

EVO

Crafting Environmental Discourse Through Anthropomorphic
Character Design and 3D Animation

Varvara Solovyeva



Design by Varvara Solovyeva

Proofread by Lindsay Esler

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Varvara Solovyeva

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Title

EVO: Crafting Environmental Discourse through Anthropomorphic Character Design and 3D Animation.

Abstract

This project constitutes a practice-oriented, artistic research project that asks the following question:

How might anthropomorphic character design and 3D animation be used to shape environmental narratives that reflect the designer's subjective worldview?

The anthropocentric era has accelerated the degradation of our natural environment. This research project acknowledges and responds to such a state of the world through the application of anthropomorphic character design within 3D animation. In investigating the ability of the animated short film to articulate critical messages, this exegesis reviews the knowledge contextualising the practice and applications of the animation medium within this project. The study is framed as practice-oriented research that employs heuristic inquiry to reveal the subjectivity of the researcher within the framework-based development of a 3D-animated short film. In doing so, this project delineates eight methods of technical and creative 3D animation production to chronicle the subjective design choices of the researcher. The resulting artefact constitutes a 3D-animated short film that visually articulates an environmental message designed to be understood by a universal audience. This research contributes to the understanding of how anthropomorphism can be utilised in 3D animation to incorporate concepts of the pluriverse. Additionally, the study contributes to the application of Todorov's narrative structure in 3D animation through a commentary on the practice of the methodological process and design decisions involved in producing an animated short film.

Key Words

3D Animation, Animal Character, Anthropomorphism, Character Design, Environmental Discourse

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly quoted) nor material which to a substantial extent has been submitted for the award of any other paper or other institution of higher learning.

Varvara Solovyeva

2 May, 2024.

Intellectual Property Declaration

I retain copyright in all images and creative work produced and presented as part of this research, apart from the following images that are in the public domain listed below in the order they appear in this exegesis.

Figure 2.1 The Zoetrope and the Phenakistiscope, in the public domain.

Figure 2.2 The Praxinoscope, in the public domain.

Varvara Solovyeva

2 May, 2024.

Ethics approval and consents

AUTEC approval for this project was not required because it does not deal with people or animals.

Academic integrity declaration

In submitting this work, I declare that:

- This assessment has been produced by me and represents my own work
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Chapter 1

Introduction and Positioning

Introduction

The short film *EVO* explores the application of anthropomorphic animal character design within 3D animation to articulate environmental discourse from a subjective worldview. This exegesis chronicles the creation of the film, including the technical and creative development of an anthropomorphic animal character within a preserved natural environment in the digital sphere.

This project is in response to the research question:

How might anthropomorphic character design and 3D animation be used to shape environmental narratives that reflect the designer's subjective worldview?

Rationale

We are currently living in an anthropocentric era with an accelerated degradation of the environment (Almiron & Tafalla, 2019; Light & Rolston, 2002). An anthropocentric worldview values only the gain and superiority of humans, and is thus indifferent to the existence of other living beings on our shared Earth (Jonge, 2011). However, as we appear on the verge of environmental catastrophe, there may soon be no Earth left for any of us. In this realm, research that articulates the use of anthropomorphic empathy to articulate pluriversal narratives is essential, and 3D animation provides an effective visual and narrative strategy for doing so.

Significance

Animation can convey visual ideas in ways no other filmic medium can, and animated anthropomorphism offers a way for the audience to witness facets of themselves within the character, thus viewing them with an extended empathy. This mirror image allows the audience to consider a perspective of pluriversal thinking before that of the anthropocentric. This depiction of animated characters facilitates the possibility of nurturing the audience's understanding and connection to an environmental perspective. Thus, this project asserts the application of anthropomorphic design and animation within environmental discourse as the opportunity for audiences to see the world with renewed empathy. In doing so, it contributes to the understanding and application of anthropomorphic identity in animated media to develop a narrative with environmental considerations. This project also contributes to the application of Todorov's narrative structure within 3D animation through curating a commentary on the methodological process and subjective design practice of an animated short film.

Key Terms

An explanation of terms used in this study.

Animation

Animation is the art of creating living movement within a visual narrative medium (Thomas & Johnston, 1995). This medium strives to articulate stories, ideas, and experiences through deliberately crafted motion as the sequential progression of images on various materials (Leskosky, 1993).

This research project is conducted within the computer-generated realm wherein a character's performance is created via 3D animation. This exegesis refers to the term animation in two ways. Firstly, animation is referred to as an umbrella term for this research practice, denoting the project's design medium within the creation of the short film. Secondly, it is used as a distinct method within the Research Design chapter to discuss the procedure of crafting character and object performance within the film.

Anthropomorphism

Anthropomorphism is the attribution of human traits or behaviours to non-human beings or objects. To anthropomorphise is to subconsciously evaluate another creature through a set of hard-coded rules – that is, by judging the other being's perceived behaviours, intentions, emotions, and intelligence based on their likeness to equivalent human processes (de Waal, 1999).

Anthropocentrism

Anthropocentrism is a human-centred perspective that considers human positions, experiences, and interests to exist at the top of a hierarchal value structure, to the dismissal and detriment of other lifeforms (Schmitt, 2023). Thus, to be anthropocentric is to perpetuate the human-centred bias by devaluing the intelligence, importance, and individualism of species other than humans.

Embodiment

The concept of embodiment exists in opposition to Descartes' concept of mind-body dualism and proposes a holistic integration where cognitive processes and physical experiences are interconnected. The embodied perspective emphasises that our physical presence, sensory experiences, and bodily interactions with the environment are integral to how we understand, perceive, and engage with the world around us (Heidegger, 2010; Merleau-Ponty et al., 2013; Spinoza, 2006).

Pluriverse

Arturo Escobar's concept of the pluriverse centres on the idea of embracing a multiplicity of worldviews and ways of life, challenging the dominance of a single universal reality, recognising and respecting diverse knowledge systems and cultural practices, to foster a world where many worlds coexist harmoniously (Escobar, 2017).

Empathy

Empathy defines “the ability to understand and share the feelings of another” (Oxford English Dictionary, 2023b). This research project assumes empathy as the driving force behind altruistic decisions that a person might make. By nurturing empathy within an audience, the short film seeks to create audience engagement and encourage an un-selfish consideration of other species and the environment.

The Nature of the Research Practice

The research practice of this project encompasses the conception and development of an animal character and their natural environment within 3D animation. The practice utilises ideation, modelling, texturing, rigging, animation, hair grooming, rendering, and editing in its technical and creative construction. The project culminates in the creation of *EVO* – a 3D animated short film that is an immersive representation of a flourishing flora and fauna in the context of a preserved fictional environment. The aesthetic of this short film conveys a sense of nature's preserved wholeness, while the narrative proposes a critical view of anthropocentric thinking to encourage environmental considerations.

The Structure of the Exegesis

This exegesis comprises four chapters. The first chapter introduces the study's rationale, significance, key terms, and the nature of the practice before exploring the researcher's personal, cultural, moral, and ideational positioning to reflect on how past experiences influence the research question. The second chapter reviews related knowledge, detailing animation practice and its applications. The third chapter discusses the research paradigm, methodology, and methods that shaped the animation project, highlighting the role of subjectivity in design and the heuristic decisions behind the project's execution. The fourth chapter provides a critical analysis of the research outcomes, focusing on the narrative and character design of the final short film. The conclusion summarises the project's contributions, outlines future research possibilities, and reflects on the research process.

Positioning the Researcher and the Research

In design research, the researcher uses creative practice as a form of inquiry. As the artefact of the creative practice is formed through the researcher's personal touch, the resulting research and the nature of the inquiry are inevitably influenced by the researcher's subconscious biases and worldviews. This chapter positions the researcher in relation to the inquiry by divulging the researcher's epistemological and ontological principles through their lived experiences, thus identifying the researcher's influence on the design process and the origins of the inquiry.

My World

I was born into a cramped room and raised on Soyuzmultfilm, Studio Ekran, and Studio Pilot animations. These animations told me of the fairytale and the fantastical, the moral and the melancholy, the wild and the wondrous. As a small child, they were my world.

As I grew up, my world expanded – the cramped room turned out to be a small nook in a tall apartment building, which quite soon was revealed to be a speck in the bustling city of Saint Petersburg. The city was rich in history; the Hermitage Museum introduced to me the creations of past eras - chronicled in paintings, prints, sculptures, and artefacts, while the many cathedrals displayed their wealth in architectural magnificence. It was a port city built on the foundation of trade and commerce – a natural point of cultural exchange between Russia and Europe. However, as much as it was captivating, it was also incredibly cold - both in the weather and in the never-ending torrent of indifferent strangers squeezed shoulder to shoulder in the underground metro.

When my parents brought my siblings and me to spend a few summer months in the warmer southwestern regions of Russia, my world expanded once more. This new world was a unique fragment of mountainous terrain enclosed by the cliff-lined coast of the Black Sea, protected in water and land by a nature reserve and perfectly preserved in all its living glory. It was a slice of unspoiled nature not yet devoured by people competing for space and resources. It was a world of sunlight and sea, fresh fruits, animals, insects, and a landscape unlike I had ever witnessed in the city before (Figure 1.1). I was delighted.

Figure 1.1

A New World (circa. 2006)



Note. This image visualises the new world as the antithesis of my life in the city. The endless blue sea, the dried grass, and the skyscraper rock formations seemed to belong to a man-less city built by nature itself.

Living Drawings

As a courtesy of my father's acquaintance, my family and I settled into a small hut in the heart of the reserve in exchange for a series of commissioned wildlife and nature etchings. My father, a classically trained artist, often encouraged my siblings and me to draw with him, so naturally, we drew our newly discovered flora and fauna on the kitchen walls (Figure 1.2). Such small moments soon blossomed into a deep love for artistic expression – it became second nature for me to draw, paint, sculpt, and make up small fictional narratives for the various creatures I encountered growing up. Gradually, my creative expression became permanently interlinked with my connection to the living world – founding my future artistic career and core beliefs. In the reserve, we were living alongside its natural inhabitants; I took it as my duty to learn of them as much as possible. These encounters became core memories of a sweet and sunny childhood and forged the perception of nature as a living, breathing thing.

Figure 1.2

Drawing on the Kitchen Wall (circa. 2006)



Note. This is a photo my father took of me in 2006. My siblings are in the background and my mother is at the bottom right. I was committed to adding bees and dragonflies to my blooming grassy field.

Animated Animals

At five years old, the world of adults was still a mystery to me – their motives always masked, their moods usually misplaced, and their friendliness often faked. The insect world seemed so much more immediate to me then, perhaps amplified by my physical proximity to the sun-cracked earth and the eye-level grass. I started my career as a pseudo-entomologist – observing the insects and presenting my groundbreaking findings to my unsuspecting parents and siblings with lengthy lectures and drawings. I was most transfixed by the Saga – a large parthenogenic predatory bush cricket with a mean disposition and a home in the vines behind our hut (Figure 1.3). I revelled in watching her amble in her rhythmic six-legged gait with one foot deftly replacing the other, a drunken wobble in her step as she mimicked the swaying of the wind-blown grass so as not to blow her cover. She had a delightfully animated quality to her - cartoony and exaggerated as if to personify the insect as the lurking ambush predator she was.

Perhaps I would have committed to my newfound career and gone into some branch of zoology if not for being sidetracked by the visual joy of watching a creature move in an utterly telling way. Looking back, this interest in how different creatures move and gesture has remained one of my core fascinations; it likely spurred my pursuit of a career in character animation. I found myself caught up in translating animals' morphology and body language cues into storytelling, thus learning of their world through their behaviours and personalities. Animation has become not only an unending source of my creative expression but also my way of learning about other beings through analysing, interpreting, and reconstructing their behaviours in an animated form.

Figure 1.3

The Saga in my Hand (circa. 2006)



Note. This photo displays the Saga insect in my hand, performing her signature wobbling walk. We handled her gently and released her back into her territory.

The Anthropomorphic Agenda

However, as much as I would like to pretend that my beloved reserve maintained a complete natural sanctity, it was indisputable that those animals' lives were inevitably altered by the presence of people, my family and I included. They adjusted to our presence as we adjusted to theirs; they studied and perceived us in their own light as we did them; they adapted to us as we adapted to them. Our worlds clashed - from sharing the habitat came the unavoidable interactions, conflicts, and timidly formed friendships. To learn and live with these animals was to perceive them in the only way a human could – through an unavoidably anthropomorphic lens.

The moment I began seeing one animal as a human-equivalent in their importance and consequently reprojecting my thoughts, motives, and emotions onto them, they appeared in my mind as beings capable of such endeavours. I began to try and verify my anthropomorphic projections, searching instead for the genuine reasoning behind their actions and behaviours. I began wondering about the complexity of their world beyond just the facts I knew. I began perceiving each animal as a being with a capacity for mental and spiritual reasoning – albeit different from my own.

Such an anthropomorphic lens became the foundation for my conscious connection to these animals and the origin of my empathetic positioning. The animal fable animations I was raised on planted the idea of the animal conscience in my young mind, and my first-hand interactions with these animals in the wild nurtured this small idea into an overarching empathetic awareness of the natural world. I began to see the potential of animated storytelling to imprint critical narratives and worldviews on an audience. Considering this, my career in animation was not a surprising development later in my life – animation bridged the gap between my need for creative expression and my desire to understand animals and their environments. Animation became the most fluent language for articulating the delicate balance between humans and our natural world, such that the universality of visual storytelling transcends the barriers of spoken word alone. I realised that anthropomorphising animals in animation could allow audiences to witness a world from an animal's perspective with a positive predisposition.

Chapter 2

Contextual Knowledge

Introduction

This chapter offers a review of related knowledge that contextualises this research. This review adopts animation as its core direction of inquiry and focuses on nine facets of animation research:

History of Animation

Storytelling in Animation

Aesthetic Experience in Animation

Character-Building, World-Building and Audience Involvement

Animator's Purpose and Positionality

Anthropomorphism and Animation

Anthropomorphism in Character Animation

Anthropocene and Anthropocentrism

Animation Practitioners

History of Animation

The history of animation presented here is not an exhaustive history of the medium. But rather a documentation of significant advancements that contribute to the execution of the present research.

The term animation originates from the Latin verb *animare*, which means “to breathe life into” (Oxford English Dictionary, 2024). The animation medium evolved alongside the visions of its creators; however, it persisted in its core function – the communication of people’s philosophies, morals, feelings and experiences through “a creation that gives the illusion of life” (Thomas & Johnston, 1995, p. 13).

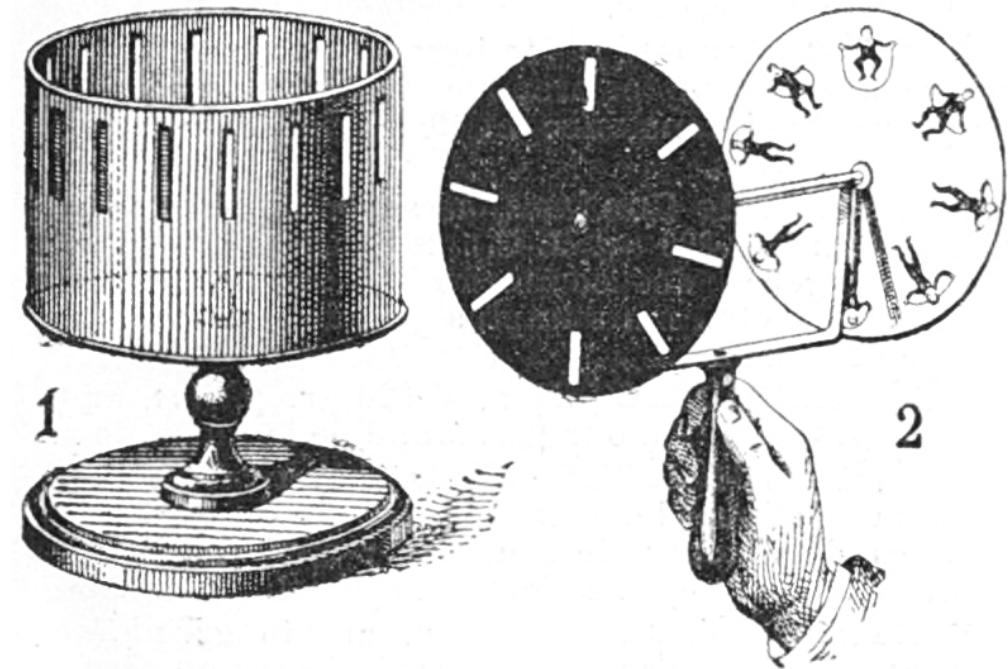
The history of animation stretches back in time as some scholars posit that the earliest form of animation traces back to the flickering firelight animating figures depicted in Palaeolithic cave paintings (Azéma & Rivère, 2012; Sakamoto et al., 2020). It is conceivable that prehistoric audiences, witnessing these figures seemingly come alive on cave walls due to the torchlight’s movement, experienced an early form of storytelling through the suggestion of motion.

By the end of the 18th century, a new kind of illusory light show was invented – astonishing the unaccustomed audiences with an ancient form of horror theatre called Phantasmagoria. This early theatre was performed in a pitch-black room and utilised concealed light projectors to cast ghostly imagery onto the backs of see-through fabric, supplementing the experience with sound effects and smoke. As the projector was moved towards and away from the fabric screen, the illuminated imagery warped and changed in size, seeming to “surge towards the terrified spectators” in an early form of animated performance (Mannoni & Brewster, 1996, p. 390).

