
- * He runs outside and sees missiles coming towards his home while his father is still inside.

- The kid screams towards his home shouting "Daddy"
- * It was too late as the missile blasts his home and he is blown away to the outside.
- * BLANK SCREEN. RINGING SOUND
- * slow sounds of *BEEP BEEP*
- * The kid slowly opens his eyes to see the machine still beeping amidst the rubbles.
- * He starts to crawl towards the device.

WHY THE CHANGE – AS PER FEEDBACK?

Concept A had very little information about what the signals actually were and it was more about the unknown and it was not clear. Concept B was a lot clearer.

C) REVISED STORY

History of **WOW** Signal shown - Flashback

* Year **2044**. A lonely research facility.

One fine day...

* A kid is shown viewing the skies saying "One day..." as if he were hoping for something.

Melodious music *Introduces kid*

* He hears a loud "hurray" from the facility behind.

* He gets amazed and runs and asks, "Father have you got it?". *Introduces father*

* Father explains "Yes. Handshake from the other world"

* Kid gets super excited, runs towards him and watches carefully for another signal.

* Both of them watches for a long time, but nothing happens.

* Time passes by. Father gets tired and leaves.

* Kid stays resisting to leave.

* After some time, he sleeps there.

* Suddenly he hears another beep and wakes up, checks the machine. It starts beeping again and again. He calls dad. He doesn't show up.

* Kid gets curious, and touches the device, suddenly he sees the world around him changes.

* War zone appears, kids are crying, bombs blasting, suddenly Nukes fly everywhere and blasts the world.

* Kid cries "Daddy"

* His father woke him up. He hugs him and asks what happened. He explains.

* Dad tells him it is just a dream, and checks the machine.

* He is amazed to see the readings peaked many times over.
* Dad gets curious, and checks the beep sounds again.
* It doesn't sound anything, kid stares with crying eyes.

* **Suddenly it beeps.**

* The signals come again and again.

* Kid starts crying, but father is clueless.

* He touches the kid and suddenly realises that he is inside the dream.

* He hears voices and sounds, cries of help.

* He sees himself with his son floating in the vastness of space time.

* They hear these voices:

"If you can hear this, you could change the future of mankind. This is a message from your future timeline. We have been trying to send signals for quite long to random corners of the planet earth. The future of humankind is disastrous. Religion, Politics and War and fight for water have wiped out humanity that left a few survivors like us. We were saved by an advanced civilization who are the "Saviours" from a Planet 95 light years away. They have solution for all human problems. Follow the coordinates that we sent, seek them and change your future. We hope it is not too late"

And then.

* The father looks at his son, both are stunned.

* Father says "We have to let the world know and believe"

* Suddenly, they hear huge noises and the kid runs out to check.

* He runs outside and sees missiles coming towards his home while his father is still inside.

* The kid screams towards his home shouting "Daddy"

BOOM!

* It was too late as the missile blasts his home and he is blown away to the outside.

****BLANK SCREEN. RINGING SOUND****

* Slow sounds of *BEEP BEEP*

* The kid slowly opens his eyes to see the machine still beeping amidst the rubbles.

* *He starts to crawl towards the device.*

Moral: Hope remains within the young generation.

ISSUE FOUND:

Less Character involvement. Need more set up and establishment.
Viewers unclear about the history of WOW Signals.

PRE-PRODUCTION: FINAL STORY

THE SIGNALS

INTRODUCTION

"Somewhere, something is waiting to be known" – Carl Sagan

CHARACTER INTRODUCTION

Kid and father's photos together with dialogues (Dialogues happen over montages of different photos)

Jay: "Did you get it, dad"

Dad: Not yet Jay, But it might be here anytime soon.

Jay: Are you sure they will contact us?

Dad: I sure hope they will. The universe is vast.

Jay: What if they don't?

Dad explains about SETI and WOW signals from 1977.

Jay: Wow. I want to listen to them too.

Dad: Sure son. One day they might contact you.

Transition to Elder Jay, waiting for the signals to arrive.

He suddenly hears a beep coming and is tensed. He tunes the receivers in awe and is anxious to know what is happening. As he waits, the signal gets lost and Jay is angry

and throws away his head set.

NARRATION of the energy crisis of the world by the news anchor. Jay is sleeping in front of his monitor screen, when a message arrives. The message read that the Observatory should be closed down immediately because of the upcoming war and since it is a potential target.

Jay is devastated and thinks about his past, when his father was left out by the scientific community for claiming that he has seen the aliens. He entrusted the job of finding the alien signals to Jay as he was the only one who trusted him.

Jay suddenly wakes up after hearing a noise. He soon realised that this was a possible signal. He starts to tune up the receivers and upon tuning one receiver, he gets electrocuted.

His vision goes blank.

Eyes open

Jay is now travelling through the vastness of space, with clouds of nebulae around him. He is stunned. He sees an asteroid coming towards him. He lands on the same.

Jay is shocked and have no idea of what to do next. He sees something far ahead and walks towards it.

He realises that it is a cube like device.

Jay touches it and suddenly a Vision appears.

The vision has images of earth, several ancient civilizations, Steam engines, oil fields and many other images that showcases human civilization.

Suddenly, Jay hears a voice.

"Welcome human"

Jay is stunned as he is hearing voices in his head.

The voices says that they are a group of aliens called Saviours, and they were on planet earth long back. Once they left Earth, thinking that the planet was self sufficient, the humans started ruining the planet for resources and energy. The state is so dire that the imminent war will destroy the planet once and for all.

The alien voice says that the only cure for the planet's survival is the "Energy Cube" which will get activated when it comes in contact with Earth's Sun.

The alien appears before him finally and says "We hope it is not too late".

Vision disappears and the cube floats up to him.

The moment he touches it, he is taken through a wormhole and lands back.

Where he is lying under a rubble of electronic mess, when feet

of others are shown trying to help him saying "Let's get him to hospital". blinking beeps and sounds.

Tunes all the antenna receivers and dishes.

While dragging, He is saying "There is a war coming".

Other voice "Enough listening to space signals:"

Camera focusses on the rubbles. The device is shown.

CREDITS.

He is shown in hospital bed, listening to news.

"Fight for energy crucial. Extreme tensions rising between nations. War is imminent"

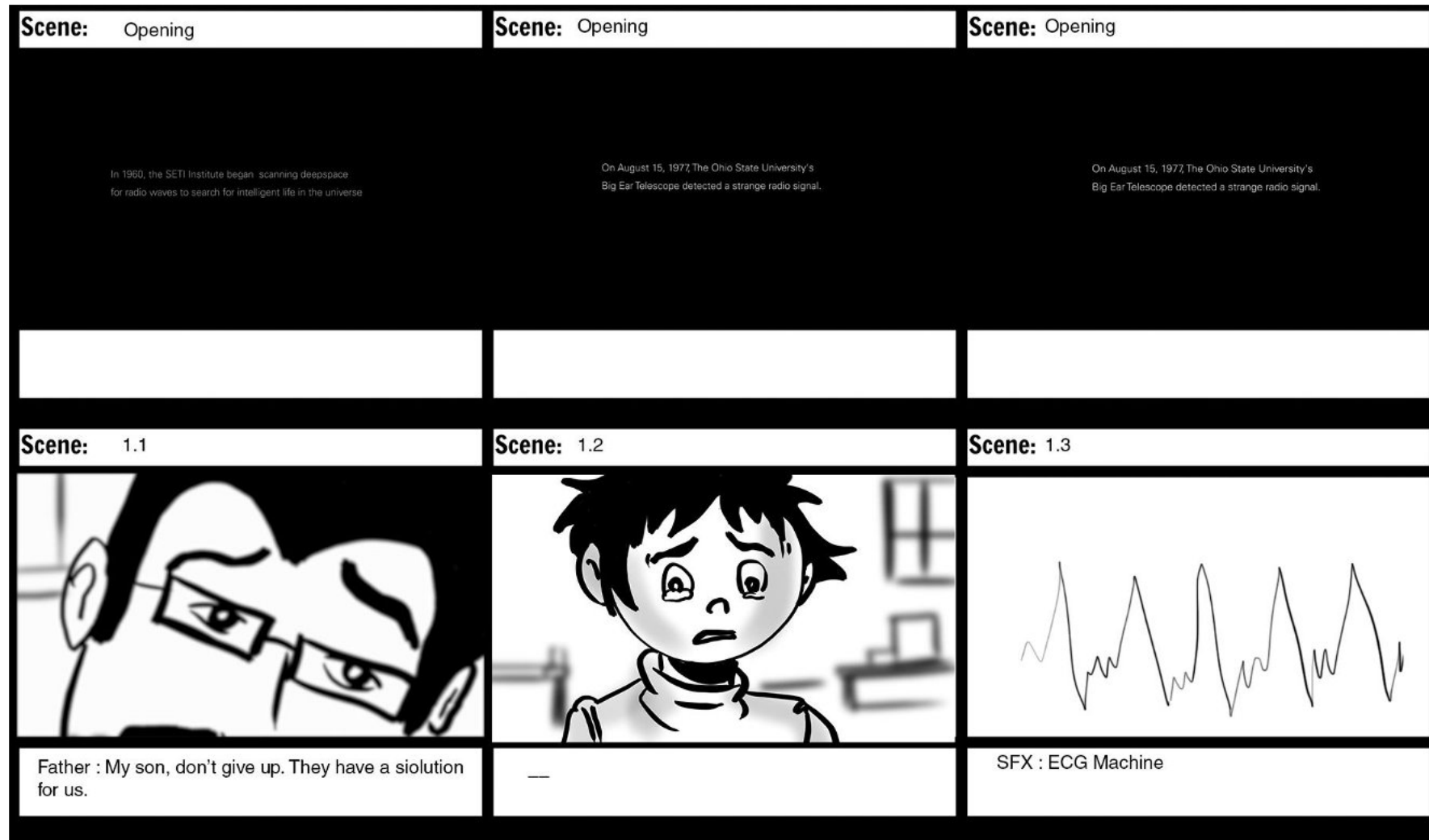
His eyes – Zooms in.

