Technical Specification Document
- Alien Landing on the UCC Amphitheater -

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I.   Script and Storyboard

a. Aquila is an alien with a passion for studying humans. He recognizes that humans lack the rational intellect of aliens, as they are unable to traverse the cosmos or erase memories. But what fascinates him is their "humanity", their ability to feel emotions, empathy, love, gratitude, honesty and a sense of fairness.

b. As a being of pure reason, Aquila has difficulties in understanding the essence of "humanity" and what triggers it. He thinks that because it's so special, he might understand it only if he experiences it. Without a second thought, he plans his trip to go to earth. He finds a perfect place where he can land his ship. The place is known as the "Amphitheater" and is on the University College Cork campus.

c. The land was even better than he expected. The surface was straight, circular and large enough to accommodate the ship. He walks out of the ship and sees everybody running and screaming. Now he remembers a lost detail– humans cannot act autonomously when facing the unknown, but enter a state called 'panic'. To restore pace, he erases their memory about the land and changes his appearance to look like a human. This way, the students will not be thinking about fighting him.

d. He starts walking around the city. While he walks, he suddenly sees an old man lying on the cement, at the corner of a building. The man seems to have frozen there, his body appearing bruised and lifeless. He tries to lift him, but the people from the street tell him to leave the man there, because he is a homeless man. He cannot understand the reason and is intrigued by people's lack of common sense.

e. While continuing walking, he sees a couple. He is sure that there is the perfect context to understand what 'love' is, people's strongest form of humanity. He listens to them for half an hour, but all they do is criticize one another.

f. Disappointed about 'love', he moves on. He enters a café to have lunch. He overhears a conversation at a nearby table about a war between two nations. He does not properly understand what is the meaning of 'war', but he clearly understood how many people have died there and killed one another.

g. He realizes that he begins to feel emotions – he is terrified. Overwhelmed, he decides that is time to return home. He went to earth to find answers, but he comes back even more confused about what humanity means.
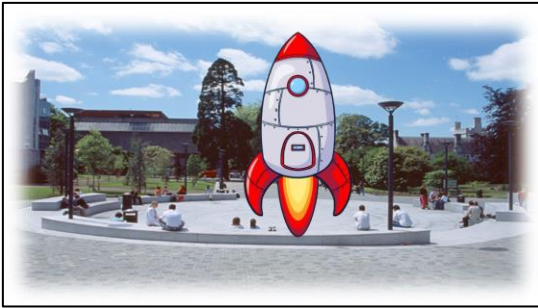
Storyboard

Scene a: *What is the essence of "humanity"?*

Scene b: *The Journey to Earth.*

Scene c: *Landing on the UCC Amphitheater*

Scene d: *Meeting the Homeless man.*

Scene e: *Observing a Couple in the Park.*

Scene f*: A conversation about the war.*

Scene g: *Returning home.*

II.   Technical Requirements

1. Hardware

System Model: Vostro 3520
System Manufacturer: Dell Inc.
OS Name: Microsoft Windows 11 Education
System Name: DESKTOP-PVQ355F
Processor: 12th Gen Intel(R) Core(TM) i7 -1255U, 1700 Mhz, 10 Core(s), 12 Logical Processor(s)
Total Physical Memory: Total: 16 GB
Available: 7.8 GB
Virtual Memory: Total: 18.1 GB
Available: 9.2 GB
Display adapters: Intel(R) Iris(R) Xe Graphics
GPU: Intel(R) Iris(R) Xe Graphics
BIOS Information: Intel Video BIOS
Total Available Graphics Memory: 8162 MB
Dedicated Video Memory: 128 MB
System Video Memory: 0 MB
Shared System Memory: 8034 MB

2. Software

Blender, Version 4.2

3. Network specifications

A stable connection to the internet.

III.   Character and Environment Design

1. Characters

Character	Alien/Human	Eyes	Hair	Height	Clothes
Aquila	Alien (blue skin)	Big Blue	-	1.45 cm	Gray spacesuit
Aquila	Human	Big Blue	Blonde	1.45 cm	Green suite (inspired by *The Little Prince*)
The old man	Human	Closed	White Long	-	Gray Clothes
The young woman	Human	Green	Brown	1.65	Yellow dress
The young man	Human	Blue	Black	1.80	White shirt Black trousers

Woman from the table	Human	Blue	Blonde	1.75	Gray trousers White shirt
Man from table	Human	Brown	Brown	1.85	White shirt Black trousers

2. Camera

Scene a: Front view of Aquila sitting on his planet. The camera is placed at his eye level.
Scene b: Front view of the spaceship journey through the universe. The camera moves simultaneously with the ship.
Scene c: The camera is placed slightly above the amphitheater, directed towards the landing spaceship.
Scene d: The camera is facing down the street. It is positioned at Aquila's eye level, directed towards the man on the pavement. It captures the boy from a right-side profile.
Scene e: The camera is positioned at eye level of the characters, directed towards Aquilla and the couple. Aquilla stands with his back towards the camera, while the couple is viewed from the front. The boy is closer to the camera than the couple.
Scene f: The camera is positioned ½ meters above the eye level of the characters, directed towards Aquilla and the people, which stand with their back towards the camera.
Scene g: Front view of the spaceship during takeoff.