The 19th century witnessed the invention of optical devices that served the growing development of animation as a scientific design of motion. The Phenakistiscope used a series of sequential images arranged around a spinning disk with viewing slots. As the disk spun, the images appeared to blend together, creating a brief looping animated sequence. The Zoetrope had improved versatility by incorporating a perforated drum into the design, allowing the series of drawings to be swapped out by the viewer for strips of new animations (Figure 2.1). Devices like the Praxinoscope (Figure 2.2) employed similar principles with rotating discs and mirrors (Bendazzi, 2015; Lipton, 2021). Although dismissed as mere toys (Leskosky, 1993), they were, in fact, the forerunners of animation, captivating audiences with their novel optical phenomena (Fussandier, 1879).

Figure 2.1

The Zoetrope and the Phenakistiscope



Phénakistiscope : 1. Ordinaire ; 2. Ancien.

Note. In 1832, Joseph Antoine Ferdinand Plateau invented the Phenakistiscope (right). This device was the first to use perforated viewing slots as a simple shutter, without which the images would blur together indiscriminately. In 1833, William George Horner’s Zoetrope (left) improved on the Phenakistiscope’s concept, incorporating a larger body that allowed multiple viewers to witness the animation simultaneously. From Gallica Bibliothèque Nationale de France, Larousse Pierre, 1907 (<https://gallica.bnf.fr/ark:/12148/bpt6k34131285/f439.item.zoom#>). In the public domain.

Figure 2.2

The Praxinoscope

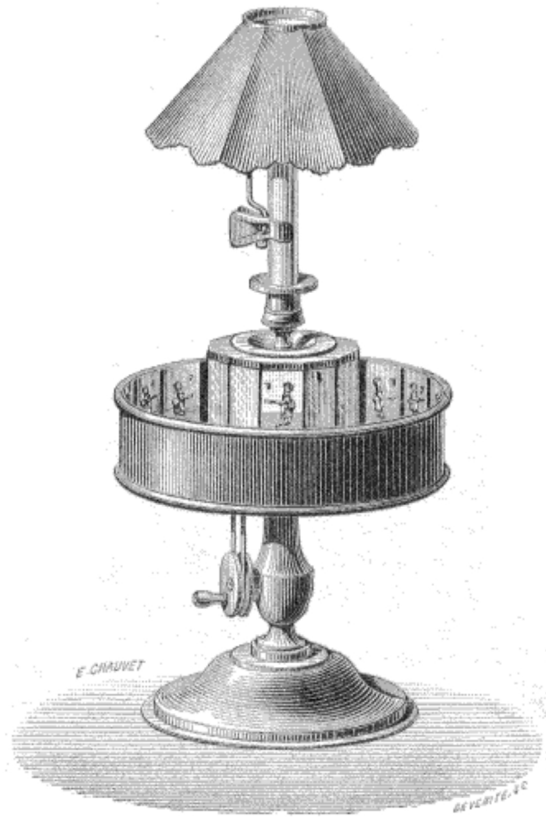


Fig. 2. — Le Praxinoscope.

Note. In 1876, Charles-Émile Reynaud's Praxinoscope moved away from viewing slots as shutters, instead developing a system of arranged mirrors to alternate breaks between successive images. The animation of this invention could be viewed from any angle by any number of viewers. From le Cnum The Digital Conservatory of Arts and Crafts, 1879 (<https://cnum.cnam.fr/pgi/fpage.php?4KY28.12/137/100/432/0/0>). In the public domain.

The 20th century saw the flourishing of cel animation, a technique where hand-drawn frames on transparent celluloid sheets brought characters to life with fine detail. Films like Walt Disney's *Snow White and the Seven Dwarfs* (Cottrell et al., 1937) showcased animation as a storytelling medium and an art form capable of captivating audiences worldwide (Williams, 2009).

The 21st century ushered in a new era with 3D computer animation. Often referred to as a new digital cinema (Wells, 1998), 3D animation offered realistic visuals to create worlds and expanded the creative possibilities of animation even further (Wells, 2006; Zhao, 2021).

Storytelling in Animation

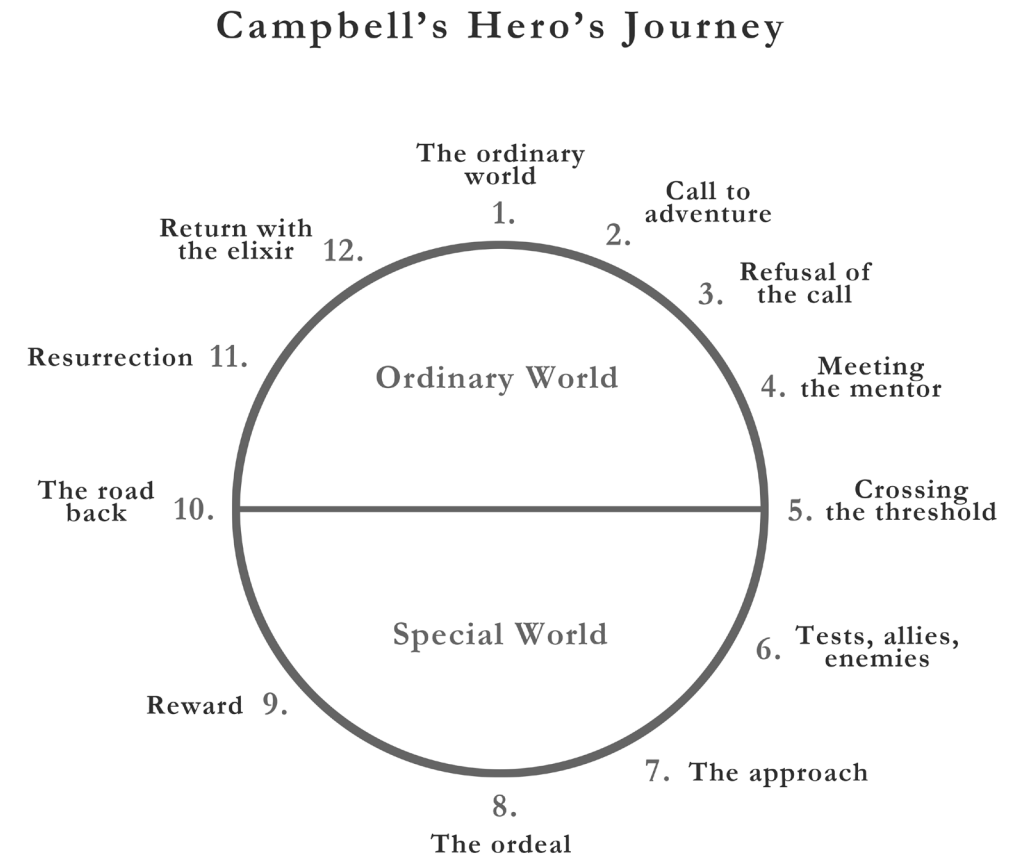
The core aspect of every fictional piece, visual or written, is the storytelling – the substance of ideas, themes, and morals exemplified through the development of consequences in a given narrative. Sullivan et al. (2008) state that in animation, most feature-length character-driven films follow Joseph Campbell's (1949) monomyth of the hero's journey, wherein the character through whom the story is told is called to adventure and quest, undergoes trials, and faces a crisis before finally establishing a resolution as a transformed individual (Figure 2.3).

In 1971, narrative theorist Tzvetan Todorov outlined his Narrative Theory of Equilibrium, a storytelling structure that could be more universally applicable, befitting narratives of various cultures, genres, and expression media. This narrative structure delineated five stages: *Initial Equilibrium*, where the current state of the character and the world is presented; *Disruption of the Equilibrium*, where a problem appears; *Recognition of the Disruption*, where the character notices the problem; *Attempt to Repair the Disruption*, where the character strives to fix the problem, and *New Equilibrium*, where an alternate world and a changed character is created (Figure 2.4) (Todorov, 1971). While advancing through these stages, this narrative structure assumes an interlinked cyclical evolution whereby the ending phase denotes the beginning of another equilibrium loop.

As this animation project encompasses the creation of a short, cyclical narrative, Todorov's equilibrium theory is more applicable within its structural foundation. In utilising this structure, the animation presents to the audience a complete story arc and development within a condensed short film format, presenting the new equilibrium as a state of environmental and philosophical thinking that the character and, by extension, the audience is experiencing at the end of the film (Todorov & Weinstein, 1969).

Figure 2.3

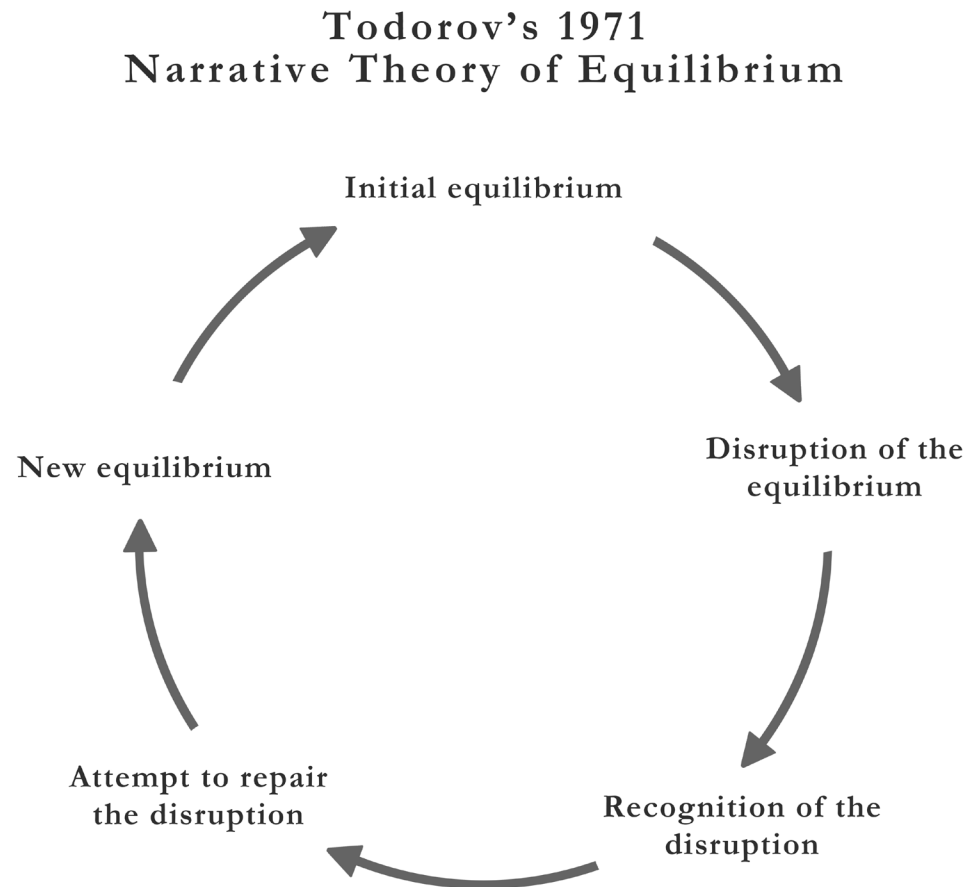
Joseph Campbell's Hero's Journey Diagram



Note. Joseph Campbell theorised this narrative structure by analysing the folktales of various cultures and thereby proposed the monomyth as a recurring recipe of themes in worldwide storytelling.

Figure 2.4

Tzvetan Todorov's Narrative Theory of Equilibrium Diagram



Note. Tzvetan Todorov outlined five stages within his narrative structure. Much like Joseph Campbell, Todorov based his theory on the analysis of folk tales.

Aesthetic Experience in Animation

Aesthetic experience in the context of animation can be understood as the emotional and cognitive responses elicited by animated works, which are crafted through a blend of visual artistry, storytelling, and sometimes sound (Wells, 1998). In analysing the storytelling of Pixar's character-driven animated films, Herhuth (2017) discerns that there is a secondary narrative created through the aesthetic experience of animation, whereby the design of sensations, movements, and textural forms in animation invokes a subliminal narrative unique to this medium. Herhuth argues that this aesthetic experience manifests into audience interaction as the viewers watch a character discover their world through their experiences and assimilate the character's senses, feelings, and judgements as their own by witnessing phenomena within the world of the film (2017). This type of audience interaction encourages the viewer to immerse themselves in the fictional reality of the animation, thus converting the viewer from an observer into an involved participant in the world and its aesthetic experience (Herhuth, 2017).

Character-Building, World-Building and Audience Involvement

Character-building and world-building are foundational techniques in storytelling, designed to develop characters' personalities and their environments. Character-building focuses on creating complex personalities that viewers can empathise with as relatable figures. World-building involves constructing environments that support the storyline, adding depth to the narrative framework. These techniques allow animators to explore imaginative scenarios that live-action formats cannot capture, expanding the scope of storytelling possibilities (Crafton, 2013; Thomas & Johnston, 1995).

Disney animators Frank Thomas and Ollie Johnston (1995) describe animation as an art form that relies on its viewers' emotional investment in the characters and the plausibility of their actions, called audience involvement. To encourage audience involvement, the animator must consider every facet of the character's spirit as an item of their personality, solidifying the reality of their existence within an otherwise fictitious setting.

The first role of the animator is that of the character-builder and world-builder. As the animator imagines, designs, and realises the character and its world, they permeate their creative choices in shape, texture, staging, movement, progression, colour, and sound with the overarching goal of

achieving a convincing emotive performance before the audience (Thomas & Johnston, 1995). The audience is therefore invited to share in the characters' investment, to momentarily suspend their disbelief and "actually feel the emotions of a cartoon character" (Thomas & Johnston, 1995, p. 14). To cultivate the character's spirit, the animator must permeate their character's morphology and movements with subsurface knowledge: the character's foundational motivations, history, attitudes, and feelings (Thomas & Johnston, 1995). The animator borrows from real life, incorporating universally shared senses and concepts into the performance to simulate a believable animated character. In this way, animation uses world-building and character-building to bridge the audience's values with the animator's purpose – allowing the animator to articulate messages to empathetic listeners.

Animator's Purpose and Positionality

This project assumes the role of the animator as an overarching lens through which the research is creatively and ideologically conceived. Research in design is distinct because it merges objective inquiry with subjective creative practice. As such, design practitioners bring their own personal experiences, biases, and values into the research process, which influences the methods used and the interpretation of the results (Mäkelä & Nimkulrat, 2011).

The animator's purpose, in this case, assumes this project's positionality in ethical, environmental, ideological, and philosophical spheres in this animation research project's creation. In doing so, this research acknowledges the presence of bias. Schön (2017) states that bias is not merely a potential error to be eliminated but a significant aspect of the research process that needs acknowledgement and reflection. He thus asserts that the reflective practice in design involves continuous dialogue between thinking and doing. As practitioners engage in the creation process, they simultaneously reflect on their actions, decisions, and underlying assumptions and beliefs (Schön, 2017). This reflective practice is essential for the evolution of design methodologies and for the personal development of the designer as a researcher.

Animation, being a creator-dependent medium by virtue of its hand-crafted nature, relies on its creators' subjective design decisions for its outcome. In chronicling the creative lives of Disney's animators, Canemaker (2001) suggests that the animated film is the ultimate result of its creators' own feelings, personalities, aesthetic tastes, sense of humour, morals, beliefs, and philosophies as translated into storytelling, character-building and world-building.

Anthropomorphism and Animation

Anthropomorphism, derived from the Greek term *anthrōpomorphos* as the combination of *anthrōpos* meaning "human being" and *morphē* meaning "form" (Oxford English Dictionary, 2023a) - is the projection of human traits, behaviours and emotions onto non-human objects and beings (de Waal, 1999). The Scottish Enlightenment philosopher David Hume (2003) considered anthropomorphism a facet of human nature, regarding it as the tendency to interpret things from the human perspective. In his *A Treatise of Human Nature* (2003), Hume argued that animals' capacity for abstract thought and emotional intelligence must parallel that of the human mind, since, if the external actions we perform appear so similar, then the internal mechanisms that cause them must also be of a resembling calibre.

Hume (2003) suggested that humans recognise and determine the mental complexity of another species by reflecting human traits within that species. As such, to anthropomorphise is to experience the world as a human – using our innate awareness of self to navigate our understanding of other beings. In this way, Hume regarded this understanding of anthropomorphism to be the ultimate confidence in the mind complexity of other species.

De Waal (1999) states that anthropomorphism is the natural culmination of the anthropocentric perspective, whereby anthropomorphism and anthropocentrism are adjacent in their core significance. He argues that the tendency to anthropomorphise other beings stems from humans holding themselves at the centre of their permanent focus and, therefore, also interpreting other species through this lens in a tunnel-vision-like fashion.

Butterfield (2012) observes that despite its pervasive bias towards the human race, the anthropocentric perspective can be used to extend and amplify empathy towards other species. Butterfield's clinical trial study of the real-world applications of anthropomorphism establishes that anthropomorphising dogs through emphasising their human qualities produces a greater level of empathy, encouraging a positive attitude towards their clause.

Anthropomorphism in Character Animation

The use of anthropomorphism in character animation has been so prevailing through the centuries that the technique has become “virtually synonymous” with the medium itself (Power, 2008, p. 37). Power (2008) describes the animal anthropomorph as a multi-layered character capable of resonating with various age groups, cultures, genres, and belief systems. In utilising its shape-shifting identity, the anthropomorph can naturalise a near-infinite number of possibilities for creative and ideological articulation within the animated film. Power (2008) attributes this feature of the anthropomorph to its representational ambiguity – whereby the anthropomorph is human-like enough to yield audience relatability and simultaneously non-human enough to separate the character from any group or entity. Wells (2006) suggests that the animal anthropomorph becomes a vehicle by which political and cultural statements can be made on behalf of the real-world animals the character represents.

Holliday (2016) argues that the animated anthropomorph is evolving to favour its identity as an animal above its identity as a human, a phenomenon he defines as a hierarchal switch – a shift away from the anthropocentric bias of the *anthrōpos* identity in an embrace of the anthropomorph’s conceptual possibilities as a non-human *morphē* identity. Thus, Holliday asserts that animal anthropomorphism in modern animation could initiate conversations on the depiction of the animals in question – prompting the re-evaluation of the anthropocentric perspective regarding other species.