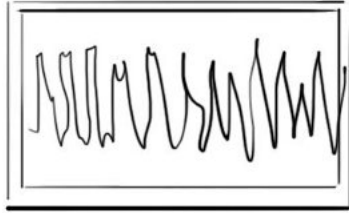
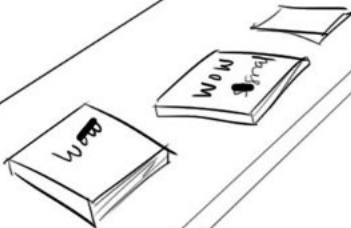


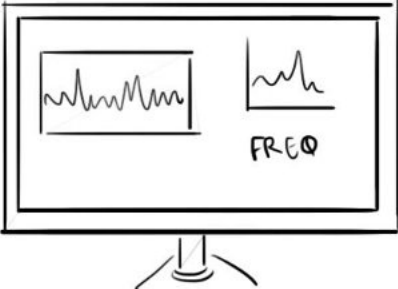

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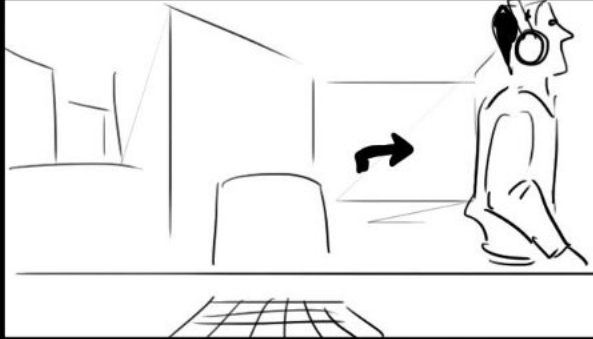
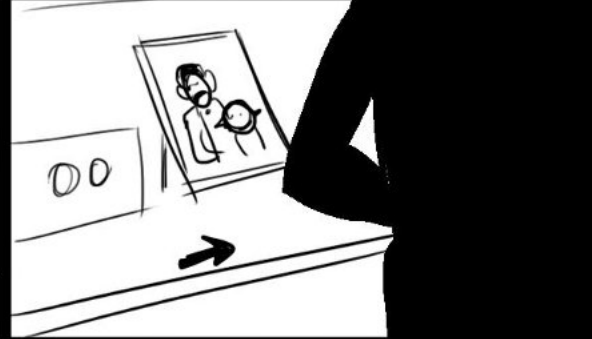



The observatory is shown CLOSED. The interior shows the beeping device lying behind the rubbles of machine parts.



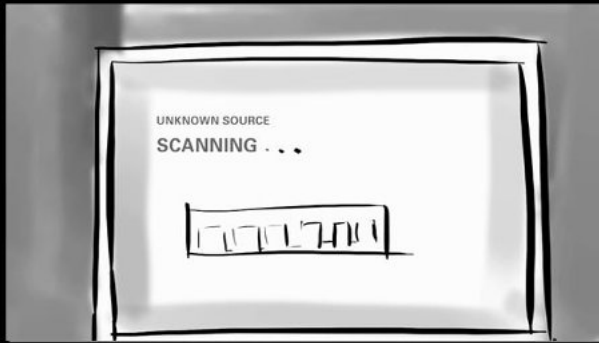
PRE-PRODUCTION: STORYBOARDS:




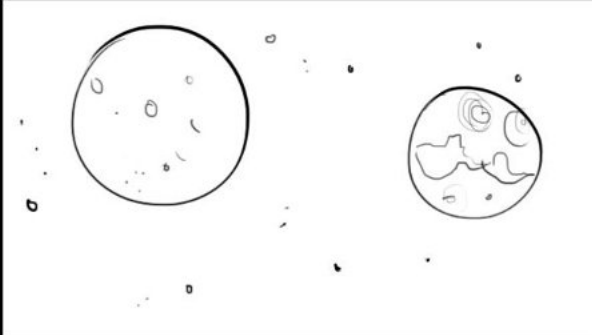
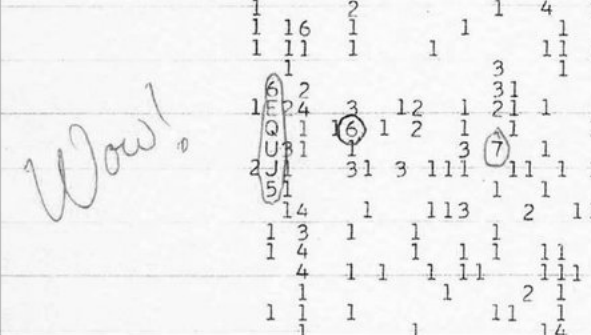

Different versions of storyboards were made, before coming up with the finalised version given below:





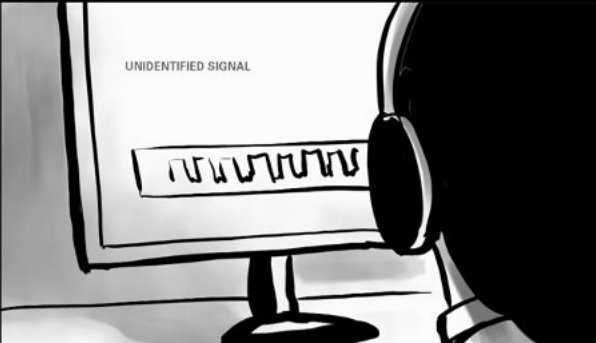



Scene: 2.1	Scene: 2.2	Scene: 2.3
		
<p>SFX: Beep Monitor screen</p>	<p>PAN SHOT</p>	<p>PAN SHOT TO Jay's hand SFX: Tapping fingers.</p>
Scene: 2.4	Scene: 2.5	Scene: 2.6
		
<p>MID SHOT: Jay</p>	<p>Monitor: CLOSE UP SFX: Beeps</p>	<p>JAY: Slowly dozes off to sleep SFX: Computer beep</p>







<p>Scene: 2.7</p>  <p>Jay wakes up</p>	<p>Scene: 2.8</p>  <p>Walks away for coffee SFX: Computer beeps , coffee pouring</p>	<p>Scene: 2.9</p>  <p>Jay walks past the photo</p>
<p>Scene: 2.10</p> 	<p>Scene: 2.11</p>  <p>SFX: Monitor beep</p>	<p>Scene: 2.12</p> 







<p>Scene: 2.13</p> 	<p>Scene: 2.13</p>  <p>SFX: Changed Beep</p>	<p>Scene: 2.14</p> 
<p>Scene:</p> <p>A few years ago</p>	<p>Scene: 3.1</p>  <p>Jay: Did you get it, dad?</p>	<p>Scene: 3.2</p>  <p>Dad: Not yet Jay. But we are close.</p>


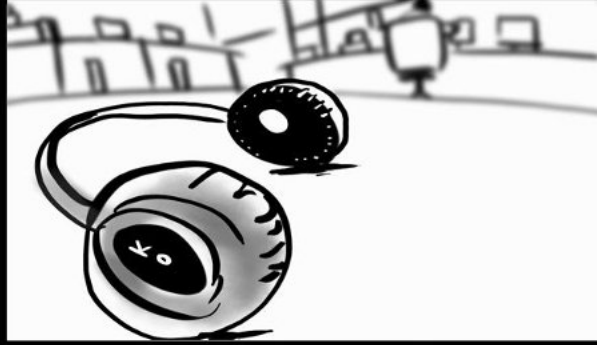




<p>Scene: 4.1</p>  <p>Jay: Are you sure they will contact us? Dad: I sure hope they will.</p>	<p>Scene: 4.2</p>  <p>Dad: The universe is vast.</p>	<p>Scene: 5.1</p>  <p>Jay: What if they don't?</p>
<p>Scene: 6.1</p>  <p>ZOOM IN SHOT - To Earth. Dad: Long ago, someone contacted us, Jay.</p>	<p>Scene: 6.2</p>  <p>Dad: We received a really strange signal then. We call it the WOW! Signals.</p>	<p>Scene: 7.1</p>  <p>Dad: No one knows who sent them.</p>

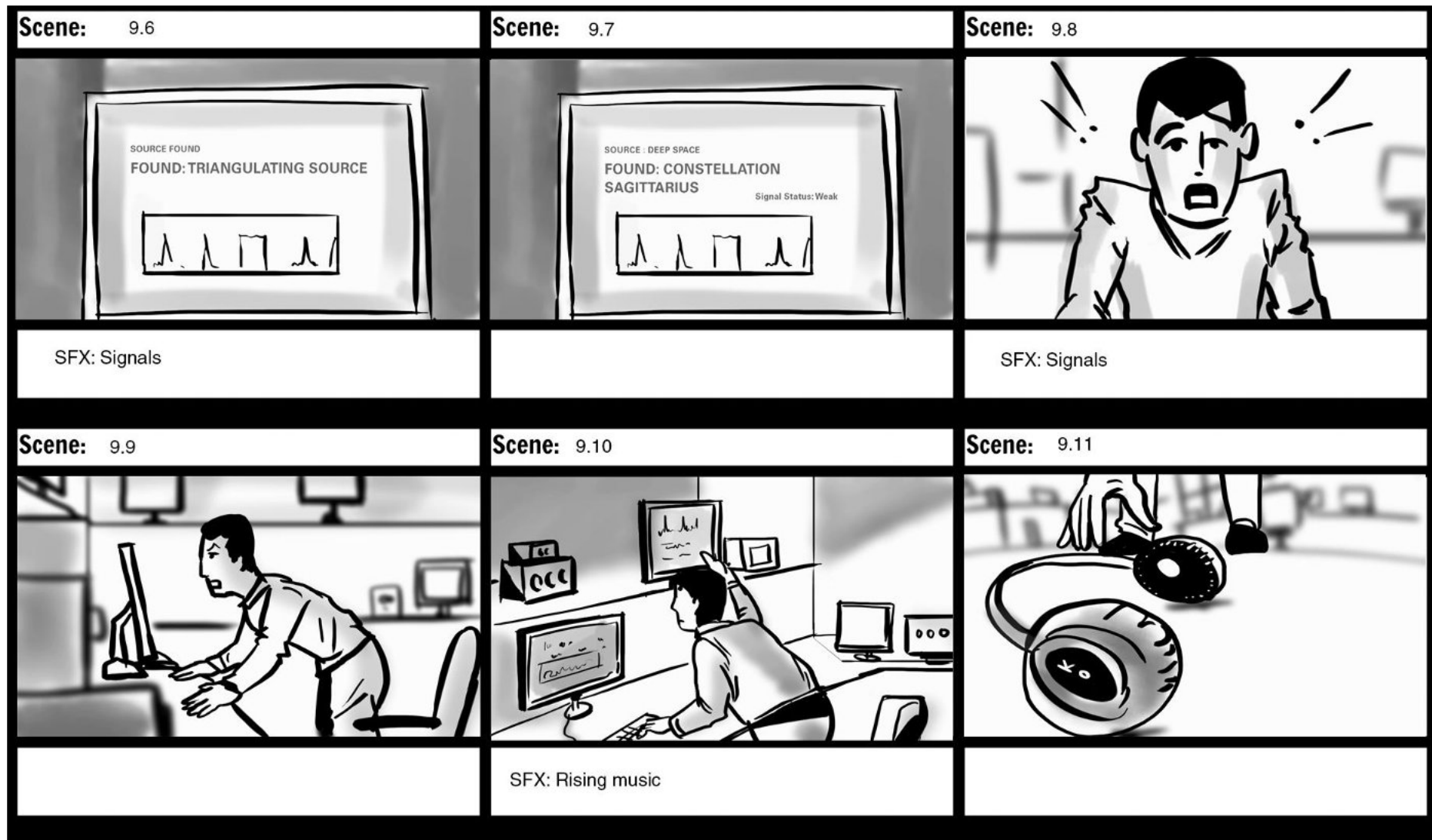
<p>Scene: 7.2</p>  <p>Jay: WOW! I want to hear it too dad.</p>	<p>Scene: 7.3</p>  <p>Dad: It is not easy. But one day, they might contact you.</p>	<p>Scene: 7.4</p>  <p>SFX: Signals</p>
<p>Scene: 7.5</p>  <p>SFX: Signals.</p>	<p>Scene: 7.6</p> 	<p>Scene: 7.7</p> 