3. Settings

Scene	Foreground	Background	Characters Position
A	The alien's planet is round, orange with a ring around it.	The space is dark blue with bright stars.	The boy sits on the planet.
B	The ship is gray and flies in vertical position.	The space is dark blue with bright stars and a moon.	-
C	The ship is in vertical position and covered in dust, (about to)land(ed) on the amphitheater.	The amphitheater is white/very light gray. Some green trees can be seen.	-
D	The boy is seen from its right-side profile. The man lies on the pavement.	The pavement is dark gray. A yellow building is seen on the right part of the scene.	The boy stands near the lying man.
E	Aquilla and the couple.	The scene is happening in a park, where is a tree with pink flowers on the right.	Aquilla stands with his back towards the camera, while the couple is viewed from the front.
F	Aquilla and the people.	Furniture with wood texture.	The characters sit on chairs.
G	The ship is gray and flies in vertical position.	The space is dark blue with bright stars and a moon.	-

4. Props.

Element	Description
The clothes of each character	As specified in the table of characters
Aliens' planet	Round, orange with a ring around it.
Spacecraft/spaceship	Gray and designed in an arrow-like shape, featuring three support struts at the base.
Furniture (cafe)	Brown, with wood texture.

IV. Animation Techniques

1. Keyframing

Scene a: Keyframing is used to transition between 2 images: the image of the boy standing on his planet and the image of him thinking about humans. The second frame is illustrated by a thought bubble above his head.

Scene c: Keyframing is used to capture the landing. In one frame, the ship is a few meters above the amphitheater and in other frame, the ship has landed on the amphitheater.

Scene d: Keyframing facilitates transitions between three frames: in the first, the boy is standing; in the second, he is partially standing, and in the third, he is seated next to the man lying on the ground.

Scene e: Keyframing is used to create the illusion that the couple is walking toward the camera. After a few loops of the frames, the frame transitions into another frame where the couple is facing each other.

Scene f: This scene is predominantly static. The two characters from the table occasionally move their hands. Their movements are captured using three frames that loop to create a sense of animation.

Scene g: Like scene b.

2. Motion capture

Motion capture will not be used in the current animation, but it is considered to be implemented in potential future implementations, where more resources might be available (time, sensors, actors). This technique would improve the animation by creating a more realistic illusion of movement.

3. Procedural animation

   Scene b: A shader is created, that gives the illusion of depth and movement, making it look like the stars and the space are rushing in the opposite direction.
   Scene c: Procedural animation is used for landing dust or smoke effects as the ship lands.
   Scene e: The walk of the couple is simulated using organic movement principles to capture the natural nuances of human movement.
   Scene g: Like scene c, but the frames are in reverse order.

V.   Rendering and Post-Production

1. Details on rendering engines

   Blender's rendering engines will be used. Cycles render engine will be primarily used to create a photorealistic output. Eevee will be used in the scenes c. and g. (landing and takeoff of the ship) for real-time preview.

2. Compositing software

   For color correction and compositing layers, the Blender's built-in compositor will be used.

3. Effects

   Special effects such as lighting, shadows, and particle effects (for dust and smoke) will be integrated to improve the animation's realism.

VI. Timeline and Milestones

Timeline	Milestone
Week 1 (28 Oct – 1 Nov)	Research & Write Script and Storyboard
Week 2 (2 Nov – 8 Nov)	Design Characters & Environments
Week 3 (9 Nov – 15 Nov)	Texturing & Lighting
Week 4 (16 Nov – 22 Nov)	Animation & Rendering

VII. Style Guide: Guidelines for visual elements such as color palettes, typography, and overall aesthetic.

Visual Element	Description
Color palettes	 Space Ship Clothes Skin Planet Clothes
Typography	Font Inspiration: *Brandly Hand ITC, Italic* The font should convey a storybook feel, to resemble the literature and cartoons of children.
Overall aesthetic	A harmonious blend of a colorful palette, but in pastel hues.

VIII.   Technical Constraints: Any limitations or restrictions, such as file size or frame rate.

Frame rate: 24 fps
File size: maximum 10 GB
Animation: 30 seconds

IX.   Source for images:

- *Planet – " This Photo by Unknown Author is licensed under CC BY-SA"*
- *Alien Source Link*
- *Ship Source*
- *Ship2*
- *Amphitheater - Image from Canvas*
- *The Little Prince*
- *Homeless Old Man*
- *Park*
- *Cafe*
- *Young Woman*
- *Young man*
- *People from Cafe*
- *The Little Prince2*