Anthropocene and Anthropocentrism

The term Anthropocene is described by Ellis (2018) to be the newly-proposed geological epoch delineating human existence from the first point of significant negative environmental human impact on the Earth to the current day. Mahaswa and Purbandani (2023) state that the Anthropocene adopts a default anthropocentric position – whereby the human exists at the centre of the shared universe, and world-changing decisions are solely considered from a human-centred point of view. However, they go on to propose an alternative approach to anthropocentric thinking by integrating pluriversal notions into consideration. The pluriverse constitutes a post-developmental philosophy that acknowledges the many worlds above any single one. In doing so, it envisions the coexistence of diverse forms of life by recognising the value of their differences (Mahaswa & Purbandani, 2023).

This project assumes a pluriversal perspective: the pervasiveness of the anthropocentric agenda is explored within the film’s narrative to propose an alternative awareness of pluriversal worlds.

Animation Practitioners

UP (2009), Character-Building and World-Building

The feature film *Up* (Docter & Peterson, 2009), produced by animation studio Pixar, is a manifestation of successful character-building and world-building with regard to its effect on the audience – the aspects of which this project seeks to explore. The film’s opening sequence, wherein the married life of the characters Carl and Ellie Fredricksen plays out, is void of dialogue and relies entirely on sound, colour, composition, and acting to articulate the narrative. As the two characters grow, dream, love, support, and overcome hardships together, an instrumental melody reflects their lives transpiring through highs and lows by transitioning from major to minor keys and prompting an analogous emotional reaction from the audience. In allowing the soundscape to gain limelight in the scene, the animation unlocks a realm of auditory expression that bolsters the emotional effects of the animated visual image. This project seeks to cultivate a similar connection between the visual and the auditory elements of the animated film - utilising ambient sounds of nature as the aural accompaniment to the happenings of an otherwise nonverbal animated narrative. Such an approach encourages the audience to develop their own understandings on the film’s fictional world, allowing them to establish personal connections to the characters.

The lives of Carl and Ellie are shown in almost bullet-point format for the sequences’ laconic editing; however, the deliberate uses of colour within each sequential shot fully expound its narrative purpose, leading the audience through the story while garnering emotional investment in its characters. In portraying the characters’ hardships, scenes adopts muted, clinical hues of cold blues and greys. Inversely, in portraying their happiness, the scenes transform into saturated, warm hues of bright yellows, reds, and greens. This project incorporates an equivalent colour language to denote the character’s emotional state, adopting a visual language to express subjective sensations.

***Ratatouille* (2007) and Anthropomorphic Identity**

In 3D animation, the anthropomorphic animal character simultaneously belongs to two distinct identities: that of the human *anthrōpos* and that of the animal *morphē* (Holliday, 2016). While embodying their *anthrōpos* identity, the character behaves as a human in animal skin by wielding human speech and behaviour. While embodying their *morphē* identity, the character reverts into a naturalistic representation of a wild animal (Holliday, 2016). Pixar's 3D animated feature film *Ratatouille* (Bird & Pinkava, 2007) is a unique blend of both identities – an aspect that this project seeks to explore.

The film's main character, a rat named Remy, traverses between the divergent worlds of the humans and the animals, switching his identity in turn. In traversing the animal world, Remy embodies the *anthrōpos* identity as he communicates with his rat brethren using human speech, suggesting the animals' unity as a species is being translated for the audience to witness in their mother tongue. In entering the animal world, Remy is transformed into the *morphē* being – his human speech turns into rodent squeaks, and his body language begins resembling shifty, rodent-like movements as seen from the point of view of Alfredo Linguini, the human. In considering this anthropomorphic switch, this project explores the *morphē* identity as the least human-influenced representation of the animal character in animation; this identity allows the animator to endow the animal with elements of human emotional expression while preserving their core identity as a unique being.

While *Ratatouille* frequently endows the anthropomorphic character with human speech, there is a deliberate separation made between Remy's *anthrōpos* dimension and his *morphē* dimension as a narrative technique that signifies the species' inherent divergence. Remy's identity switch suggests that despite possessing a human-level intellect, humans identify him as an animal due to the language barrier between the species. This project seeks to address a similar issue as its core philosophy – exploring the effects of the aforementioned language barrier as the character interprets an anthropocentric world through their morphic lens as a human-animal hybrid. While this dichotomy of the anthropomorphic animal explores the idea of species separation, it simultaneously celebrates the natural similarities between them where it matters most – ennobling every creature's right to live and find joy in life. Thus, by creating the *morphē*-centric anthropomorph, this project seeks to elevate the animal as a thinking and feeling being with a value naturally on par with that of humans.

Conclusion

This chapter has considered the range of knowledge that contextualises this practice-oriented animation research project. In doing so, this chapter has touched on the animation medium's historical development, narrative structure, aesthetic experience, character-building and world-building, purpose and positionality, anthropomorphism, the Anthropocene and anthropocentrism, and embodiment. This chapter has also examined the practice in two 3D feature-film works of animation studio Pixar in their application of character-building and world-building and employment of anthropomorphism as a storytelling technique.

Having now considered the knowledge that informs this project, this research will progress to discussing the methodological approach taken within this study.

Chapter 3

Research Design

Introduction

This chapter establishes the research paradigm that informs this project's practice-based methodology. The chapter then discusses the methodological framework employed within this 3D animation design, reflecting on the role of heuristic inquiry within the subjective design choices made by the researcher. The extensive nature of this chapter is required due to the application of an industry-based framework, which is explained in detail.

Paradigm

A research paradigm is a theoretical framework that guides the methodologies used in research, encompassing the philosophical assumptions about the nature of reality and knowledge (Guba & Lincoln, 1994; Kuhn, 1962). This project is situated inside the paradigm of artistic research; according to Klein (2010), this paradigm understands artistic practice as a form of research where the creation and experience of art are considered modes of inquiry and knowledge production, challenging traditional distinctions between artistic and scientific methodologies.

Methodology: 3D Animation Framework and Heuristic Inquiry

A methodology is a systematic process used in research to collect, analyse, and interpret data, emphasising the specific methods and procedures employed to address the research questions (Creswell, 2014). This project is framed as a practice-based research methodology, which, according to Candy (2006), involves the creation of a design artefact that serves as the basis for understanding the research. In this way, practice-based research aims to generate new knowledge and insights through the process of making and reflecting upon creative work, thereby emphasising the significance of practical engagement as a component of scholarly research.

This project engages with 3D animation production as the practical component of this exegesis by employing a practice-oriented research methodology. This project adopts a conventional industry framework for 3D animation and expands upon it through the application of some heuristic inquiry principles in the attempt to explore and integrate the researcher's subjectivity in the artefact.

The animation industry framework comprises a development pipeline that begins with narrative conception and ends with commercial screening. Within this pipeline are distinct methods for ideation, production, and post-production, each of which is nuanced enough to constitute discreet professions within the 3D animation industry (Beane, 2012; Glebas, 2012). As such, 3D film creation is primarily a team-based activity that relies on the specialised skill of individual artists to bring an idea into fruition through an iterative development framework (Chandramouli, 2021). While teams of animation artists are required to produce grand-scale results, it is also possible for an individual artist to create an animation, albeit on a humbler scale.

The animation created for this research is the product of an individual designer who serves as the director, producer, and artistic team. Therefore, this project adopts a condensed version of the industry framework that still serves the needs of a smaller-scale animation project. To accomplish this, it focuses on eight core methods for creative development, while distilling the scope of the technical production to be achievable by a single designer within a limited timeframe. As a result of the lengthy production realities common to 3D animation, I have elected to only render the first forty seconds of the film to provide a clear indication of the visual aesthetics of the film. To facilitate understanding of the narrative flow, the rest of the film is depicted in the fashion of a hand-drawn 2D animatic.

This tailored framework concentrates on creating awareness of my critical creative decisions as a researcher to be able to embed personal values and worldviews. In this sense, although the project follows the foundations of an industry framework, it also draws from principles of heuristic inquiry to explore the role of the researcher's tacit and experiential knowledge while creating the animation.

Methods

Methods in research refer to the systematic procedures or techniques used to collect and analyse data, guiding researchers in answering their research questions and achieving their objectives (Creswell, 2014).

Heuristics Inquiry as a Permeating Method in the Exegesis

Heuristic inquiry, as defined by Douglass and Moustakas (1985), is a qualitative research methodology that encourages the researcher's engagement with personal experiences related to the phenomenon under investigation. By immersing themselves in their subject matter, researchers can explore meanings and gain insights that transcend surface-level understanding.

The design outcome for this project is a short 3D animated film, which adheres to the industry production framework to achieve professional results. The framework used in the 3D animation industry is highly technical, featuring detailed technological nuances at each stage, as discussed in this chapter.

However, the researcher is aware of the influence of the subjectivity of the self in research design, where researcher and research are intrinsically connected (Najafi, 2023; Mortensen Steagall 2019).

In this sense, this project development extended beyond the technical aspects, embracing a journey of self-discovery and reflection as described by Douglas and Moustakas (1985) and Schön (2017). By critically examining each stage of the process and its outcomes, the research evolved into a systematic reflective practice (Hiles, 2001). Throughout the project, the designer employed methods aimed at fostering engagement between the designer's practice and insights into the self, the design-making process, and reflective examination, with each element stimulating the others (Ventling, 2017).

While not extensively formalised, the heuristic aspect of this project is evident in the subjective decisions made by the designer at each stage of the workflow, aiming to heighten awareness of this subjectivity. Methods like embodiment were also employed to enhance the understanding of the self's influence on the project's outcomes. However, due to the project's reliance on 3D animation, heuristics was not the primary methodology used in the enquiry. Instead, it served as an additional approach to augment the potential for discovery within the project (Ings, 2011).

Methods of the 3D Animation Framework

In developing the 3D animated short film through the tailored industry framework, this design research employs the following eight methods (Figure 3.1):

Method One: Ideation

Method Two: Modelling

Method Three: Texturing

Method Four: Rigging

Method Five: Animation

Method Six: Hair Grooming

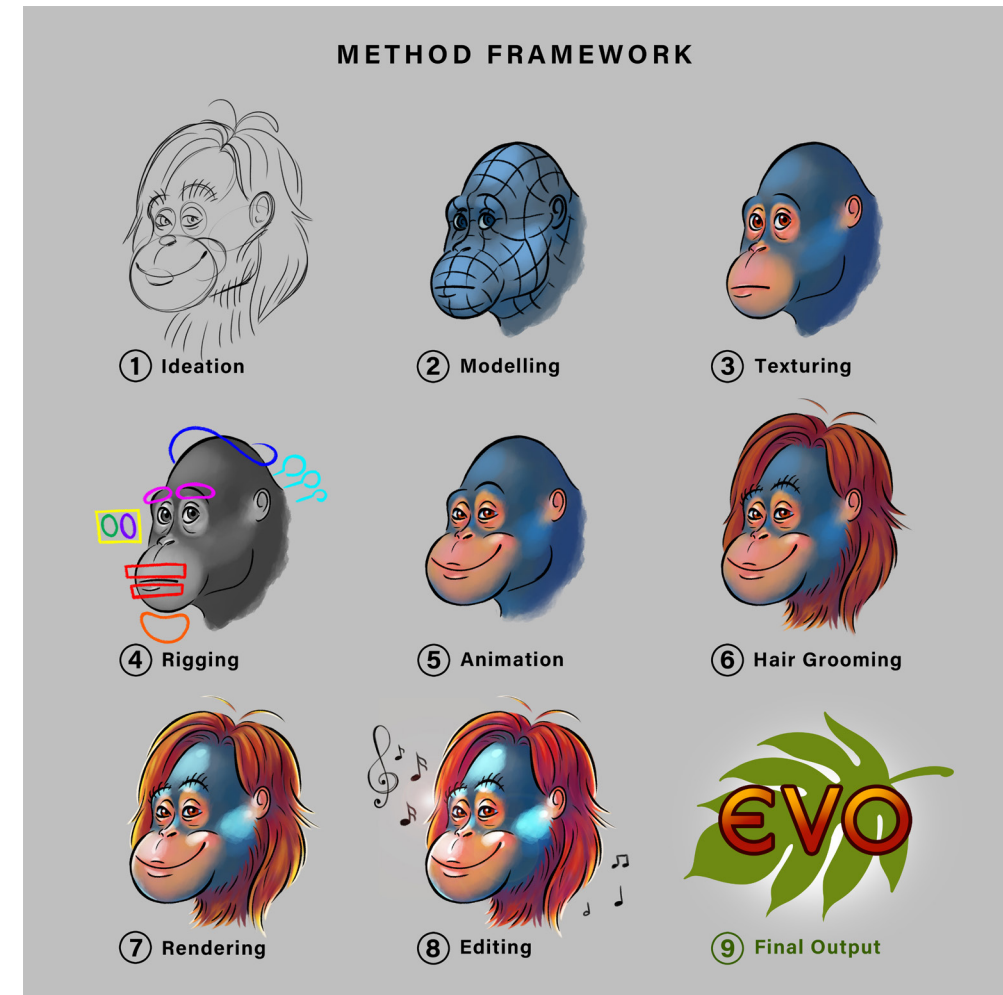
Method Seven: Rendering

Method Eight: Editing

Despite being inherently technologically based, each method required constant creative decisions to be made throughout the production process. These creative decisions often resulted from subjective and/or subconscious reasoning, including personal feelings, intuitions, connotations, ingrained behaviours, core beliefs, and prior experiences.

Figure 3.1

The Method Framework of this Research Design Project (December 2023)



Note. The methods used in this project are interconnected, with each sequential stage building on top of its predecessor. These illustrations visualise the method framework's evolution through the gradual development of the short film's protagonist.

Method One: Ideation

This method encapsulates the conceptual thinking process that led to the ideological and aesthetic development behind this short film project.

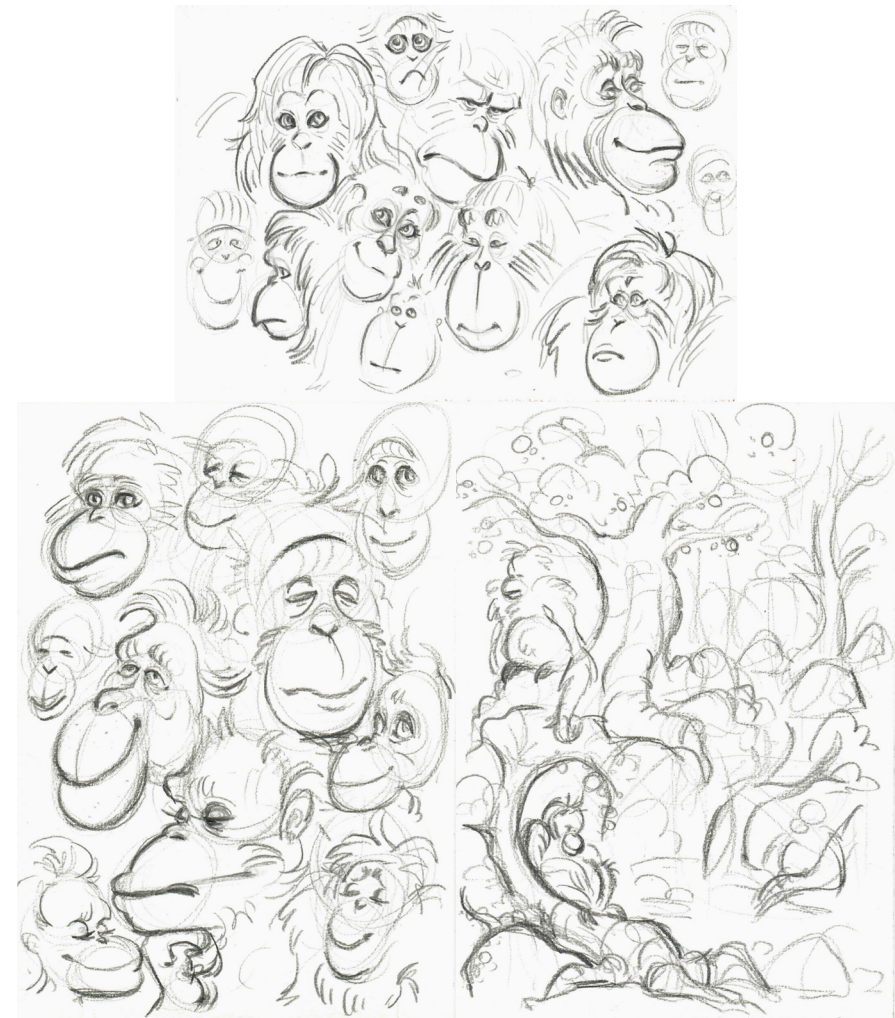
The narrative of *EVO* emerged from the impression of an unexpected character who materialised as I sat in the garden with my mother. It was one of the first sunny days after months of country-wide floodings in New Zealand; feeling particularly nostalgic towards fine weather, my mother and I joked that we looked like a pair of self-satisfied orangutans, squatting in the sunlight with our hair glowing orange. We mused on the human-like quality of orangutans and the animal-like quality of people, our innate similarities in core behaviours and objectives, and our irrefutable dependence on our green Earth. Something clicked in my head: the idea of a glowing orange orangutan suddenly epitomised the sense of wholeness and tranquillity in nature I had been looking to capture.

Later, as I sketched out my thoughts in graphite drawings, the orangutan character gained a penchant for pondering and a lush green environment to ponder in (Figure 3.2). Petherbridge (2010) establishes drawing as the foundation of all visual thinking, wherein the sketch encompasses the invention of ideas and concepts as a response to the external physical world and “the private signs of the subjective and emotive creative self” (p. 2). The longer I drew, the more refined my sketches became – the details appearing through many iterations as if spontaneously unearthed from my paper and pencil by a thinking hand (Pallasmaa, 2017). Soon, the character appeared before me in both form and personality. The character was still nameless, yet the orangutan already possessed a distinct life force (Figure 3.3.1). The natural environment evolved alongside the character, moulding itself to the contours of the creature (Figure 3.3.2).