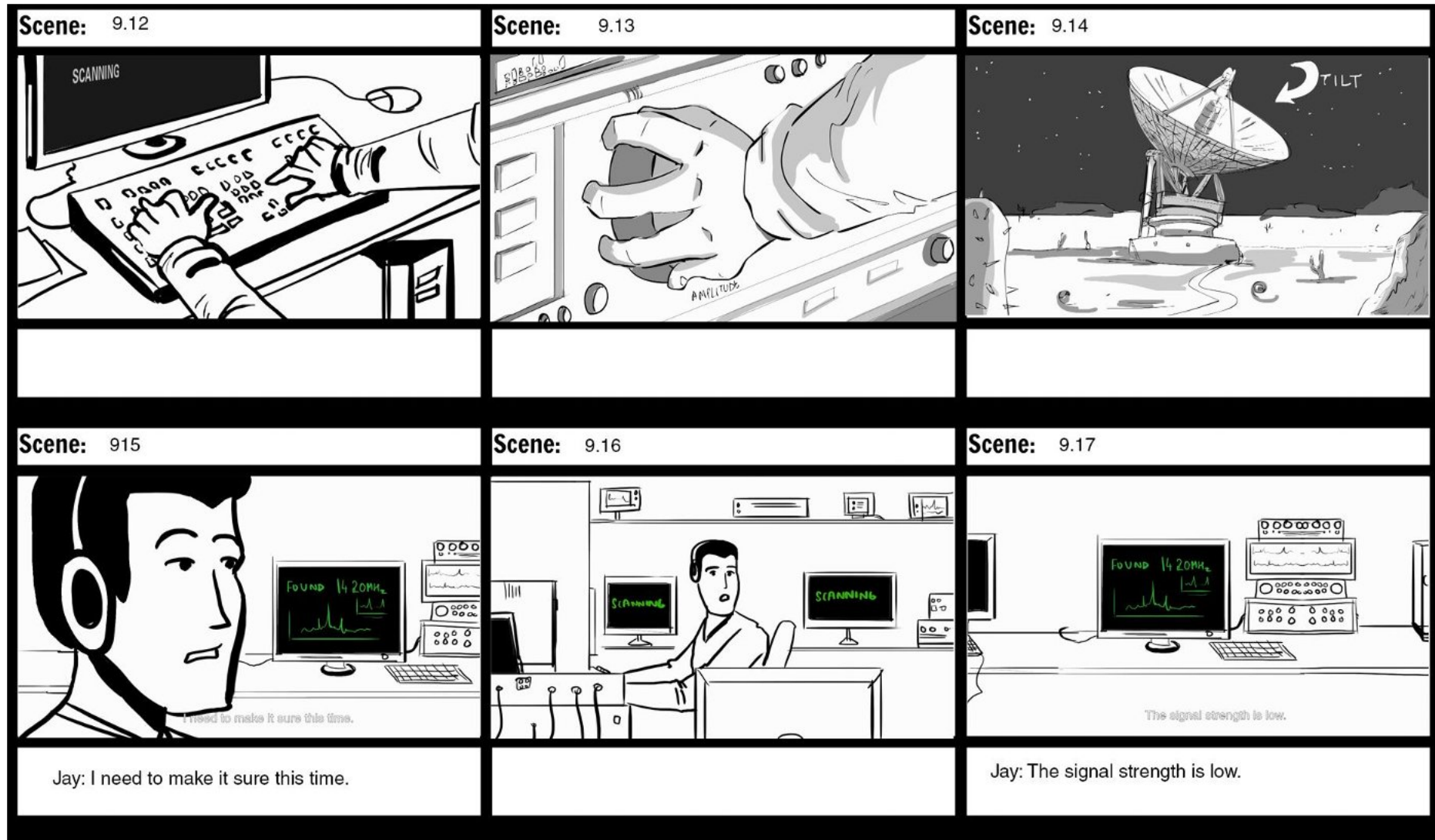
<p>Scene: 7.8</p>  <p>SFX: Signals</p>	<p>Scene: 7.9</p>  <p>CLOSE UP - Jay SFX: Signals</p>	<p>Scene: 7.10</p> 
<p>Scene: 7.11</p>  <p>EXTRA CLOSE UP</p>	<p>Scene: 7.12</p>  <p>SFX: Signal lost, changes sound</p>	<p>Scene: 7.13</p>  <p>Jay: Damn, so close.</p>

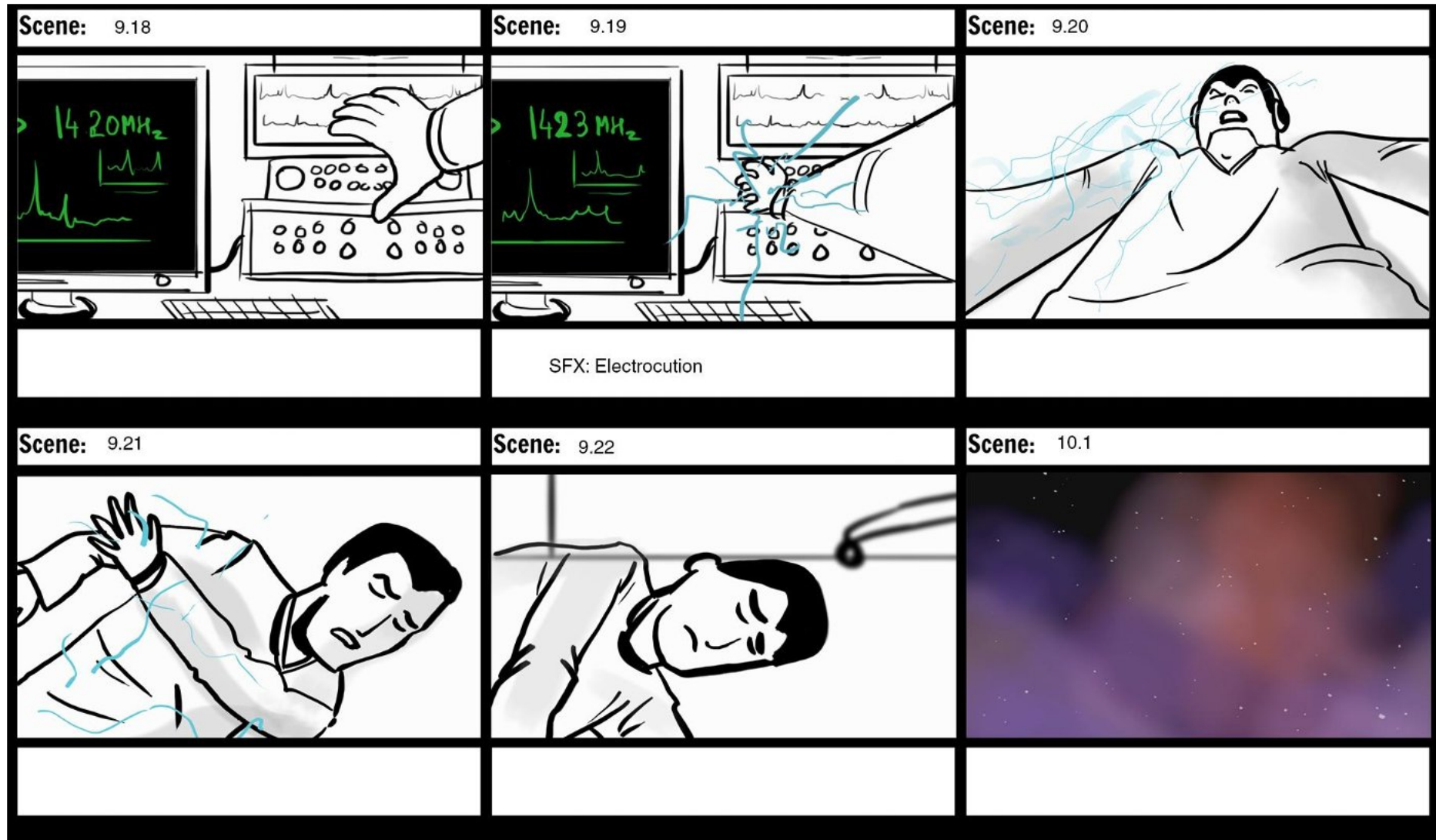
<p>Scene: 7.14</p>  <p>Jay: All these years and still nothing convincing.</p>	<p>Scene: 7.15</p>  <p>Fades out.</p>	<p>Scene: 8.1</p>  <p>News: The ongoing energy crisis has resulted in the new age war.</p>
<p>Scene: 8.2</p>  <p>News: Forces are mobilising in every major nation.</p>	<p>Scene: 8.3</p>  <p>News: The government has called to shutdown every installations for an unspecific time.</p>	<p>Scene: 8.4</p>  <p>Jay: What? not now. Not when I'm so close.</p>