The sketches developed into digital concept art as the amalgamations of composition, colour, and character (Figure 3.4). Such digital drawings allowed me further to develop my fictional world and its inhabitants by testing out possible layouts, colour schemes, and tonal impressions through digital experimentation. Once these drawings fulfilled their ideational objective, I progressed to illustrating the short film’s narrative in a beat-by-beat format through the development of the project’s storyboard (Figure 3.5). The construction of this storyboard emerged as the result of a dozen amalgamated thoughts, ideas, and conversations shared between close family and friends. Thus, the story beats in this document were evoked by the imagined character’s ruminative personality and intuitive human-like behaviour and thinking.

Figure 3.2

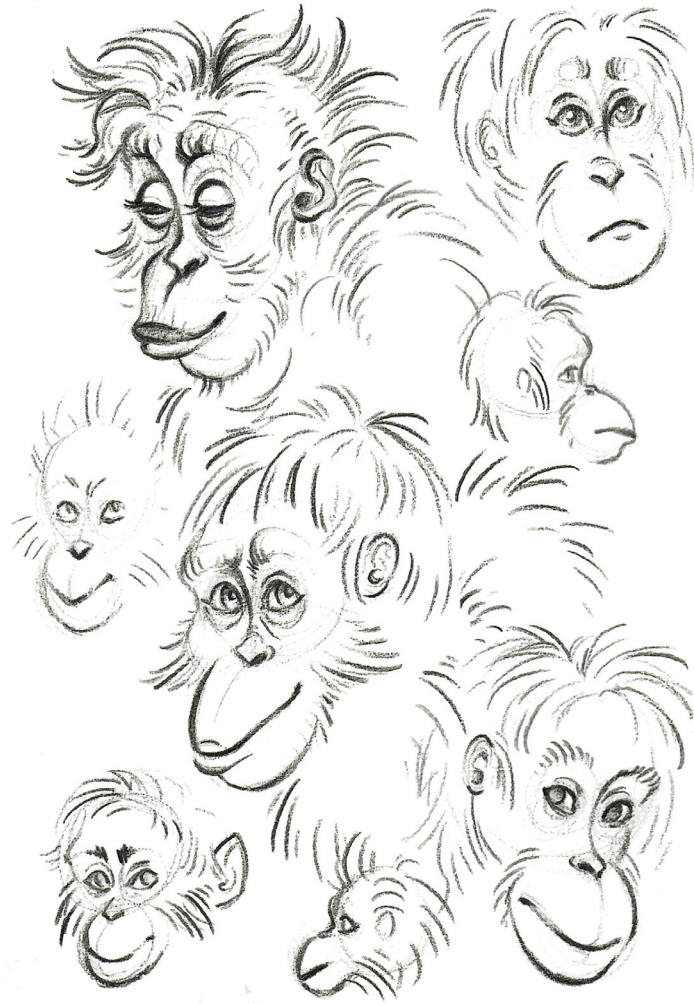
Initial Explorative Graphite Drawings (February 2023)



Note. Such experimentations were the beginning of my conceptual invention, helping me visualise my thoughts and gain a tactile feel for the character’s possible personality traits and overall aesthetic temperament of the environment.

Figure 3.3.1

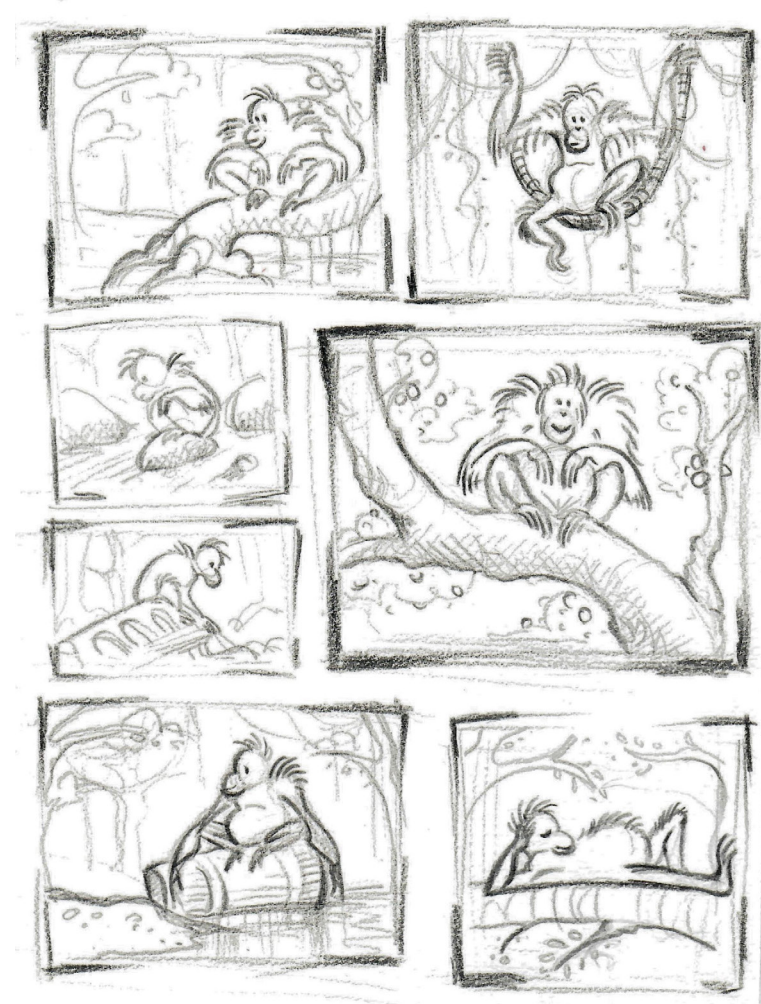
Refined Sketches of the Character (February 2023)



Note. At this stage, the character had begun to develop a distinct personality through their eyes and mouth.

Figure 3.3.2

Refined Sketches of the Environment (February 2023)



Note. Such sketches visualised the possible staging of the character in the scene, considering their storytelling potential.

Figure 3.4

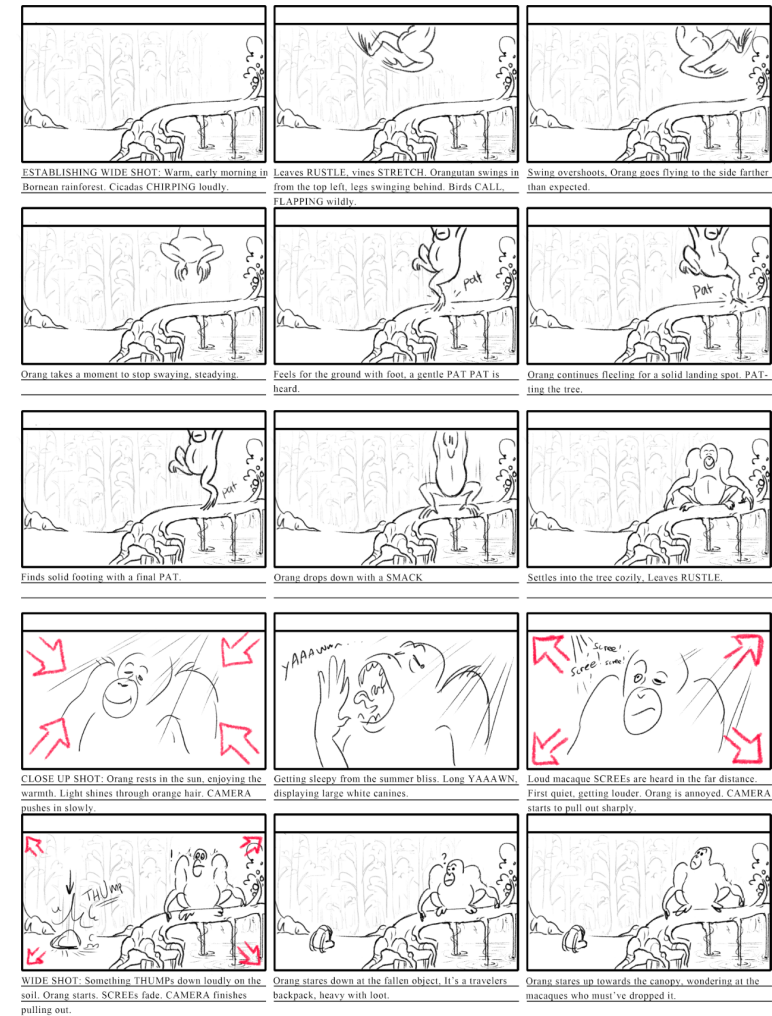
Digital Concept Art Example (February 2023)



Note. The digital illustrations were created in Adobe Photoshop, allowing me to iterate colour combinations to generate experimental look-development variations.

Figure 3.5

A Page from the Storyboard (March 2023)



Note. This page conceptualises the character's first appearance through illustration and written word depicting the character's actions, camera direction, and diegetic sound design.

Method Two: Modelling

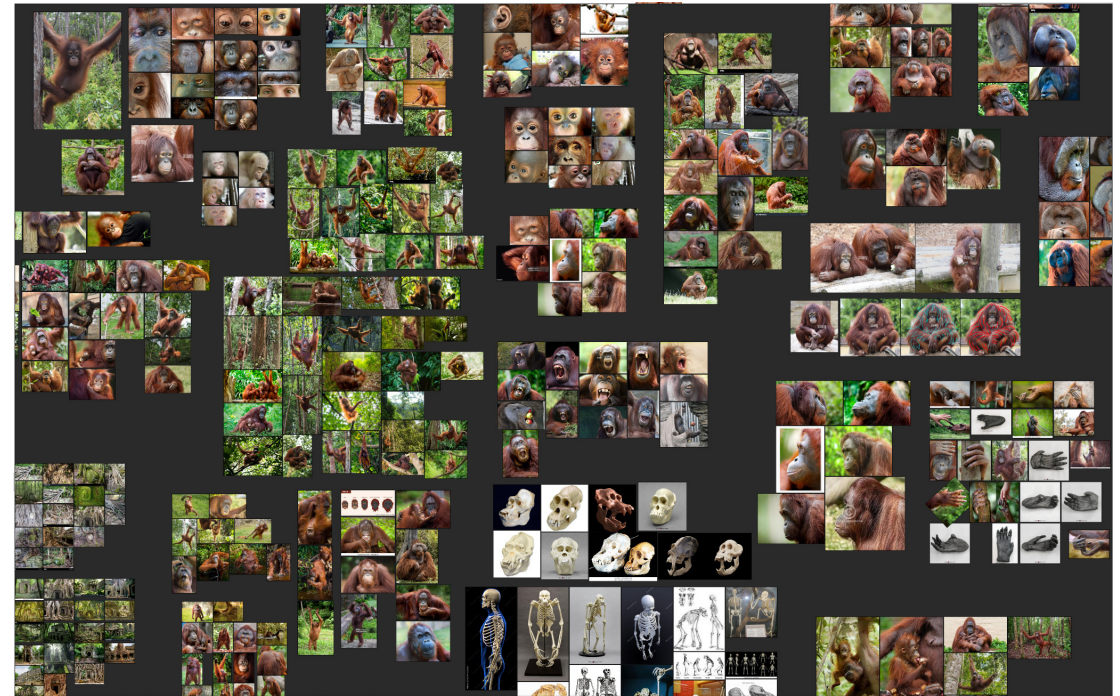
3D modelling is the process of creating the shape of an object, environment, or character within a 3D software environment. Like traditional clay sculpting, digital 3D modelling uses subtractive and additive approaches to manipulate the material – carving, chiselling, scraping, and building it up to generate a three-dimensional form (Chandramouli, 2021).

Having transitioned into the 3D modelling sphere from a lifetime of sculpting with raw clay materials, I approached the digital realm with the embodied foundational techniques of the old medium (Pallasmaa, 2017). I sculpted the digital character in large, general strokes – laying down the silhouette and proportions before incorporating the more precise features of the face and hands. Much like assembling the foundational form in raw clay, this approach to digital sculpting allowed me to investigate the character’s overall morphology through tactile experimentation before deciding on the defining details.

To gain an initial grasp of the orangutan’s physiognomic persona, I compiled a large-scale document of reference imagery that visualises standard orangutan behaviour, morphology, anatomy, and overall aesthetic temper (Figure 3.6).

Figure 3.6

The Large-Scale Reference Document (August 2023)



Note. Within this document I collected photographs of different orangutans in various poses, angles, lighting, and weather conditions. Splitting these photos into smaller sub-groups allowed me to gain a sense of the ranges of features and characteristics they tend to exhibit. In compiling this document, I studied the animal’s anatomy, physiognomy, and texture blueprint.

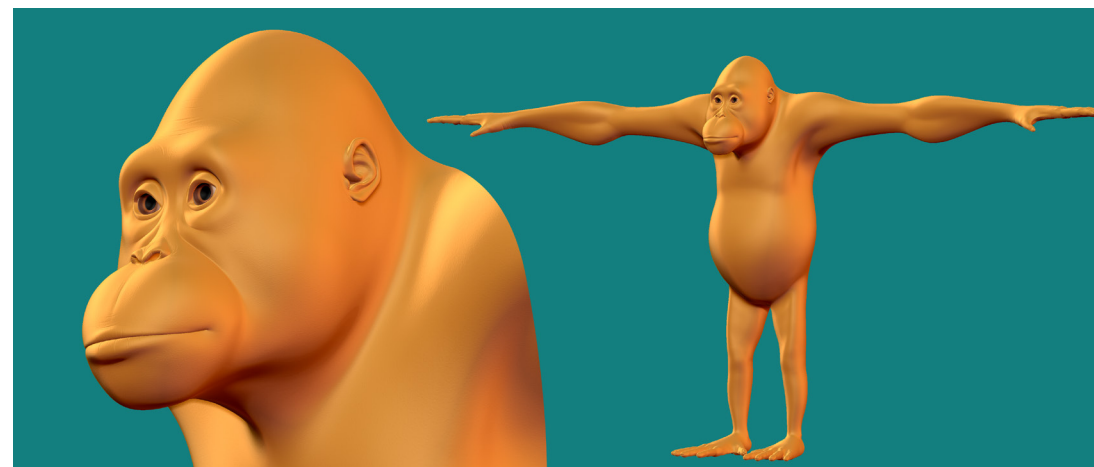
Soon, I discovered that orangutans come with as much morphological variety as people do and that I needed to narrow down the endless choices to design an animation-ready character. The orangutan in my mind's eye was a gentle, inquisitive, and friendly soul. As I looked through my references, two things became clear: the orangutan was a young woman, and her name was Alyami (Figure 3.7). Orangutans, being sexually dimorphic, exhibit striking differences between males and females: the males are larger, often with prominent cheek flanges and neck pouches for acoustic displays, while the females are smaller, with softer facial features and more gracile frames. Thus, the female orangutan reflected what I needed the character to personify – a calm, ponderous nature cloaked in a bright orange fur facade.

In modelling Alyami's finer facial features, I considered two aesthetic possibilities: hyperrealism versus substantial stylisation. Hyperrealism would result in a true-to-life depiction of the orangutan, but it would risk the character falling into the Uncanny Valley (Mori et al., 2012; Tinwell, 2014), wherein the audience feels immense aversion when encountering a near-perfect likeness that falls short in subtle, but crucial ways (Jentsch, 1997). In contrast, pure stylisation would ensure a flexible, animatable character, at the cost of exacting detail. As I sculpted first the hyper realistic extreme, and then remoulded it into an over-stylised rendition, I found both options to be complete dead ends. Through navigating this understanding, I began to feel out the balance between the two extremes: a stylised approach with selective micro detailing where the actual animal exhibits it most prominently. This application of small-scale pores and wrinkles across the character conveyed materiality and believability of the skin surface as belonging to a living, emotive being without risking a grotesque approximation of realism (Figure 3.8).

This method allowed me to portray Alyami's personality through her physiognomy – her wit derived from her large, almond-shaped eyes, her nimbleness from her long, lithe fingers, and her emotiveness from her malleable, expressive profile (Figures 3.9.1, 3.9.2, and 3.9.3).

Figure 3.7

The Base Model of Alyami the Orangutan (April 2023)



Note. After spending several months iterative sculpting the character in Maxon ZBrush, I settled on this design for the base model. At this stage, the proportions were finalised, and I was ready to move on to creating the finer details.

Figure 3.8

The Finer Details of Alyami's Model Design (April 2023)



Note. Alyami's pores, wrinkles, and folds transcribe her textural efficacy. These macro elements imbued the previously glass-smooth model with life-like imperfections, diffusing the light reflections in a more realistic manner.

Figure 3.9.1

Alyami's Almond-Shaped Eyes (April 2023)



Note. This snapshot displays Alyami's eyes in a macro closeup. Her eyes are large, almond-shaped and inwardly angled, suggesting a being that perceives the world keenly and quickly.

Figure 3.9.2

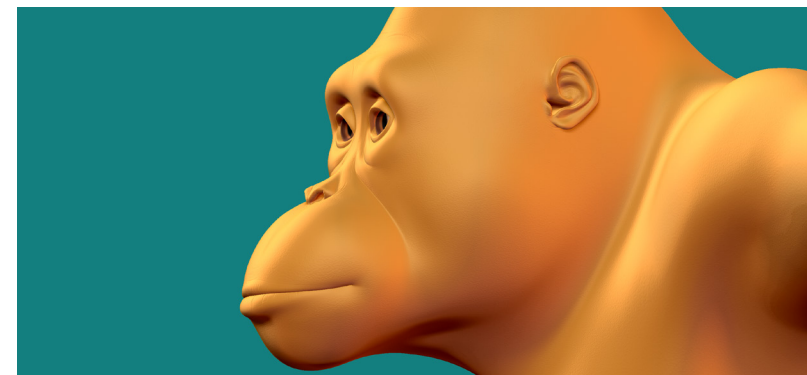
Alyami's Fingers (April 2023)



Note. These deep folds and taut ligaments were modelled with real-life orangutans in reference to reflect the nimbleness of the real-world animal. I borrowed characterising elements from the animal's physical features to establish the character in a similar light.