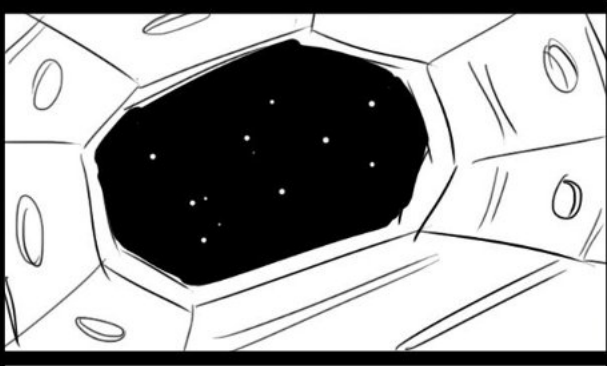

<p>Scene: 8.5</p>  <p>I know it's out there.</p> <p>Jay: I know its out there.</p>	<p>Scene: 8.6</p>  <p>ZOOM IN Shot to the photo. Jay: I trust you.</p>	<p>Scene: 8.7</p> 
<p>Scene: 8.8</p>  <p>Dad: They have a solution to all our problems.</p>	<p>Scene: 8.9</p>  <p>Dad: Find the signals, son.</p>	<p>Scene: 8.10</p>  <p>Dad: Show the world that we are not alone in the universe.</p>

<p>Scene: 8.11</p>  <p>Jay: I sure will, dad.</p>	<p>Scene: 9.1</p> 	<p>Scene: 9.2</p> 
<p>Scene: 9.3</p>  <p>SFX: Signals</p>	<p>Scene: 9.4</p>  <p>SFX: Signals</p>	<p>Scene: 9.5</p> 










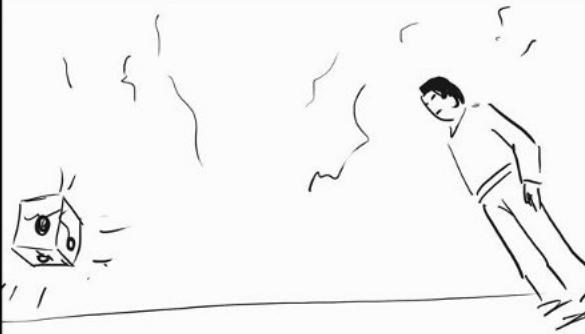






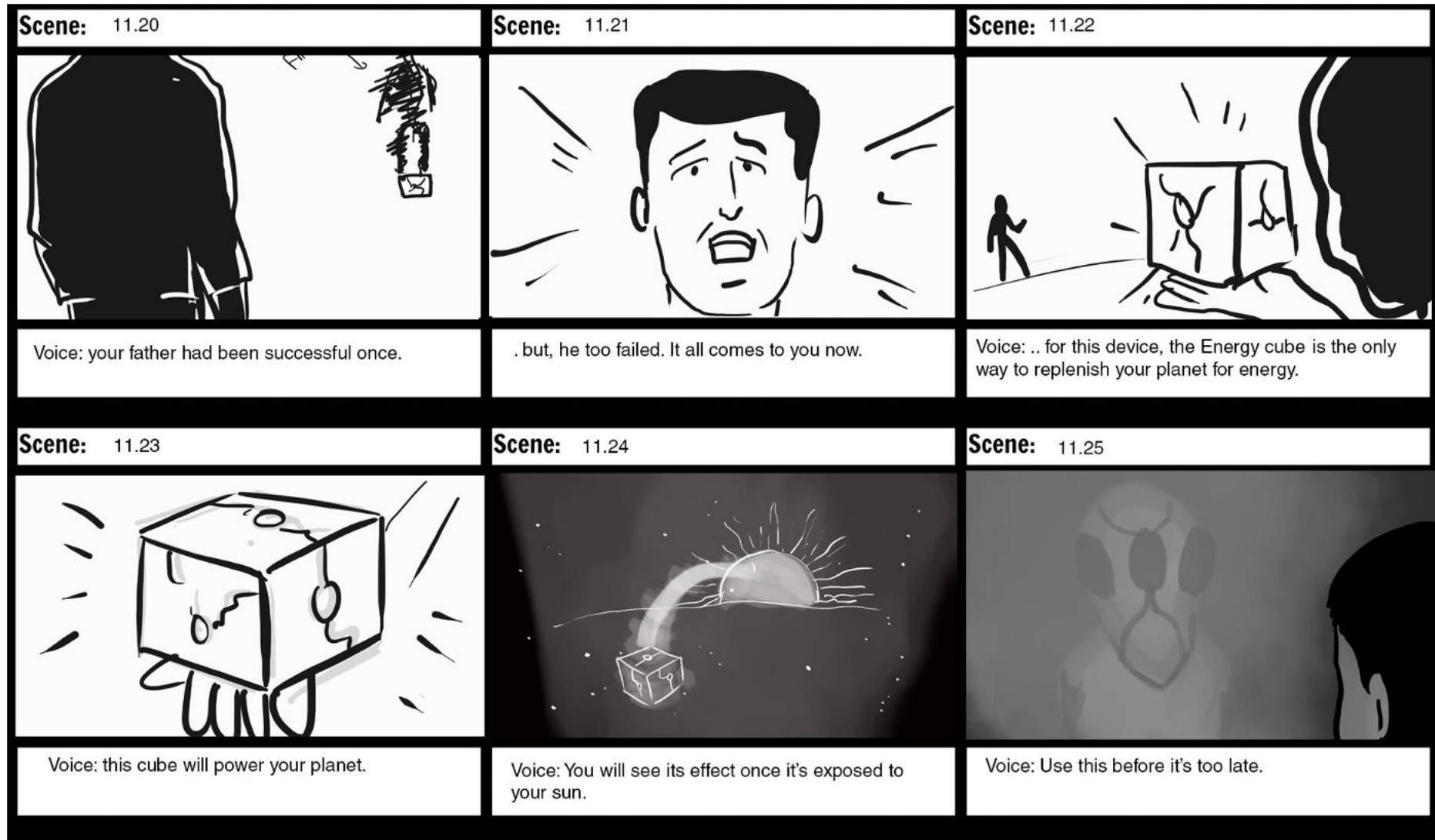








Scene: 10.2	Scene: 10.3	Scene: 10.4
		
<p>SFX: Space flight</p>		
Scene: 10.5	Scene: 11.1	Scene: 11.2
		

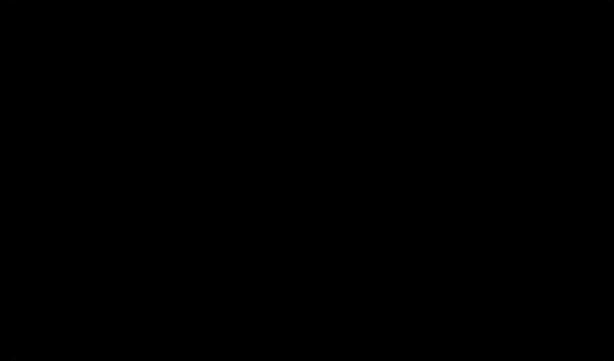
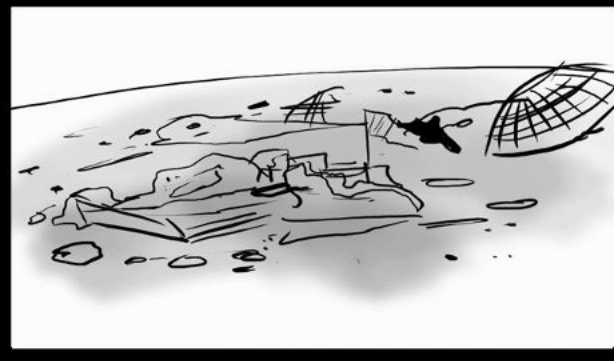
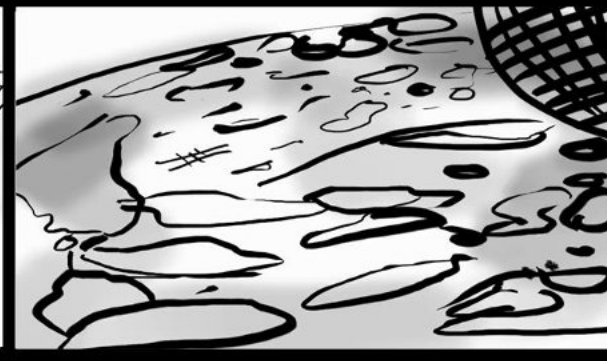
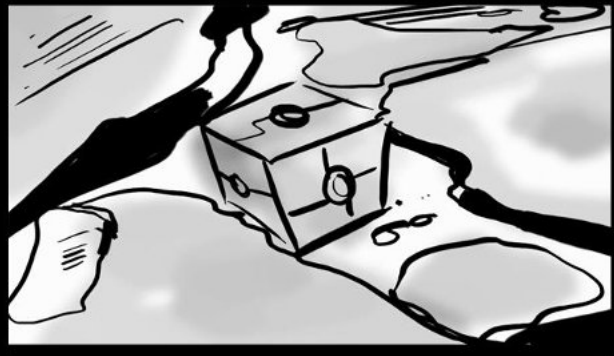
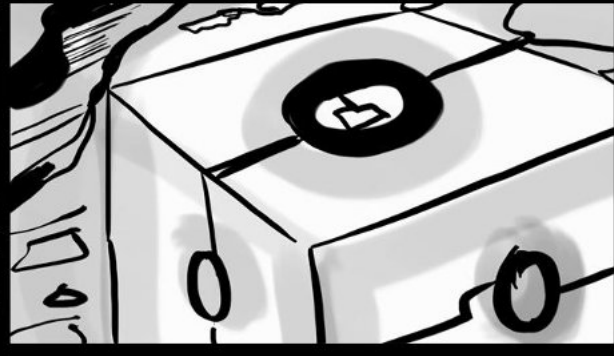
<p>Scene: 11.3</p> 	<p>Scene: 11.3</p> 	<p>Scene: 11.4</p> 
<p>Scene: 11.5</p>  <p>Voice: We have been awaiting you.</p>	<p>Scene: 11.6</p>  <p>Jay: What? Who are you?</p>	<p>Scene: 11.7</p>  <p>Voice: We are the beings humans called Saviours.</p>