Figure 3.9.3

Alyami's Profile (April 2023)



Note. This snapshot displays Alyami's profile. The pronounced curves in her jaw and browbone allow stylised, exaggerated acting to be performed later in animation.

Method Three: Texturing

Texturing is the method of applying colour and surface properties to a 3D model (Figure 3.10). In a standard 3D texturing workflow, a 3D model is prepared for texturing by being mapped out across a two-dimensional surface (called a UV tile), on top of which texture information is overlaid as image data and projected onto the 3D model at the corresponding polygonal coordinates (Ebert, 2003).

Figure 3.10

Alyami's Model Being Prepared for Texturing (September 2023)

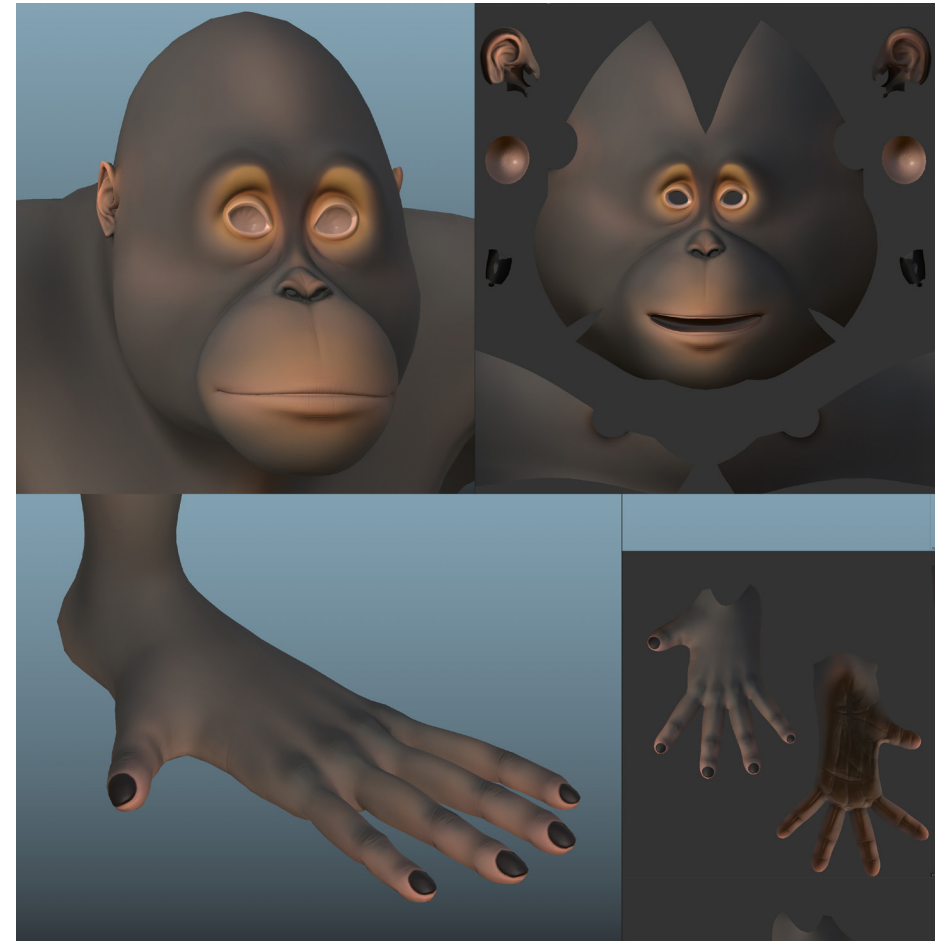


Note. The Alyami model on the left and her UV tiles on the right. The model is effectively cut where the seams would be least visible and flattened for texturing in Adobe Substance 3D Painter.

Figure 3.11

Alyami with the Texture Applied (September 2023)

This method curated the overarching aesthetic experience of the bare character model. To maintain a youthful feel to Alyami, I took extra care in texturing her face and hands, conscious not to overpower the gentler features with sharp lines and harsh contrast changes. After some iteration, I realised the youthfulness factor should come from nature's design of the inborn pigmentation of juvenile Bornean orangutans. Thus, I applied a gradient colouration that highlighted the eye sockets, mouth, nose, palms, and ears with a peachy orange, flowing smoothly into the rest of the duskier body. This shading helped to accentuate the articulative facets of the character – attracting the eyes of the viewer to where Alyami is looking and what she is thinking and feeling, encouraging the viewer to experience her world (Figure 3.11).



Note. I hand-painted the entirety of the model in Adobe Substance 3D Painter, achieving an airbrushed appearance across Alyami's face and body.

For the foreground environment, I looked towards the Bornean landscape for inspiration. Narrative-wise, Alyami sits atop a toppled column – a chunk of ancient architecture, half sunken into the soil and water of a nearby rainforest stream. When texturing this column, I strived for a reclaimed-by-nature effect to incorporate the asset into the aesthetic environment of the Bornean rainforest and the narrative undercurrent of environmental standing. Through the layering of dark ochres of deteriorating clay, greens of blooming algae, and yellows of spreading lichen, I achieved a weathered appearance that positioned this pillar as a natural part of the landscape and told the story of its history – suggesting centuries past and the indicating the undertones of human civilisation being returned to the greater nature (Figure 3.12).

Figure 3.12

Textured Column Model (September 2023)



Note. Prior to texturing, this column was modelled in Autodesk Maya and Maxon ZBrush to create prominent damage. This damage was then highlighted with colour and roughness during texturing for a weathered effect.

Method Four: Rigging

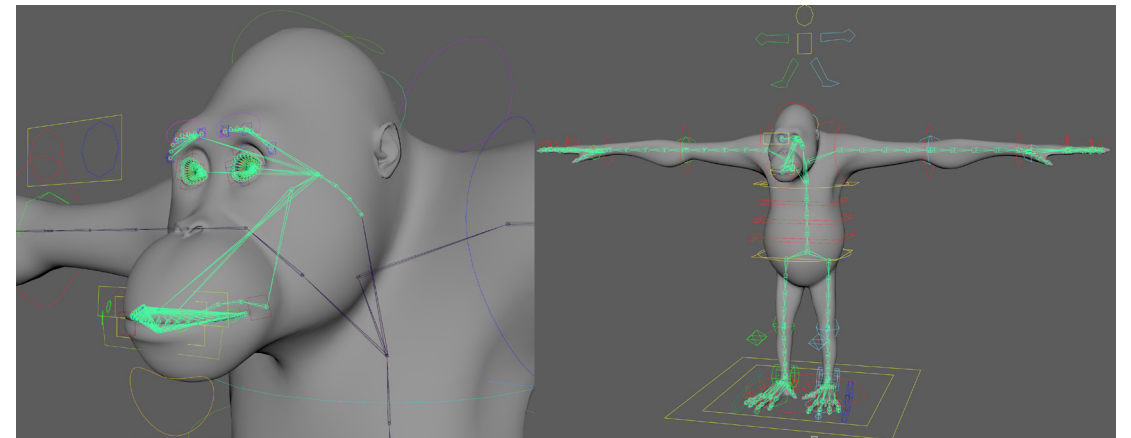
Rigging is the method through which the character model is prepared for animation, whereby a skeleton composed of bones and joints is created to operate, control, and animate the overlaying character model (Figure 3.13). An animation-ready character is called a rig (Chandramouli, 2021).

Before rigging Alyami, I analysed footage of orangutans performing facial and full-body actions, allowing me to grasp the characteristics of their movement. This analysis allowed me to identify the rigging objectives for the orangutan character. Briggs (2021) describes this process as a critical step in the rigging workflow which enables the artist to prioritise the essential movements within the planned animation, thus streamlining the rigging process.

I rigged the character using mGear, a modular plug-in for Autodesk Maya. This rigging framework allowed me to create multiple iterations of joint placements, model topology, and animation controls until I developed a rig that fulfilled the narrative requirements and performed correctly during manipulation (Figure 3.14). In doing so, I trialled a series of facial poses during the rigging process to ensure a comprehensive range of expressions was available during animation (Figure 3.15).

Figure 3.13

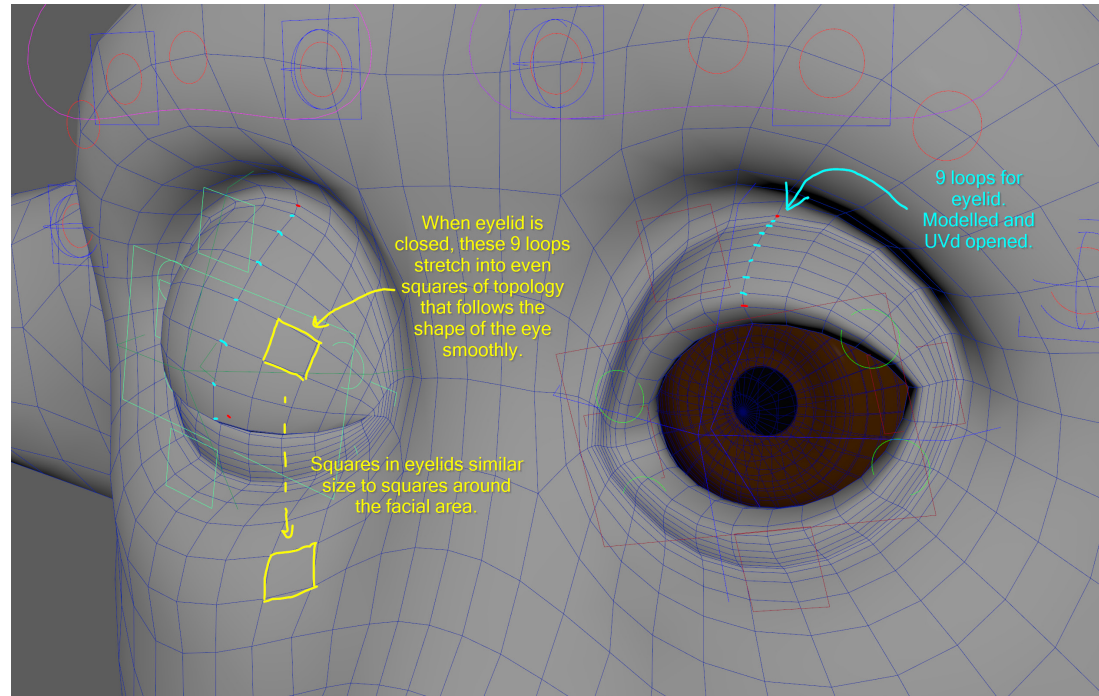
The Alyami Rig (September 2023)



Note. The lines in bright green highlight the skeleton joint system, while the multicoloured curves denote the animation controls. The animation controls directly influence the joints, the movement of which affects the character's geometry (3D model), thus creating the illusion of anatomic motion.

Figure 3.14

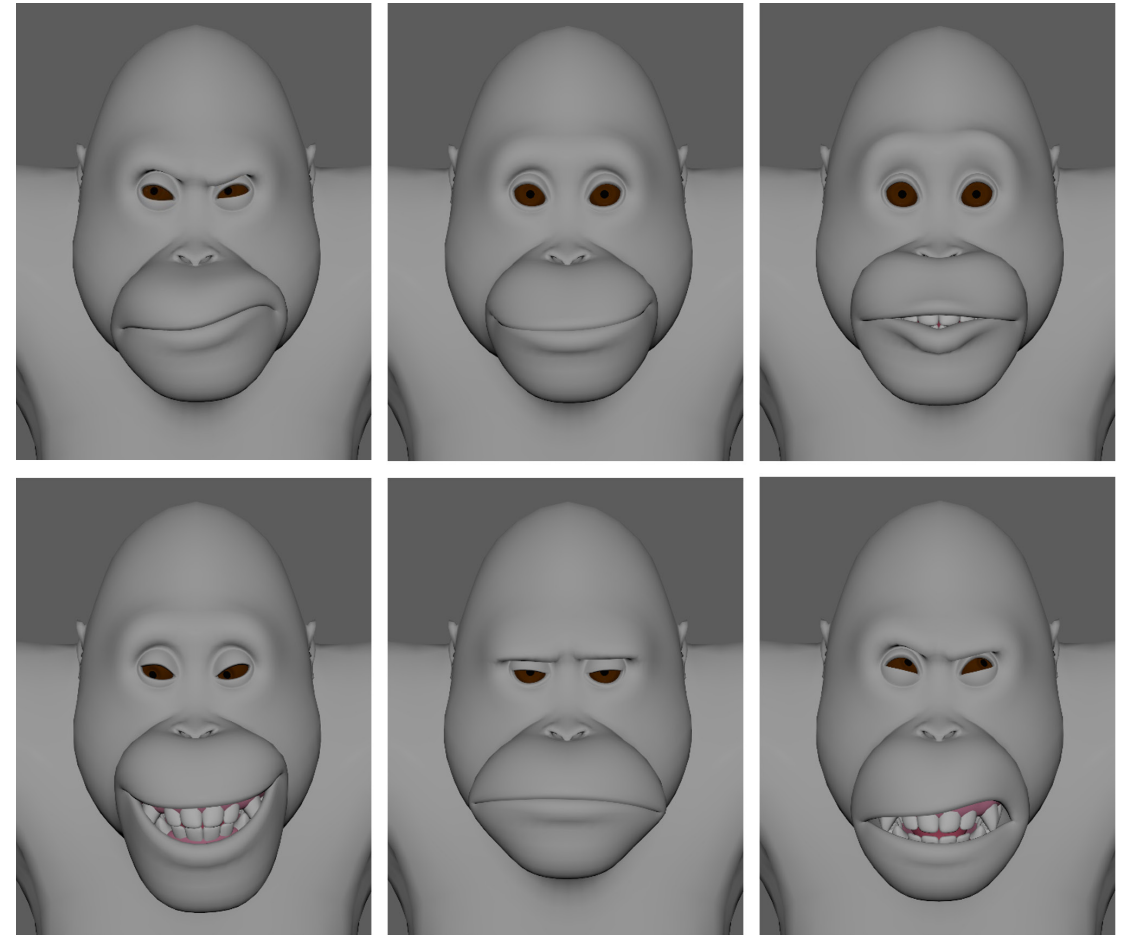
Iteratively Rigging Alyami's Eyes (September 2023)



Note. Here, I was working on getting Alyami's eyes to close properly during blinking. This process was highly iterative as I went back and forth to determine the right amount of geometry necessary for the eyelids to close without undue stretching of the 3D geometry.

Figure 3.15

Alyami's Range of Expressions (October 2023)

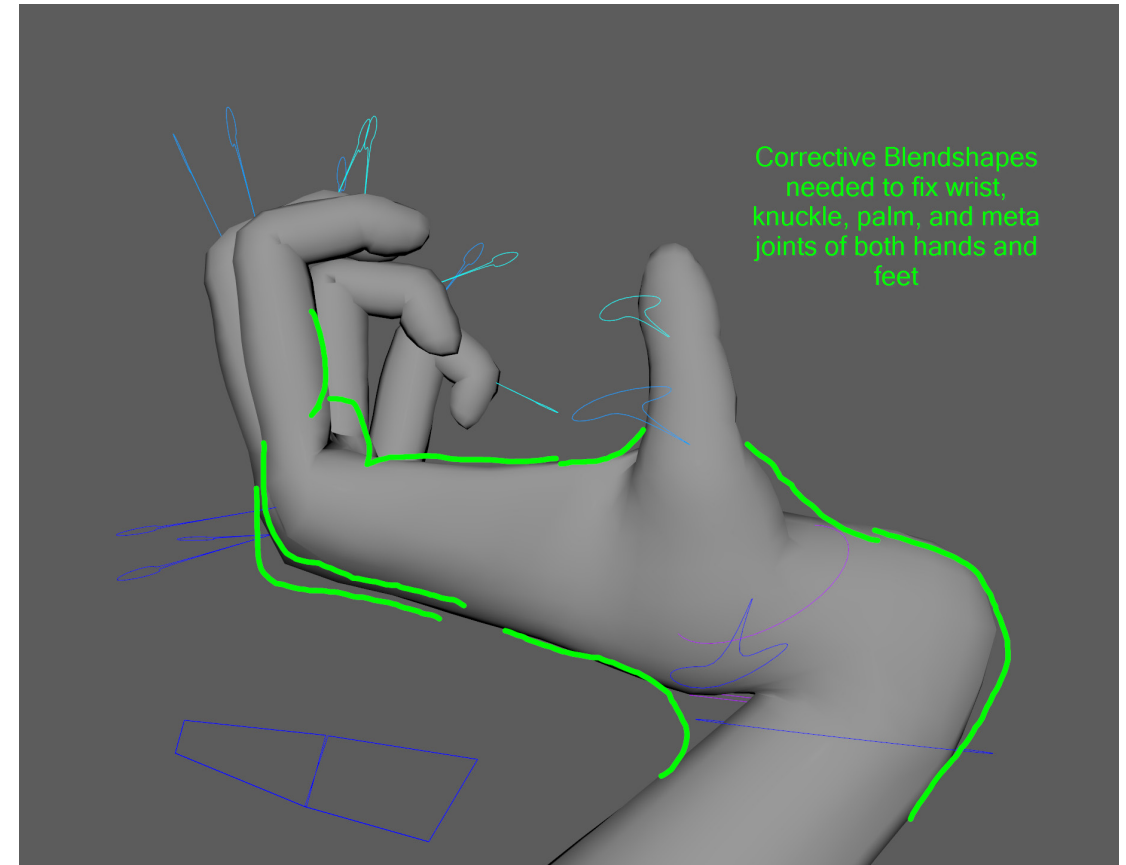


Note. These exercises allowed me to pinpoint weaknesses in the rig's design. I rebuilt and re-tested the facial system several times before achieving a comprehensive range of motion within the character's face.