<p>Scene: 11.8</p>  <p>↳ Looks around ↳</p> <p>Voice: We have existed long before humans did.</p>	<p>Scene: 11.9</p>  <p>Voice: Human civilization had our aid in the past.</p>	<p>Scene: 11.10</p>  <p>Voice: You grew, you flourished. However...</p>
<p>Scene: 11.11</p>  <p>Voice: ... Earth is far from safety.</p>	<p>Scene: 11.12</p>  <p>Voice: Your energy resources are depleted.</p>	<p>Scene: 11.13</p>  <p>Voice: our nations have started a war...</p>

<p>Scene: 11.14</p>  <p>Voice: .. that will end in the destruction of your planet.</p>	<p>Scene: 11.15</p>  <p>Voice: Your attempts to save energy has not been fruitful.</p>	<p>Scene: 11.16</p>  <p>Voice: It is time for us to interfere again. But, for one last time.</p>
<p>Scene: 11.17</p>  <p>Voice: We have sent energy signals..</p>	<p>Scene: 11.18</p>  <p>.. pointing to the doomsday.</p>	<p>Scene: 11.19</p>  <p>Voice: But humans failed to realize it.</p>



<p>Scene: 11.26</p>  <p>SFX: Warp sound effect</p>	<p>Scene: 11.27</p> 	<p>Scene: 12.1</p> 
<p>Scene: 12.2</p>  <p>Jay: I met them.</p>	<p>Scene: 12.3</p>  <p>Jay: they have a solution</p>	<p>Scene: 12.4</p>  <p>Man1: Looks like he's gone crazy like his father too.</p>

<p>Scene:</p>	<p>Scene: 13.1</p>	<p>Scene: 13.2</p>
		
<p>News: The enemies have bombed several locations and showed no signs of backing out.</p>	<p>News: The radio observatory has been leveled as you see in this footage.</p>	
<p>Scene:</p>	<p>Scene:</p>	<p>Scene:</p>
		<p>CREDITS...</p>
<p>News: Wait, we see something!</p>	<p>SFX: Beep.. Beep.</p>	

VISUAL DEVELOPMENT : PRE-PRODUCTION: CHARACTER CONCEPTS:



Some basic Character design concepts.

Traits:

- * A bit nerdy
- Hair that resembles Cosmologist Carl Sagan's
- Plain T shirt and shorts
- Highly curious and patient
- Determined

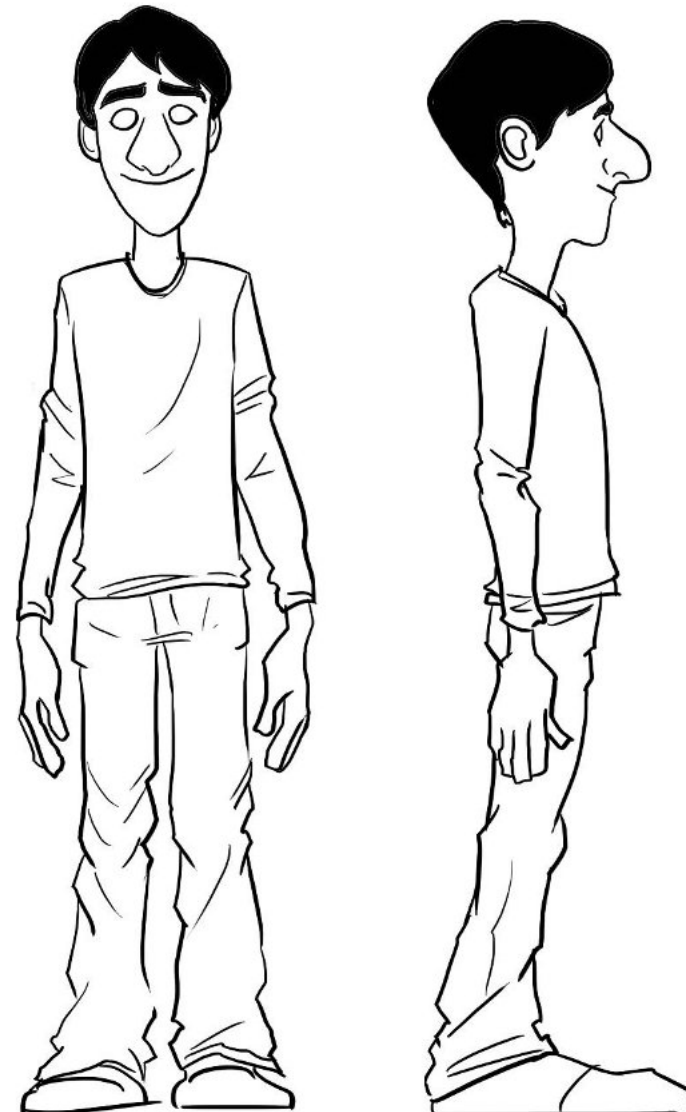




Figure 7 Jay: Alternate faces



Figure 8 Jay: Alternate Faces



Secondary Characters



Figure 11: Young Jay

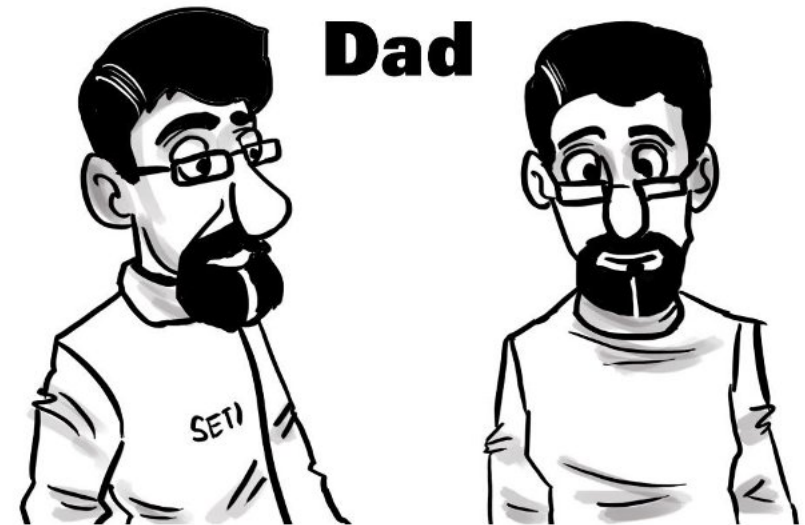
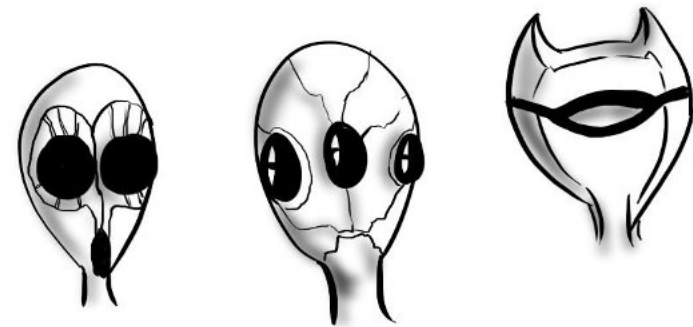


Figure 12: Jay's Dad



Figure 13: Young Jay



Alien Faces - Rough Sketches, Trials

Character Modeling: Screenshots

A screenshot of the Character Modeling: Using **Blender**

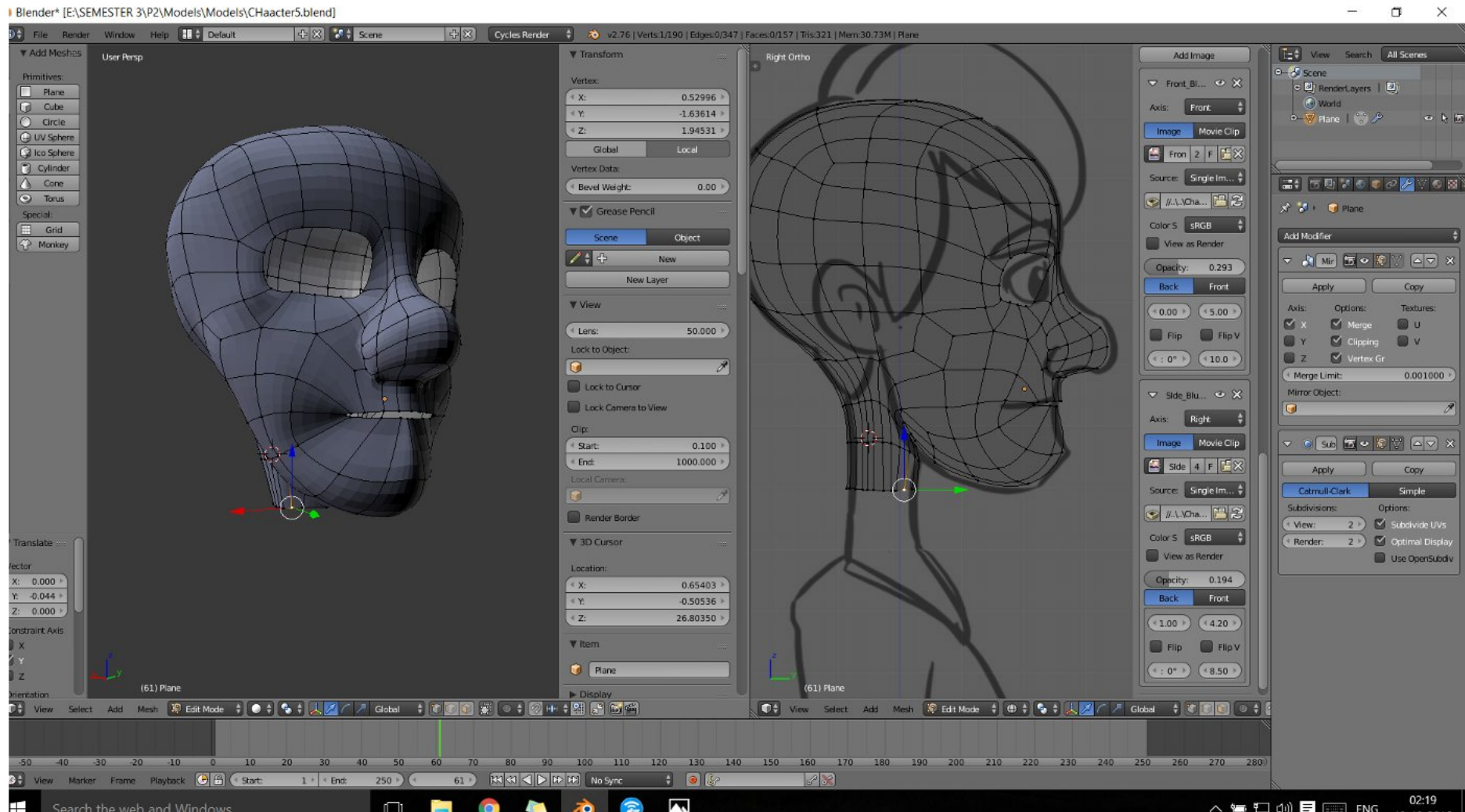


Figure 14: Blender Modeling

A Final Render of the Character Model – Carl : Using **Autodesk Maya**



Figure 15: Maya Rendering

PRE-PRODUCTION: CONCEPT ART:



Figure 16: Concept Art

SET- LOCATION

The set for the story was completely modelled in Maya. Props were modelled and placed, lights and textures were added.

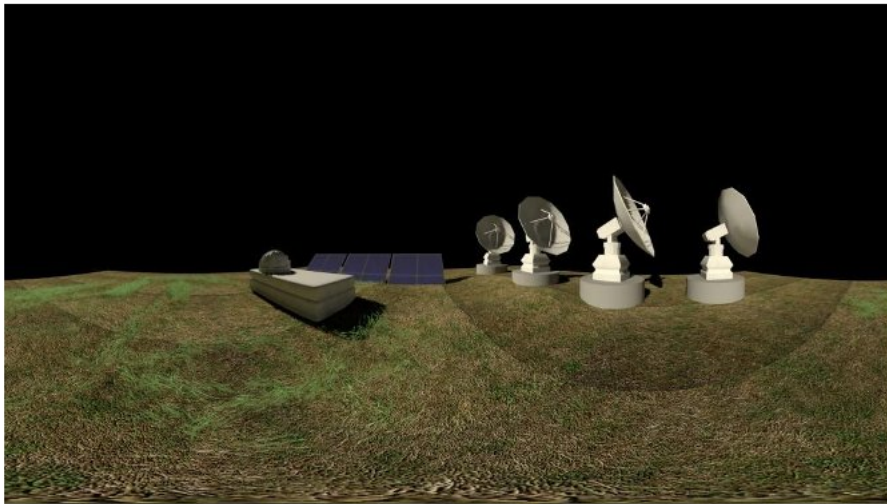


Figure 17 : Observatory exterior – 360° image

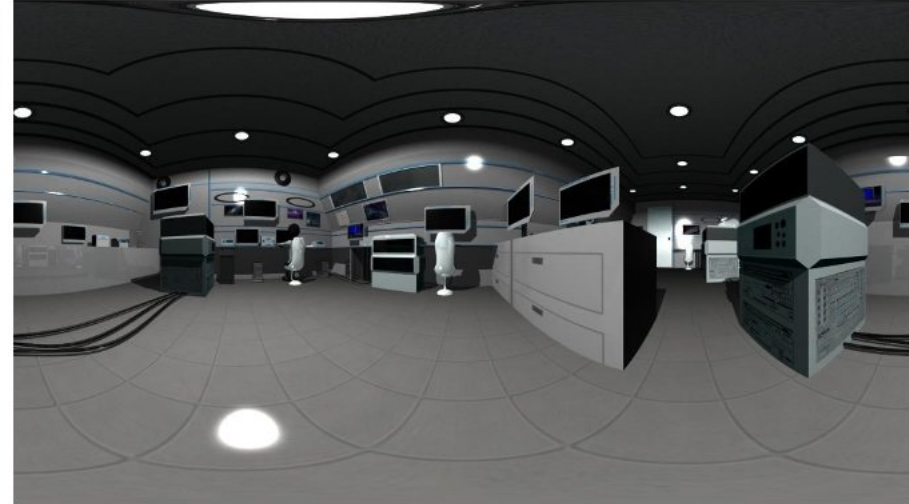


Figure 18: Observatory interior – 360° image

CHARACTER RIG:

Rigging of the character was done from scratch and all the controls have been attached to the skeleton for ease of movement.

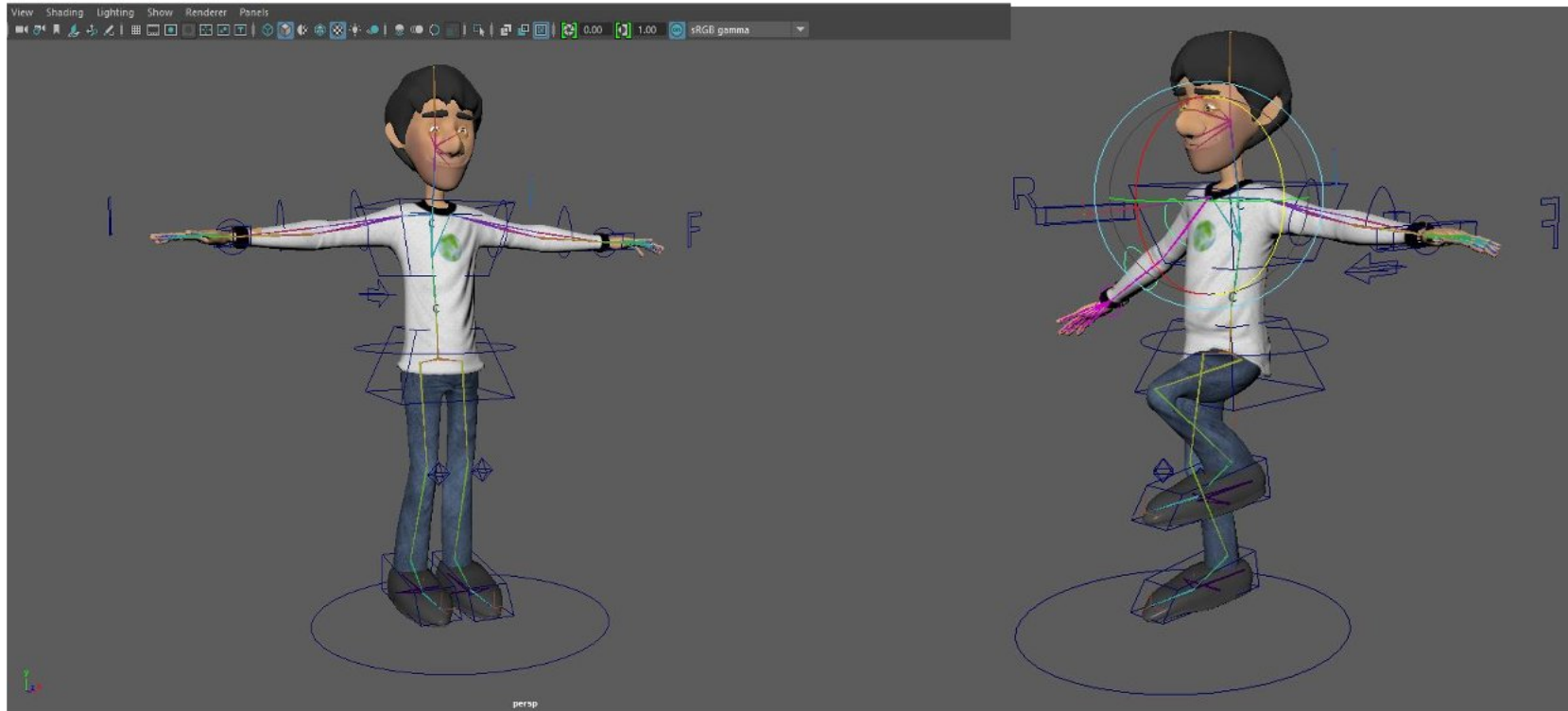


Figure 19: Rigged character - Jay

REVISIONS

As per the feedback obtained during the jury stages, the character has been modified and improved to look more realistic, however without changing the base design.

Given below are some screenshots of the new character, and the blendshapes used to give facial expressions to the character.