After completing the foundational rigging, I identified areas of the character where the model was deforming in anatomically incorrect ways (Figure 3.16). These areas had to be rectified through the strategic application of corrective blend shapes - remedied copies of the model that blend in and out of the rig to correct problematic deformations during character movement (Figure 3.17). Blend shapes worked to rectify the small-scale problems and large-scale anatomical abnormalities. The small-scale problems were those that the audience might not objectively notice but would otherwise feel as wrong (e.g. the belly not rolling with raised legs). They were an optional task that I chose to complete regardless, as I felt it resulted in a more complete character. The large-scale abnormalities were issues that the audience would immediately notice and be distracted by throughout the entire film (e.g. the knuckles folding in on themselves during finger articulation). Therefore, fixing these issues was compulsory. The incorporation of corrective blend shapes allowed me to achieve higher levels of anatomical realism than with bare foundational rigging alone, creating a digital character that mimicked real-life skin, flesh, and bone physics in such a way that supported her believability as a moving, breathing being and thereby elevated her aesthetic and emotional appeal to the viewer.

Figure 3.16

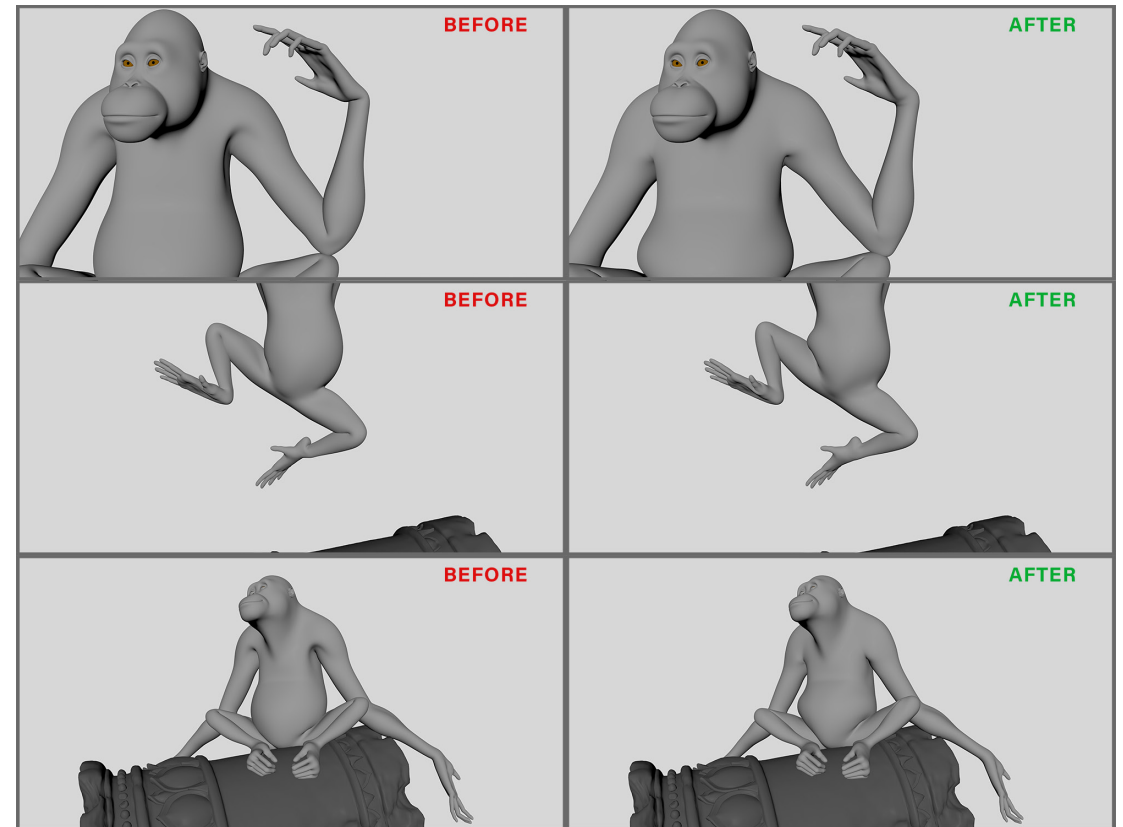
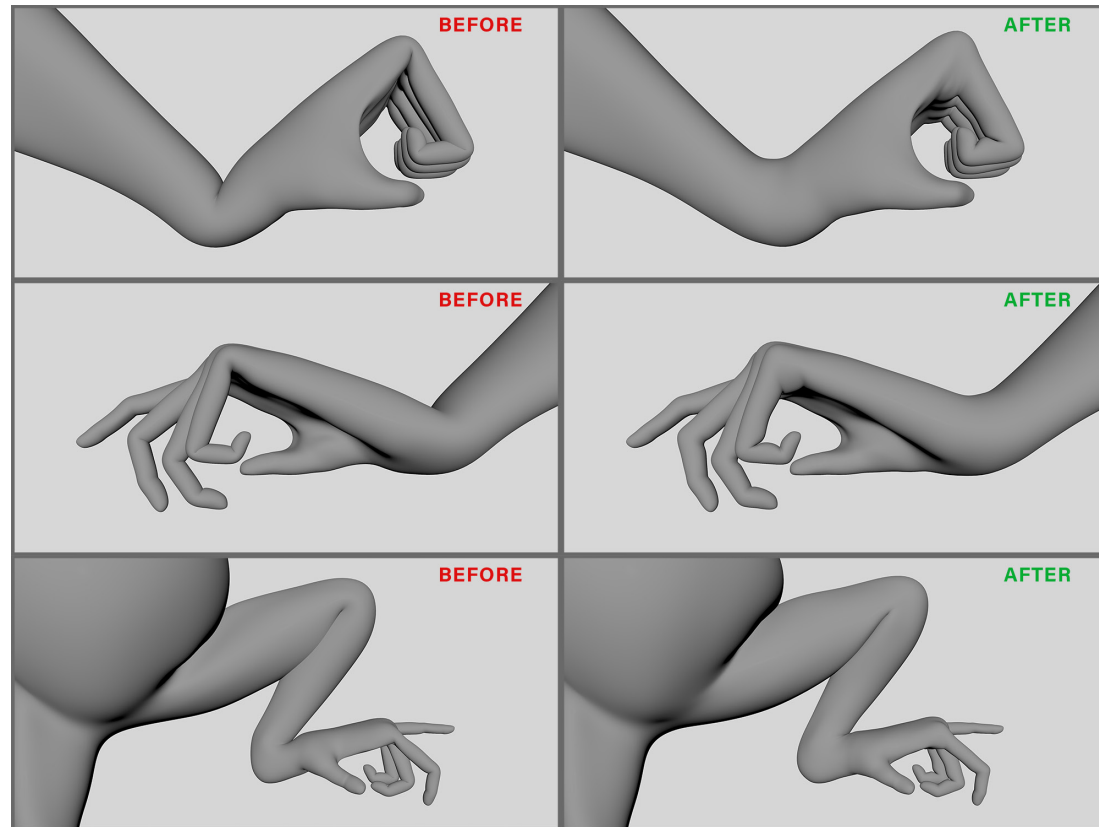
Blend Shape Draw-Over Plan (November 2023)



Note. Here, the model appeared anatomically broken at the ankle and knuckle joints, so I outlined the desired shape in green. I often created such draw-over notes for myself to revisit later down the rig-building process, helping me to brainstorm possible solutions in visual ways.

Figure 3.17

Alyami Model Before and After Corrective Blend Shapes (February 2024)



Note. The bare model before the addition of corrective blend shapes exhibited anatomical problems in the wrists, fingers, torso, armpits, elbows, and knees – corrective blend shapes amended these issues on a pose-by-pose basis. This process ensured that the character's anatomy does not distract from their animated performance in the audience's keen eyes. Upwards of 100 blend shapes (including transitory and combination) were sculpted all over the character's body.

Method Five: Animating

Animation was the process through which I could bring the character to life – to grant her autonomy, thought, and expression as a narrative being within the digital sphere. The animation process itself, however, began in the real world.

To communicate ideas through character animation, the animator must assume the role of the character in the scene, for the animated character's actions cannot emerge from nothing; thus, the animator becomes a kind of actor in the animation (Thomas & Johnston, 1995). Before posing the character in Autodesk Maya, I filmed a series of videos of myself acting out the short film's script (Figure 3.18), referring to my storyboard for guidance on posing, timing, and camera framing. These videos were a largely private affair – not meant for display but rather done to provide the animator (me) with an embodied understanding of the various motions in the animation, absorbing the sense of weight, inertia, and the movements' evolution through a first-person experience (Kennedy, 2022). In this project, embodiment emphasises the role of the body in shaping the mind and experiences, challenging the dualistic cartesian worldview whereby the mind and body as separate entities. In practice-oriented research, embodiment informs methodologies, influencing how researchers understand and interact with subjects.

The embodiment process allowed me to gain a visual and mental grasp of the overlapping action and follow-through within the character's body, the timing at which successive actions happened, and the changes in the character's emotional state as the narrative progressed. The subsequent application of this approach was aimed to obtain a convincing animated performance - as having embodied the character first-hand allowed me to portray her actions with a lived degree of accuracy (Figure 3.19).

Figure 3.18

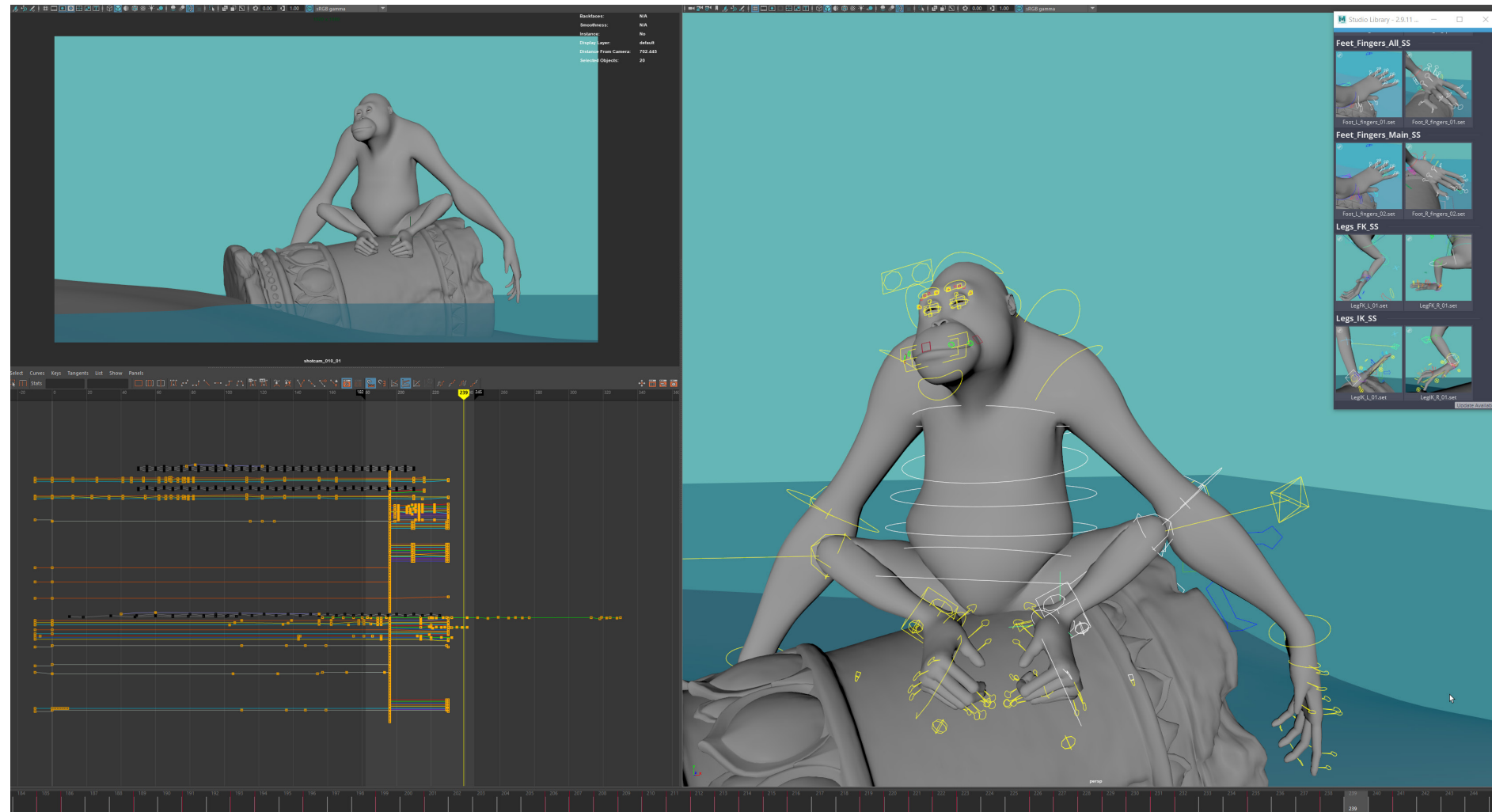
Acting Reference Video Snapshot



Note. This image shows me in a reference video, where I am embodying the essence of Alyami's character. Through this exercise of character embodiment, I aimed to infuse my own personal values into the character, enhancing my understanding of her traits by experiencing them physically.

Figure 3.19

Alyami Posed Within the Digital Space (February 2024)



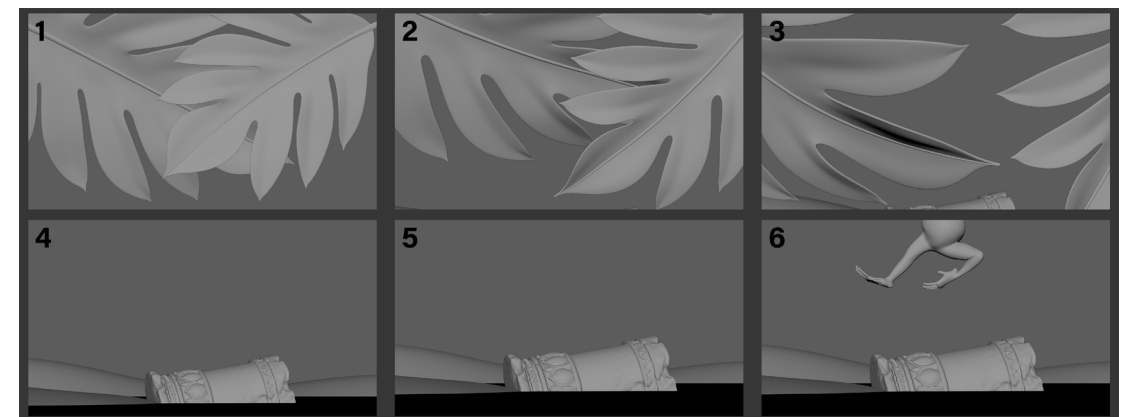
Note. This is a snapshot of my animation workspace setup in Autodesk Maya. Using my heuristic knowledge of the sensations, I posed Alyami in front of the digital camera in the early stages of animation blocking.

Another critical aspect of the animated performance that I had to consider was the audience's point of view in this narrative world – the digital camera through the eyes of which the story was unfolding. If moved erratically or out of sync with the character's movement, the camera would suggest the presence of a third entity in the story world – a camera operator who is watching the orangutan in hiding and creating the camera shake. By contrast, I aimed for the film to feel isolated from any direct physical human presence altogether, so a hidden cameraman with shaky hands was out of the question. Therefore, I kept the camera motion to a minimum, using mainly static shots and shifting only to accommodate the orangutan's movement in the scene.

However, I still included a forward movement of the camera in the short film's opening shot, wherein the viewers were guided through a set of parting breadfruit leaves to reveal the scene. As the camera moved forward, it brushed the leaves aside to focus on the fallen column, the subtle movement guiding the audience's eyes towards the centre of the scene (Figure 3.20).

Figure 3.20

The Progression of the Camera Push-In (February 2024)



Note. This image sequence shows the camera slowly brush past breadfruit leaves and focus on the column in the centre of the frame, communicating to the audience that the narrative action will start there soon. When Alyami appears from above in image six, the audience is ready to pay attention to her actions.

Method Six: Hair Grooming

Digital hair creation, referred to as grooming within the animation industry, is the process of shaping and instancing strand geometry to populate a 3D model with hair or fur, the result of which is called a groom (Kaur et al., 2018).

To sustain a faithful portrayal of the orangutan, this short film needed to capture the animal's most recognisable physical feature in nature: long, bright orange hair. As such, this method was the penultimate creative decision that the design of Alyami hinged upon.

I created the hair groom using XGen, a grooming plug-in for Autodesk Maya, wherein I strategically placed and sculpted guides to design the shape and length of the hair, applied modifiers to transform its texture, and hand-painted masking maps to designate various hair density and texture profiles to different areas of the character's body (Figure 3.21.1, 3.21.2). This workflow allowed me to generate a believably detailed groom befitting an orangutan exposed to the natural elements. In particular, the application of XGen's clumping modifier yielded the most substantial visual impact; when paired with strategic map arrangement, this modifier created diverse texture patterns within the hair – curling, clumping, and frizzing the strands with organic irregularity and thereby tacit believability (Figure 3.22).

This method enabled me to impart the character's nature from her very first appearance within the story, articulating the character's temperament through immediately perceivable aesthetic means. This hair, for its brightness and volume, became the defining aspect of the character - the softness of the hair texture and the warmth of the hair colour suggesting that Alyami the orangutan possesses a similarly soft disposition.