Figure20: Character Renders

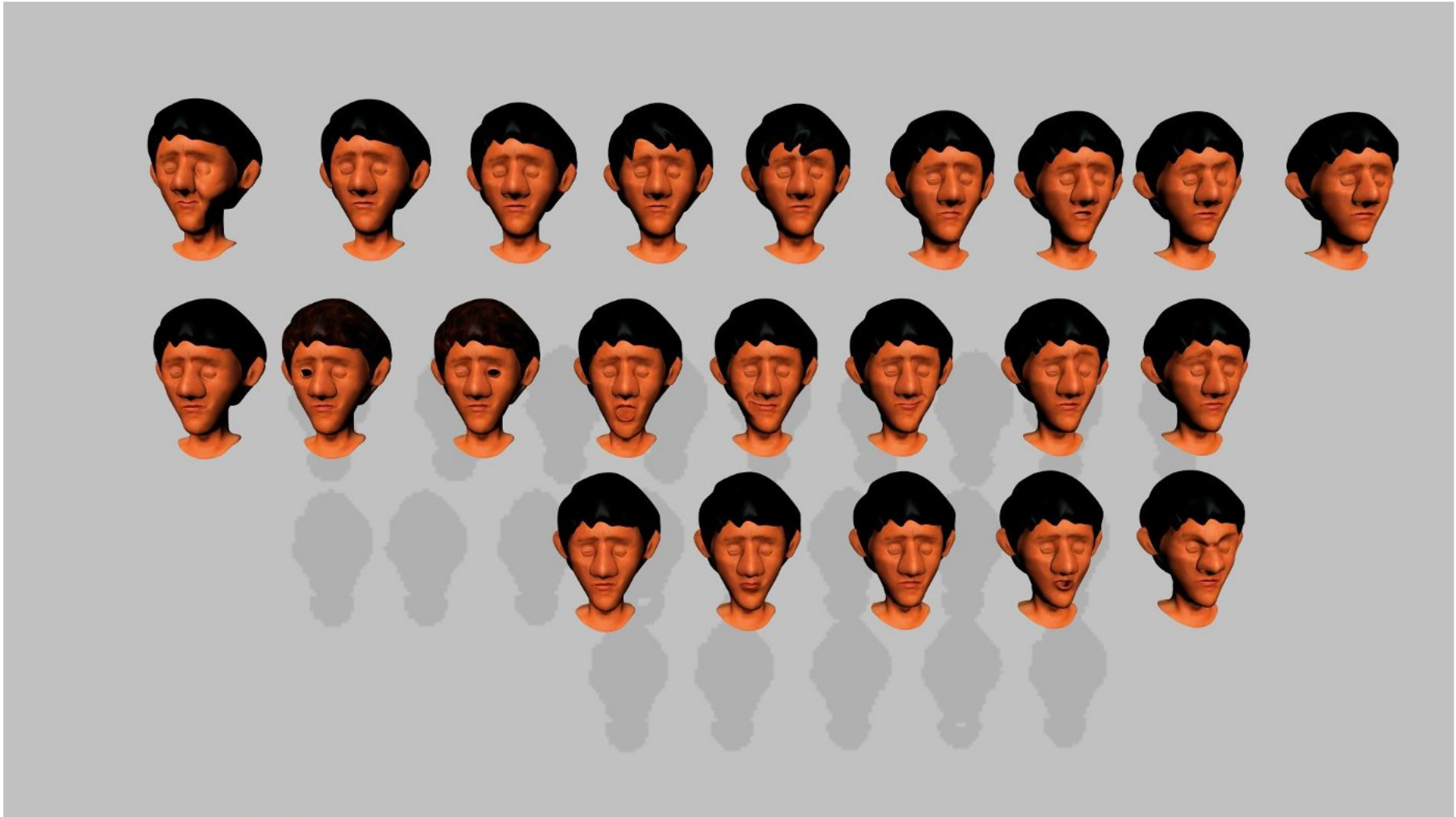


Figure 21: Character face blendshapes

SET – LOCATIONS – Observatory

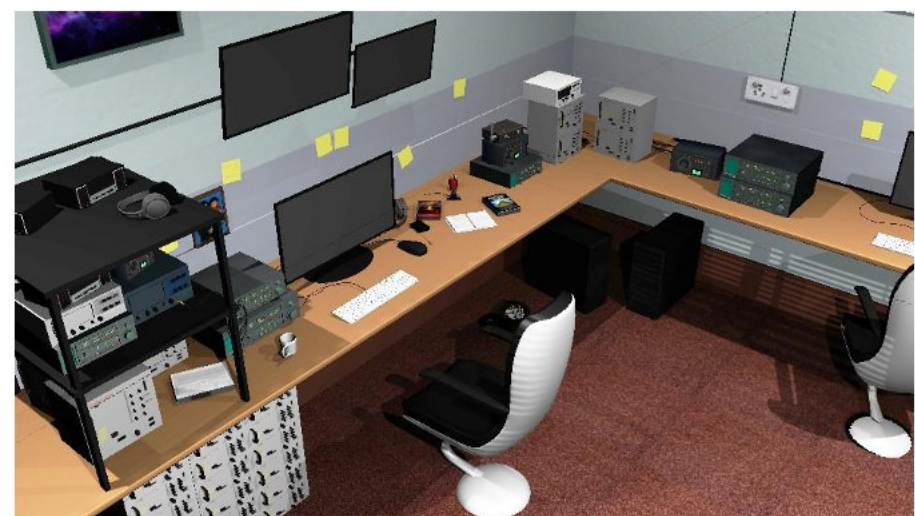


Figure 22: Interior locations

SET – LOCATIONS – Alien Space ship



Figure 23: Interior of space ship



Energy Cube:

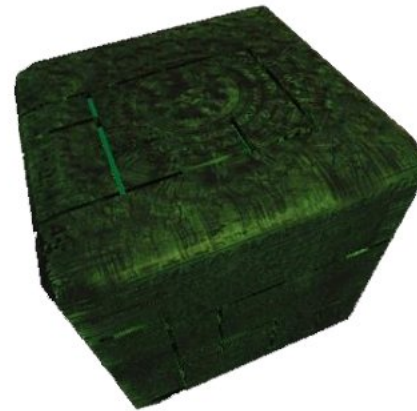


Figure 19: Energy Cube

PRODUCTION

The animation was done entirely in 3D. Software tools used in the process varied from shot to shot.

Tools used:

Autodesk Maya:	Major portion of the modelling, character rigging and animation is done in Maya.
Autodesk 3ds Max:	Used to create certain props for various sets.
Maxon Cinema 4D:	Used to animate an outer space scene.
Blender:	Character modelling was done on Blender.
Autodesk Mudbox:	Character texturing, finalising and sculpting.
Pixologic ZBrush :	Additional sculpting and texturing of characters in High Poly.

The shot breakdown sheet was followed to avoid hassle during the animation stages.

Shot #	Shot	From	To	Duration (Second)	Character	Scene	Shot	Status	Shots remaining	Shots Done
1	Title Quote	00:00	00:07	7	-	Text	Flat	Completed	62	26
2	Intro of Wow Signals	00:07	00:00:15	8	-	Space-Earth	Pan	Completed		
3	Intro of Wow Signals 2	00:00:15	00:00:21	8	-	Text	Flat	Completed		
4	Father Convo (Flashback)	00:00:21	00:00:28	6	Father, son	Text	Flat	Completed		
5	Son sad face	00:00:28	00:00:33	10	Son	Exterior - Observatory	Pan	Completed		
6	ECG Machine beep	00:00:33	00:00:37	5	-	Interior-Observatory	Pan	Completed		
7	Monitor screen transition	00:00:37	00:00:44	3	-	Interior-Observatory	Pan	Completed		
8	Boxes pan	00:00:44	00:00:48		-	Interior-Observatory	Closeup	Completed		
9	Books pan, finger tap	00:00:48	00:00:56		Jay	Interior-Observatory	Closeup	Completed		
10	Jay restless monitor look	00:00:56	00:00:57		Jay	Interior-Observatory	Bottom up	Completed		
11	Monitor Noise signals	00:00:57	00:01:00		-	Interior-Observatory	Closeup	Completed		
12	Sleepy Jay goes to fetch tea	00:01:00	00:01:12		Jay	Interior-Observatory	Closeup	Completed		

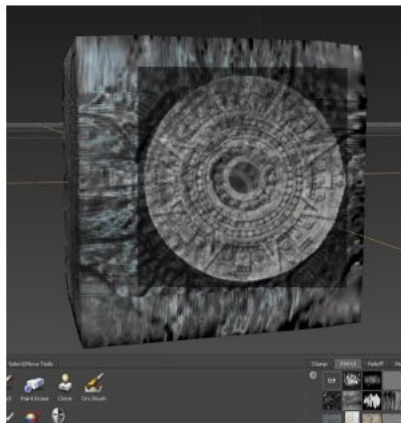
Figure 20: Shot breakdown sheet

TEXTURING

Texturing was done using Zbrush and Autodesk Mudbox. Skin tones were added to the models to make it look realistic.



Figure 23: Texturing



The textures for the ancient artefacts were digitally created in Mudbox.

LIGHTING AND RENDERING:

Area lights were added for interior scenes within the observatory.

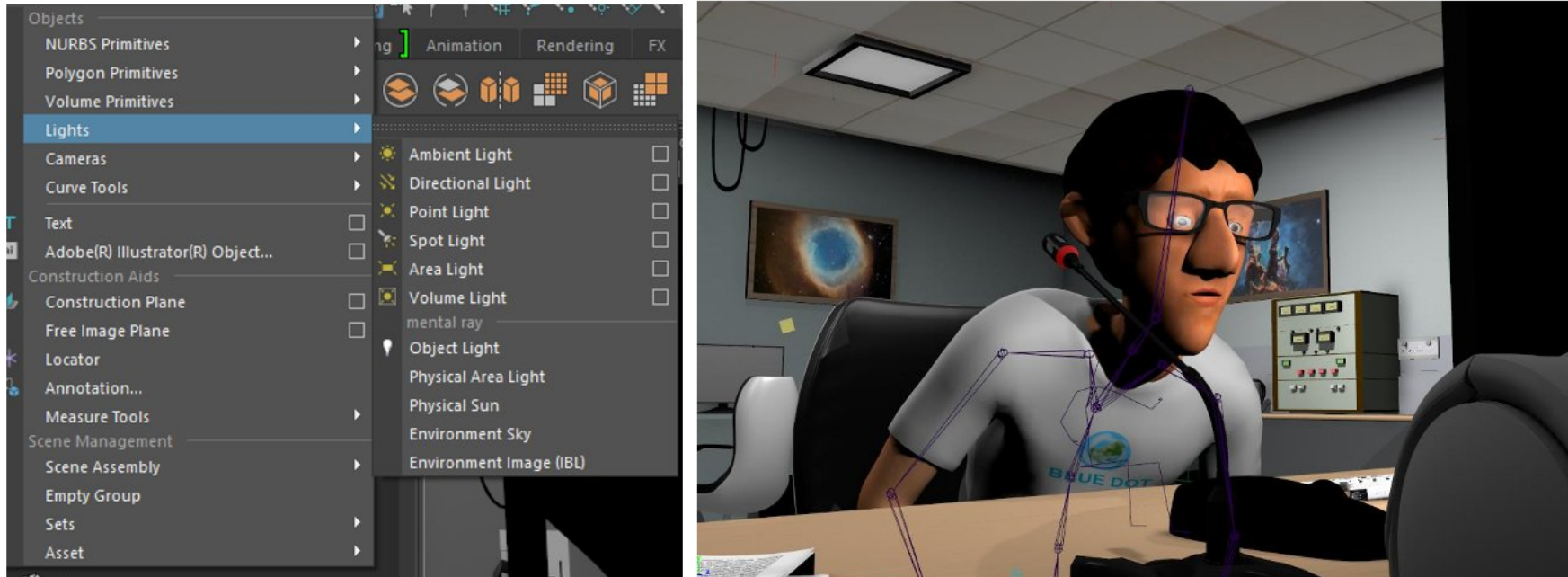


Figure 24: Area lights

Directional lights were added for scenes where more exposure is required, like the light from the sun.

Rendering was done using **Mental Ray** renderer as well as **Maya Hardware Render 2.0**.

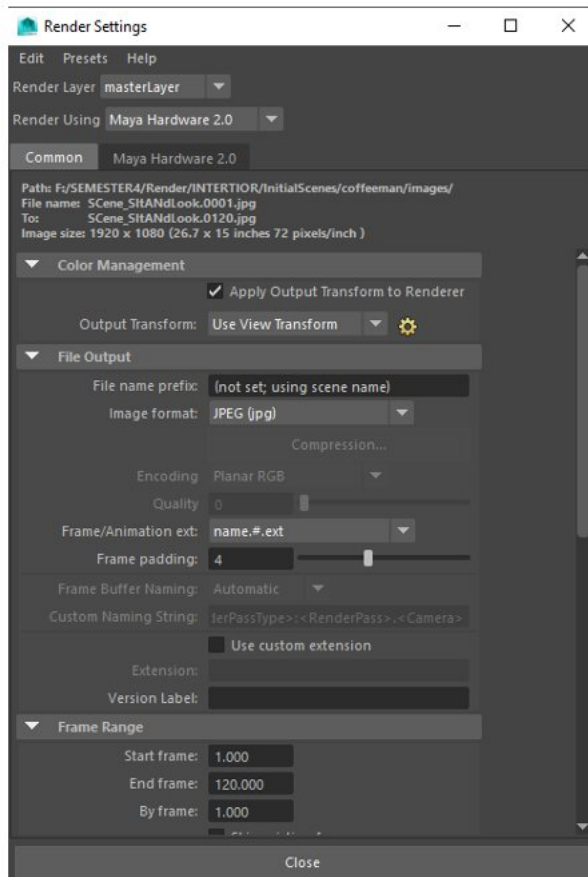


Figure 25: Hardware Render options

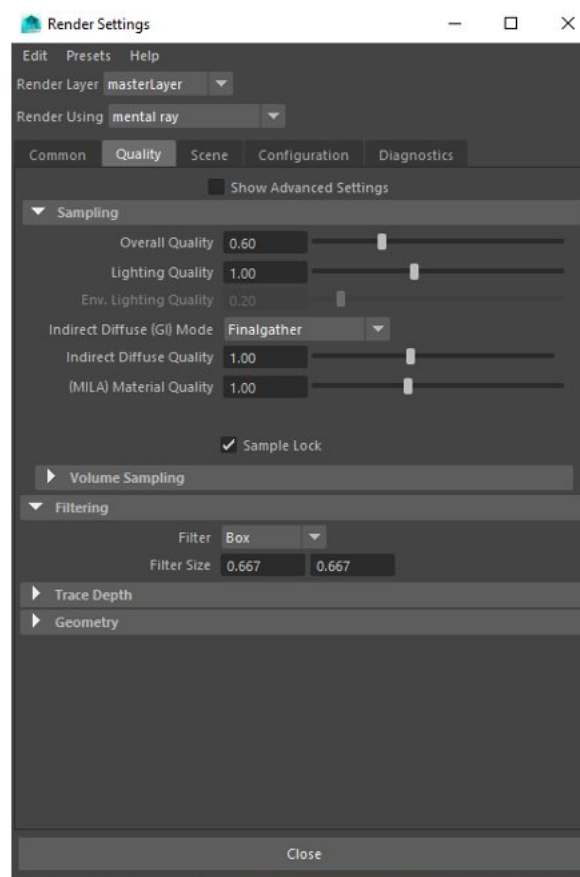
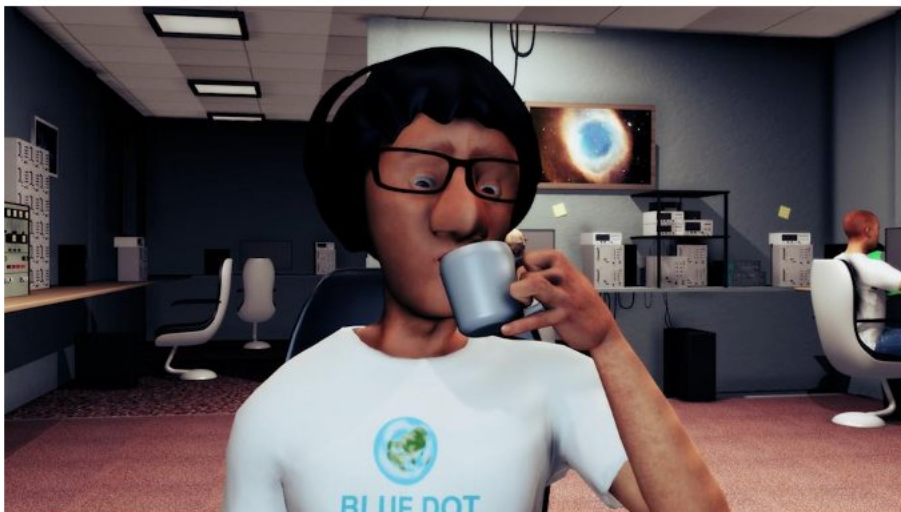
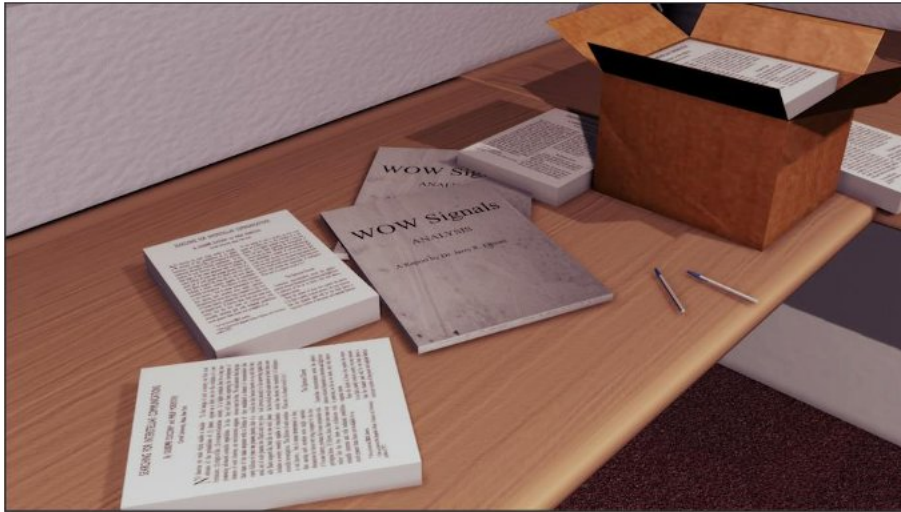
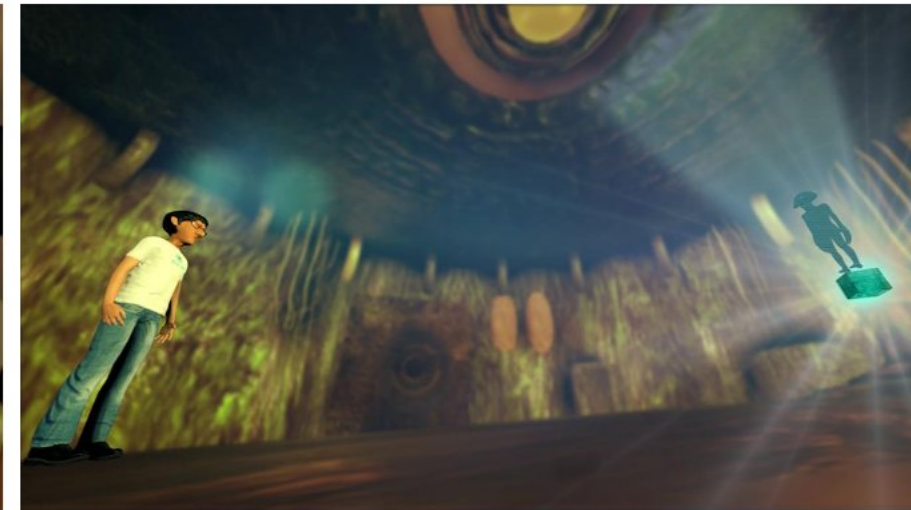


Figure 26: Mental Ray render options

SHOTS From the FILM:







POST-PRODUCTION - VFX BREAKDOWN – VFX and colour correction

Post Production phase includes compositing the rendered images, adding environment, particles and Visual effects along with colour correction.

Adobe AfterEffects was the major Post production tool used in the process. Adobe Premiere Pro was used to composite the final scenes. Sound mixing was done using Reaper, Audacity and Premiere.



Figure 27: Shot breakdown

Software used: Adobe After Effects CS5.5

FUTURE SCOPE

This movie barely grazed the surface of Sci-Fi. The history and what happened within the movie has a greater plot. The movie needs a wider explanation for the happenings and what happens in the future. Future scope is plenty for this plot.

Use of 360° and Virtual Reality :

The initial plan was to create the movie in 360° VR format, with events happening all around the camera. However, due to limited time, this was not implemented at this stage. The whole movie can be much more immersive if the viewer can get into the set and experience what follows. Virtual Reality experience will be great for scenes involving space flight and alien terrestrial environment.

CONCLUSION

The film has been a great opportunity to study the movie making process. Besides starting from scratch and going through the entire process, the movie also taught the factors like proper planning and timing that is needed for an animated movie.

The experience I gained from working in this project gave me knowledge on what to do and what not to do while making a film. The mistakes that I made during the period of work equipped me with knowledge that will stay with me for my future work as well.

Even though the story was animated, I still feel like there is a large room for improvement which gives me the passion and drive to work on similar movies again.

The topic of Sci-Fi is close to my heart and I am sure that this work will enable me to become a better film maker in the future.

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