Figure 3.21.1

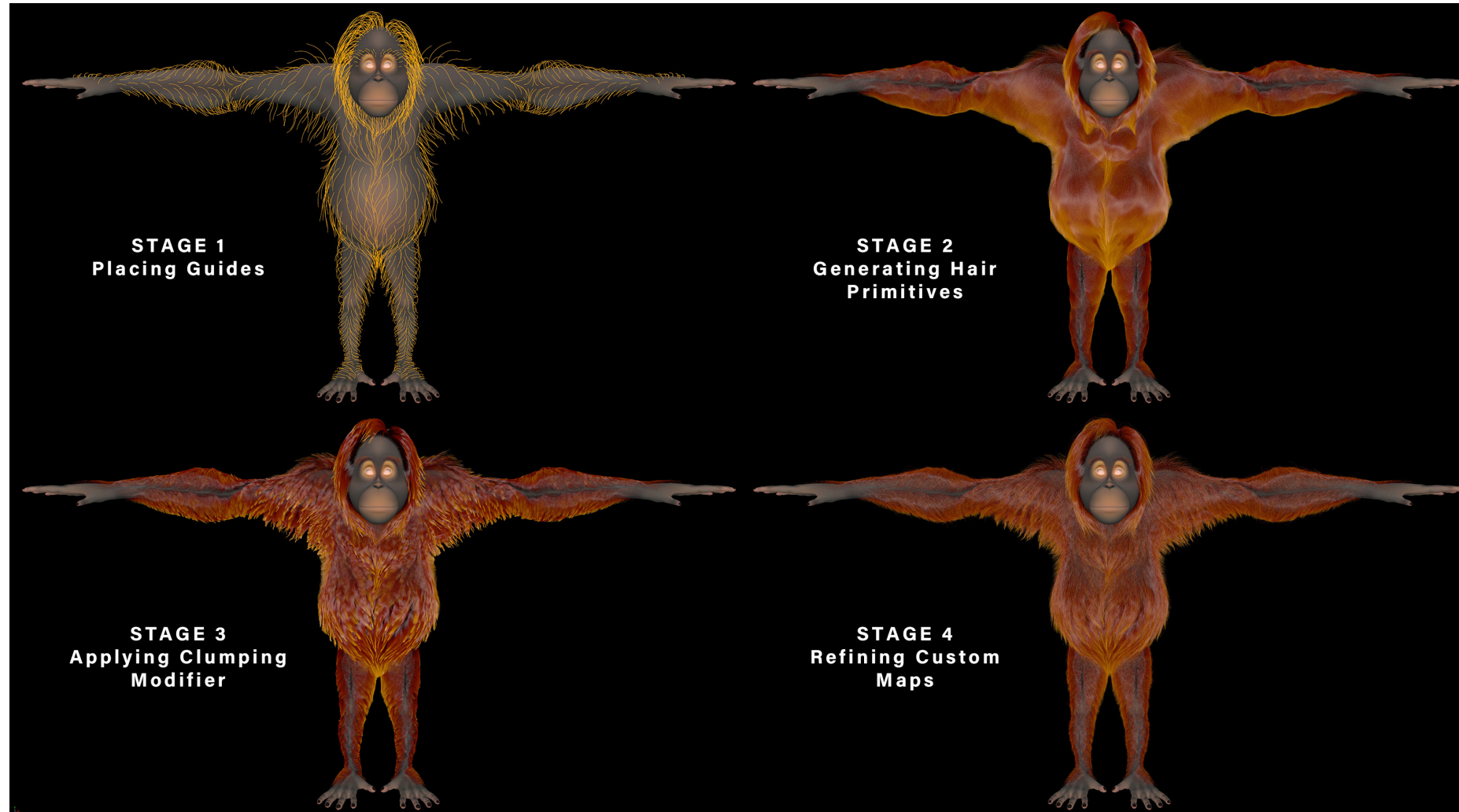
Alyami's Final Hair Groom (February 2024)



Note. This snapshot displays the outcome of Alyami's groom. The strands of flyaway hair around her head and shoulders will glow in the sun during the rendering stage of the film's development, giving Alyami a halo effect around her silhouette.

Figure 3.21.2

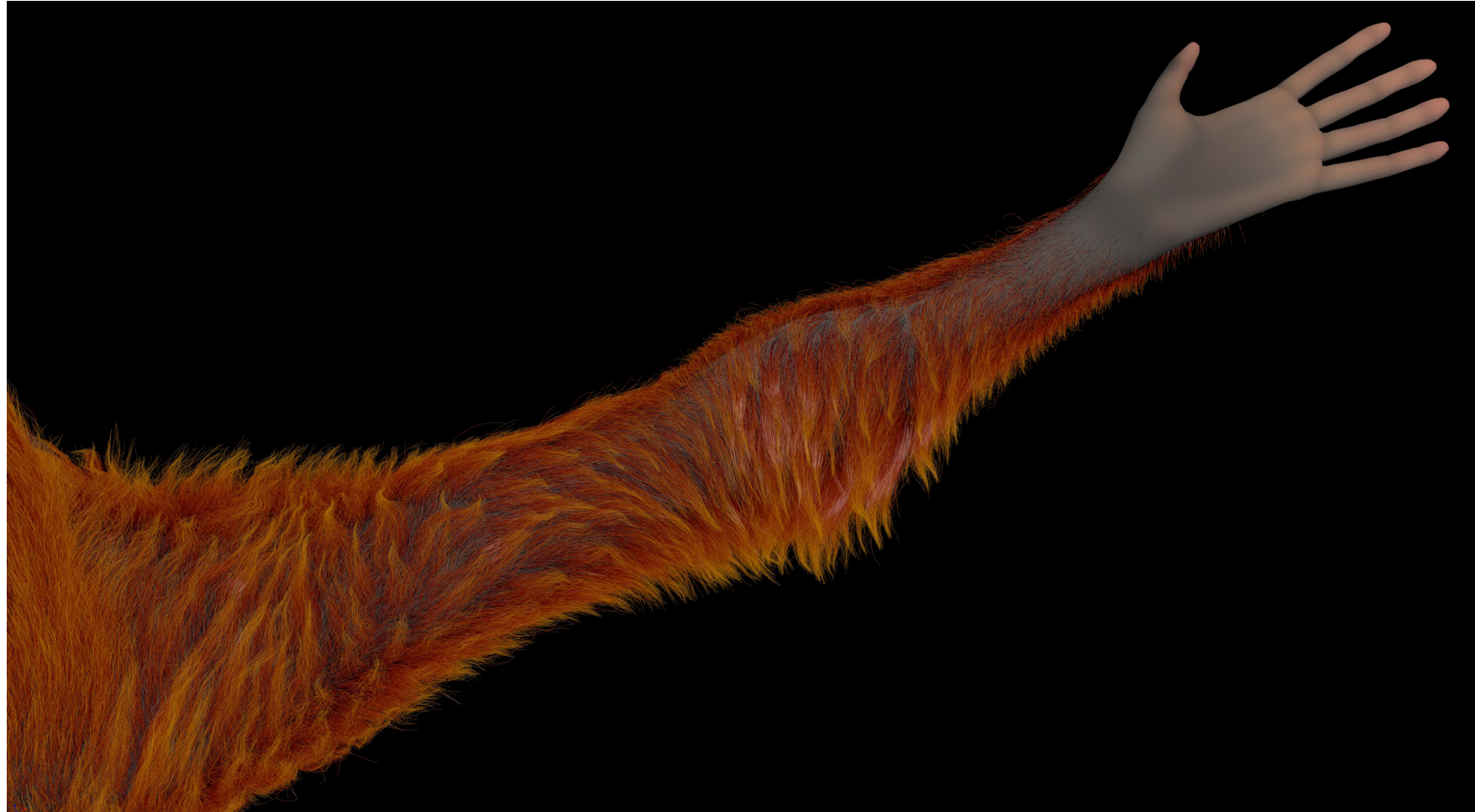
The Stages of Alyami's Hair Groom in Development (February 2024)



Note. Stage one, wherein the hair guides were placed and shaped, constituted half of the time of the entire process as I adapted the hair flow patterns of real-life orangutans into the short film's aesthetic style for the groom's foundation.

Figure 3.22

A Closeup of Alyami's Final Groom (February 2024)



Note. Here, the visual impact of the clumping modifier is most apparent – the individual strands form larger groups, curling around themselves to create a naturally lived-in appearance befitting a wild creature. To achieve this result, upwards of 10 individual hand-painted maps were used to designate the placement and texture variance of the hair across the character's body.

Method Seven: Rendering

Rendering is the method of assembling and generating high-resolution image files for each frame of the animation, thus consolidating all virtual assets into a format that can be broadcast to an audience (Stephenson, 2005). Before rendering, the animation scene is prepared through establishing lighting and material values that collaborate to produce a high-fidelity image. This project used Arnold to render the animation. Arnold is a physically-based renderer that utilises ray-tracing to create highly realistic materials and detailed lighting and shading results (Georgiev et al., 2018; Kulla et al., 2018).

In lighting the scene, I utilised a three-point setup to illuminate the character and foreground elements. This technique involved using a key light as the primary light source, the back light to illuminate the back, and the fill light to redress emergent shadows. Such a setup allowed me to test various lighting combinations by altering their angles, intensity, and colours for different aesthetic effects (Figure 3.23). I trialled several lighting variations before discovering a combination that fostered the impression of a warm early morning in the Bornean jungle, complete with slanted shadows, bright sun glares, and Alyami's orange silhouette (Figure 3.24).

Figure 3.23

An Early Experiment with the Three-Point Light Setup (March 2024)



Note. Here I was focussed on making Alyami's hair glow in the sun by boosting the intensity of the back light.

Figure 3.24

The Three-Point Light Setup on Alyami (April 2024)



This lighting setup was equally crucial in achieving a convincing materiality of the surrounding environment. This was most evident in the column; when the key light was placed in front of the object, it concealed any small-scale texture, making the column appear smoother than intended and giving it a fake, toylike impression. However, when the key light was placed above the object, it cast more prominent shadows into the column's fractures and cavities, enhancing its perceptible deterioration (Figure 3.25). Fragmented by shadows, the column seemed to sink deeper into the darkness of the water - visualising the human artefact's steady return to the very nature from which it was once taken and reshaped by human hands.

Note. With experimentation, I observed the material's interaction with the light. I thus discerned the aspects which I liked – the internal glow of the hair, the white highlights on the knees and browbone, and the illumination of flyaway strands.

Figure 3.25

A Comparison of Key Light Scenarios (April 2024)



Note. This comparison demonstrates the stark aesthetic effects of two divergent lighting scenarios. I chose to develop the right scenario within my render as it suggested the concept of a living, breathing, biting nature eating away at a human-made object.

I found that the light's direct interaction with materials could either make or break the illusion of life within the character. This was most apparent in Alyami's skin material, whereby the amount of light that was absorbed beneath her skin's surface (called subsurface scattering) could turn her from seeming stone-like to life-like (Figure 3.26.1). With no subsurface scattering applied, Alyami appeared statue-esque, devoid of any softness and malleability as the details were sunk into unrealistically deep shadows. This effect created the worst impression of Alyami, presenting her as a lifeless object masquerading as a creature and thus inducing an undercurrent of distrust in the audience's perception. To remedy this outcome, I applied an abundance of subsurface scattering; this effect helped rid Alyami of her stone-like exterior but made her appear hollow like a replica of a living being cast in wax. As I worked to tailor the subsurface depth, colour, and intensity by hand-painting material masks across the model's surface, Alyami attained the semblance of blood flowing beneath her skin. This effect cultivated the life-like essence of Alyami, establishing her as a delicate living being made of flesh and blood (Figure 3.26.2). Such a portrayal of temporal quality within an animated character helped remind the audience of the animal's equally breakable, temporal existence in real life, thus advocating for a reconsideration of their ill-treatment in the real world.

Figure 3.26.1

The Effects of Subsurface Scattering on Alyami's Skin (April 2024)



Note. Here, the effects of subsurface scattering are visible in the way the material interacts with the light. The fingertips glow inwardly with a soft red as a beam of light hits the skin surface, and the hand attains a bodily translucency around the edges.

Figure 3.26.2

Subsurface Scattering Comparison (April 2024)



Note. As I increased the value of subsurface scattering, the life-like effect amplified (as shown in the image when viewed from left to right). However, to give the character a mammalian's warm-blooded appearance, a careful balance of subsurface intensity and colour had to be maintained.

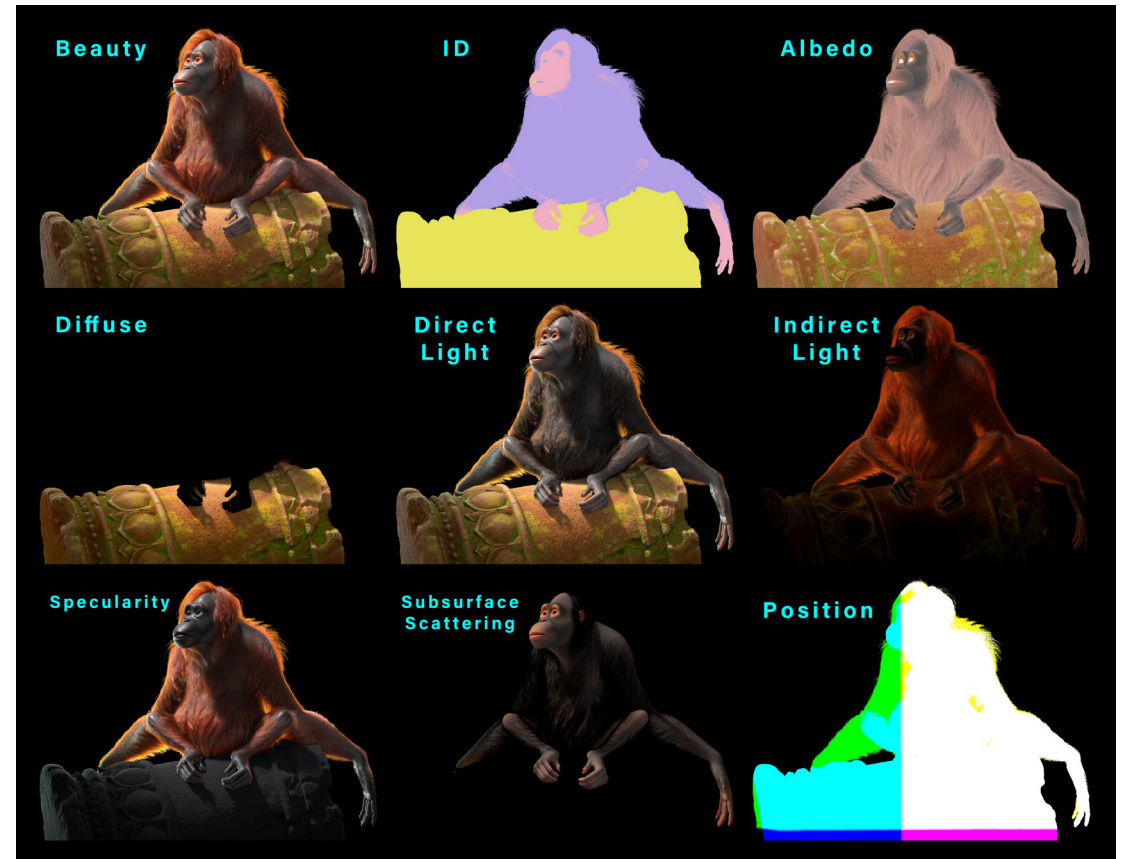
Method Eight: Editing

Within this project, editing is the method of compiling rendered images of animation frames into the final cinematic film sequence, complete with refined colour-grading and a comprehensive soundscape. This method was the last creative procedure in the project, responsible for enhancing the appeal of the cumulative aesthetic profile of EVO.

When I previously rendered the animation, I chose to generate the frames as multi-layered image files called EXRs. These EXR images had the capacity to contain additional information from the 3D animated scene beyond the outermost bitmap render, allowing the designer to access and utilise said information during colour-grading and compositing (Figure 3.27). However, for its extensive capacity, EXR files are typically larger and less accessible than standard PNG and JPEG formats, requiring specifically adapted software such as Adobe After Effects to interpret them.

Figure 3.27

The Individual Components of a Rendered EXR Image (April 2024)



Note. These individual components are combined through various blending modes to produce an internally editable EXR image unlike the flattened format of the standard JPEG or PNG.

In editing, I realised that the rendered animation did not convey the entirety of the warm, inviting feeling that I was aiming for, as the scene became bleak and washed out due to inconsistencies in the colour space values between various software. To remedy this, I utilised After Effects' Lumetri nodes to colour-grade the scene to my aesthetic preference. The multi-layered nature of the EXR file allowed me to precisely modify every single attribute of a rendered image independently, enabling complete creative control of the animation's artistic direction. For example, to boost the saturation of Alyami's hair without affecting any part other part of the image, I used the ID map layer of the EXR file to isolate her hair region (Figure 3.28).

Figure 3.28

The Extracted ID layer of an EXR Image (April 2024)



Note. As this map was natively generated in the 3D software containing the original hair groom, it captured every strand with pixel-perfect accuracy, allowing me to grade the film without undue colour bleeding and over-exposure across objects.

During colour-grading, I discovered that while brighter, more saturated colours may be more successful in gaining the audience's immediate attention, they ultimately defeat the purpose of cultivating a natural environment due to the synthetic impression they communicated. Therefore, I strived to keep a light hand by introducing subtle enhancements in the image's saturation, vibrancy, contrast, and hue shift to boost the film's visual impact without treading into overprocessing (Figure 3.29). Such an approach allowed me to intensify the aesthetic appeal of Alyami within her natural environment without imparting an overtly artificial demeanour to it.

After completing the colour-grading, I added an extra dimension to the silent edit by including a natural soundscape. With the short film taking place in the Bornean rainforest, it was essential that the sound editing articulated the wildness of the flourishing environment with sufficient depth. Rather than dominating the scene with a thick musical veneer, I found that letting the rainforest environment speak for itself was a better choice in the sound design for the film. Thus, I sought a specialist in nature field recording and procured a pristine track of the Bornean rainforest, devoid of any human noise and teeming with flora and fauna vibrancy. Such an aural design seeks to fuse the spectator with the spectacle, thus allowing the audience to embody the acoustical experience as a part of their immediate aesthetic perception and assimilate with the film's audiovisual world (Ward, 2016).

Conclusion

This chapter has situated this research project within an artistic research paradigm, framing the study as a practice-based research methodology. In doing so, this chapter has delineated the eight core methods of animation design as belonging to the non-linear making of an animated short film, thus identifying the subjective facets of creation within the researcher's subjective worldview.

Having now established the methodological approach utilised within this project, this research will progress to discuss the project's outcomes.

Figure 3.29

A Colour-Grading Comparison (April 2024)



Note. This side-by-side comparison demonstrates the effect of colour-grading on a single frame of rendered animation. In utilising EXR layers, I was able to refine each component separately to achieving cohesive results.

Chapter 4

Critical Commentary

Introduction

This chapter reflects on the findings by discussing the two core aspects underpinning this animation's environmental thinking as research. These aspects are the structure of the narrative of *EVO* and the layers of anthropomorphic character design employed in *EVO*. Having been shaped and transformed through principles of heuristic inquiry, these aspects serve as evidence of the designer's subjective worldview – proposing a re-consideration of the anthropocentric mindset in favour of pluriversal philosophies.

The Narrative of *EVO* and the Anthropocentric Agenda

Fictional narratives are told to convey underlying meanings and serve the purpose of articulating messages to an audience. This purpose is delivered through narrative structures, whereby the assembled progression of events reveals to its experiencer the text's key morals, beliefs, and philosophies (Todorov & Weinstein, 1969). In Todorov's (1971) equilibrium narrative, the structure progresses through five stages: initial equilibrium, disruption, recognition, repair, and new equilibrium (See Chapter 2, page 27). The structure's primary focus is on the character's actions and how these directly influence the world around them – the balanced state of which is referred to as the equilibrium.

As an animated piece of fictional literature, *EVO* employs Todorov's narrative structure to articulate messages on anthropocentric thinking, utilising the equilibrium state as a reference point for the character's view of their world. Described in this chapter is *EVO*'s storyline progression through Todorov's five narrative stages.

Initial Equilibrium

The scene opens with a pair of breadfruit leaves parting like theatre curtains – inviting the audience to witness an unfolding play in the Bornean rainforest beyond. A lone column lies half-sunken into the shore of a nearby stream, marred by the flow of time. Alyami the orangutan swings down from the vines above, tentatively feeling for the column before settling atop it in a yogi fashion. Bathing in the rays of the early sun, Alyami relaxes – attaining a state of meditative tranquillity (Figure 4.1).

Figure 4.1

Alyami Meditating (April 2024)



Note. This look-development render represents the meditative state of the balanced initial equilibrium; the lighting gives the scene a warm, inviting appearance as Alyami's orange hair and the sandstone column glow in the patch of bright sunlight.

In this shot, the balanced state of the equilibrium is illustrated through the symmetrical composition of the character and foreground elements. Alyami sits with open arms and folded legs, creating a uniform triangular shape in her posture. The column lies tilted, directing the weight of the composition towards the left, where Alyami is facing. This inward flow of diagonal lines directs the viewer's eyes towards Alyami's serene expression, creating a pyramidal formation that emphasises the stability of the equilibrium (Figure 4.2). In this way, the initial equilibrium state is visually defined by Alyami's inner and outer world being at meditative peace.

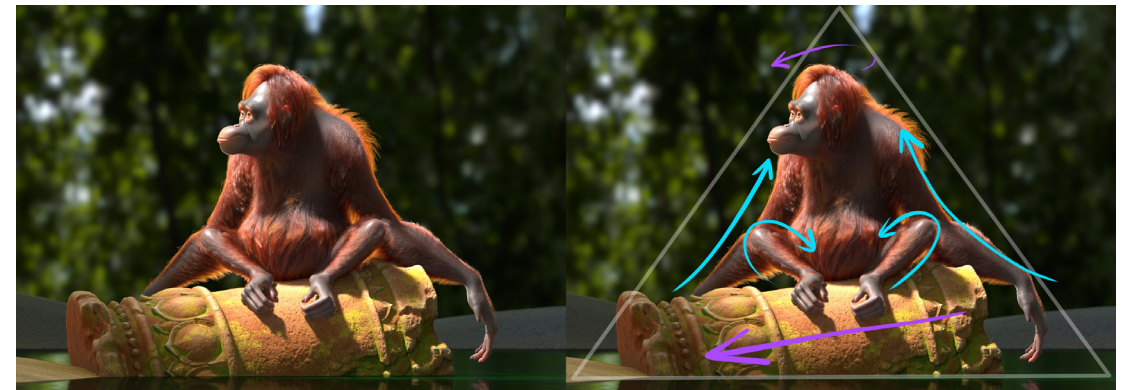
Todorov argues that while a narrative could theoretically omit the stage of the initial equilibrium and retain its central identity, the cyclic ending and beginning at equilibrium renders it complete. He thus labels the initial equilibrium as the definitive stage of the narrative, responsible for situating the fictional world's balance and introducing the characters' individuality (Todorov, 1971). I chose to elaborate on the stage of initial equilibrium within this research project, undertaking a full-scale production of this shot to portray this story's natural world and anthropomorphic character comprehensively.

This shot became the quintessence of the project's technical and ideational realisation. With 3D animation being a time-consuming medium for the volume of effort required to fabricate digital assets, this single shot ended up being the only fully rendered part of the entire short film during the writing of this exegesis¹ (see Chapter 3). Being aware of the limited time and my planned scale of work, I concentrated my energy on constructing this shot to the degree of wholeness that would allow me to illustrate my aesthetics and narrative vision to completion. This shot, having encompassed the entire stage of initial equilibrium, possessed the foundational aspects that this research hinged upon. It set the tone of the film, situated it in a natural Bornean setting, and introduced the protagonist's personality and aesthetic appeal. This shot precluded the rest of the film as a pilot episode that auditioned *EVO* as a conveyor of environmental messages.

¹ The writing of this exegesis spanned from early July in 2023 until late April in 2024.

Figure 4.2

Symmetrical Composition of the Initial Equilibrium (April 2024)



Note. In this comparative draw-over, the blue arrows indicate Alyami's triangular posture, the purple arrows signal the direction of the tilted column and the character's gaze, and the white lines demonstrate the overall pyramidal formation of the stable equilibrium. The inward flow of lines leads towards the centre of the scene, drawing the audience's eyes towards Alyami's balanced state.

Disruption

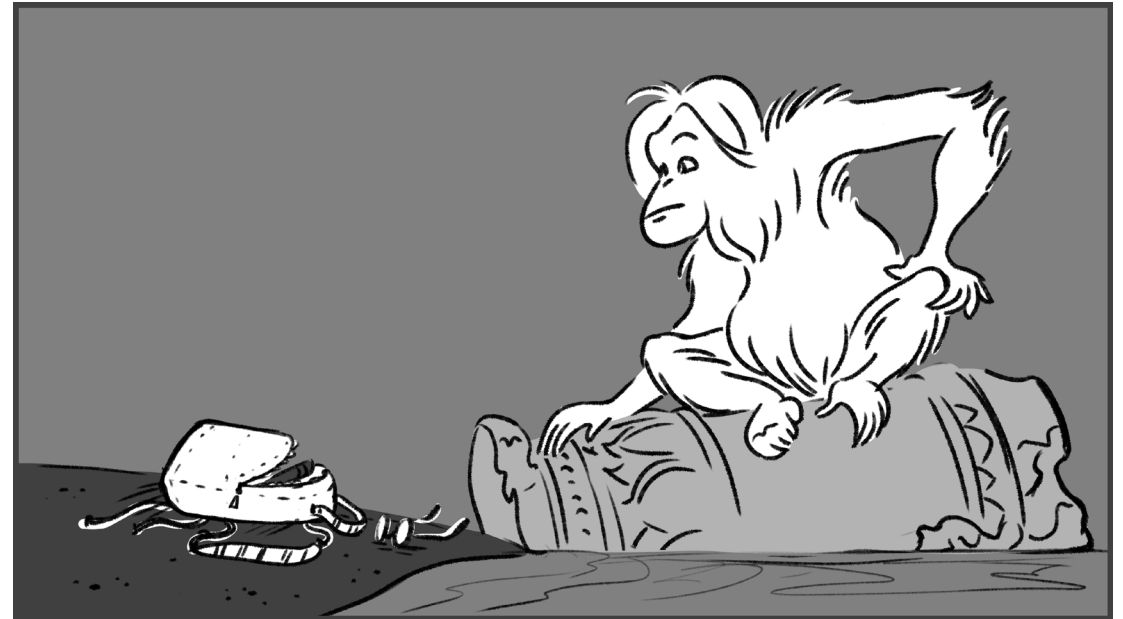
A loud squabble of macaques sounds from the tree canopy high above, fighting over something prized – their noisy disturbance foreshadowing an approaching equilibrium disruption. They drop their prize, and it lands near Alyami, waking her. Alyami stares at the prize – a traveller’s half-opened backpack, spilling man-made artefacts onto the ground. This backpack is a visible disturbance to the equilibrium – its synthetic, manufactured appearance is noticeably out of place in the natural Bornean environment (Figure 4.3). Alyami recognises its foreignness but does not immediately view it as hazardous; herein, unbeknownst to the character, the equilibrium state is introduced to a disturbance – a sign of incoming change in the narrative world. As Alyami opens the backpack to reveal a book on Darwin’s theory of evolution, the audience is made to suspect the essence of this disturbance – that an orangutan reading a theory on human evolution may disagree with its thinking (Figure 4.4). While the character is still clueless about the disruption, the audience is already formulating the possible narrative consequences of the introduced object, thus establishing a distinction between the character’s and the audience’s point of view.

Todorov (1969) posits the point of view as a core aspect of the narrative equation, wherein different perceptions of the same object or action exist for different characters and audiences. Therefore, what Alyami perceives merely as a foreign object, the audience recognises as an underlying narrative agenda. In this way, the audience is made to be one step ahead of the character in cognisance and thus encouraged to reflect on and attempt to predict the evolving narrative as an aware observer.

Following the 3D rendering of the initial equilibrium shot, the stages of disruption, recognition, repair, and new equilibrium are drawn in the frame-by-frame format of a 2D animatic. Due to time constraints related to the computationally heavy nature of 3D rendering, the last four stages are presented through hand-illustrated frames to articulate the foundational narrative flow with a similar effect. The character’s actions, reactions, and thoughts are choreographed through posing and framing, with the individual frames later converted into a 2D animatic video. This drafts the remainder of the non-rendered animation for its eventual completion post-exegesis.

Figure 4.3

Alyami Noticing the Foreign Backpack (April 2024)



Note. This animatic frame articulates the sudden appearance of the disturbance as it literally and figuratively falls from the sky to break Alyami’s equilibrium state. Alyami is intrigued, leaning forward to get a better look at the object, not yet suspecting its nature as a disturbance.

Figure 4.4

Alyami Analysing the Book's Cover (April 2024)



Note. Alyami stares at Darwin's book on evolution, *On the Origin of Species*, and Darwin stares back. They judge one another for a moment – two members of the evolutionary lineup considering each other's worth. This mirrored composition encourages the audience to anticipate the ensuing argument between the human and the animal.

Recognition

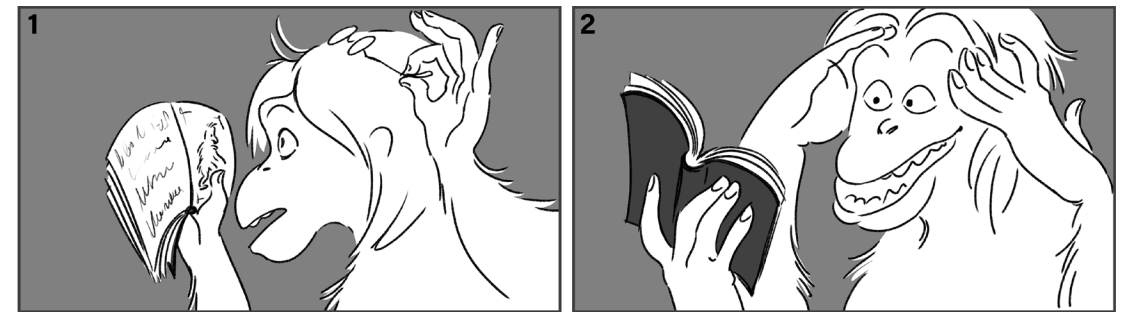
Alyami opens the book back to front – seeing a full-page illustration of the modern homo sapiens in silhouette form. As she flips the pages from left to right, more silhouettes appear in reverse succession – the spear-wielding man, the ape-man, the long-tailed monkey, and the fish. She analyses the start of the lineup with intrigue, finding similarities between the ape-man and her own visage and thus assuming her kind must have evolved from homo sapiens (Figure 4.5). However, when she reaches images of the monkey and the fish, she is dumb-struck – her kind could not have evolved into that. Once she realises that the book does not recognise her species as the evolutionary pinnacle, she automatically deems it erroneous. Thus, a disturbance in her inner world is recognised (Figure 4.6).

The nature of this disturbance is rooted in self-centric behaviour. One of the most prominent characteristics of any centrism is the non-understanding and under-rating of the value of other species, which manifests in a language barrier effect. The fact that Alyami reads the book backwards and thus interprets the human anthropocentric artefact from an orangutan-centric perspective is evidence of the inter-species language barrier at play. Alyami does not fully understand humans just as much as humans do not fully understand orangutans, leading to miscommunications and skewed self-perceptions.

Such non-understanding is used as part of Todorov’s narrative structure; Todorov attests that short narratives are often “based entirely upon ignorance followed by discovery” (1971, p. 40), wherein the character’s unawareness of something creates a transformative situation that propels the narrative forward. Thus, Alyami’s ignorance of how the book is meant to be read leads to a turning point in the narrative; the book’s meaning is interpreted as a disturbance and an alternative viewing of it is discovered by the acting character and the watching audience.

Figure 4.5

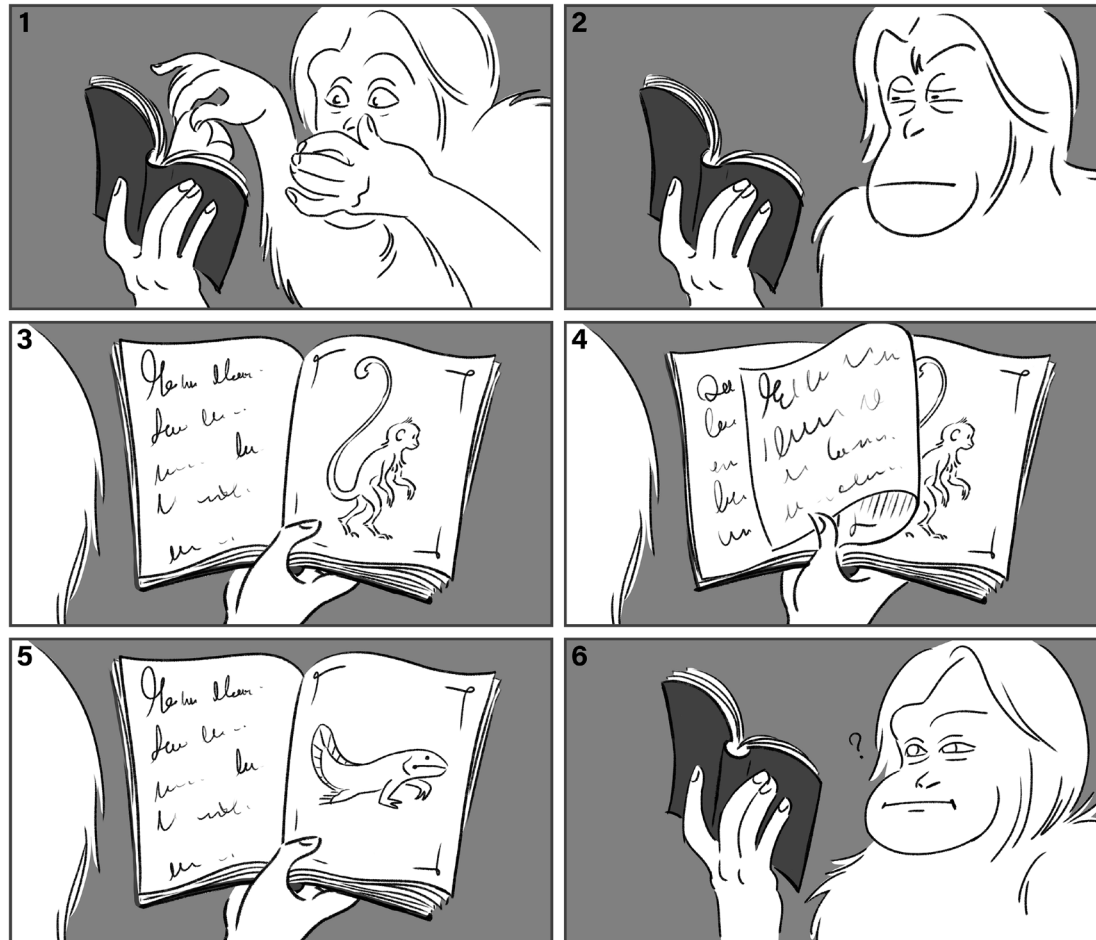
Alyami’s Epiphany (April 2024)



Note. This animatic sequence depicts Alyami’s orangutan-centric epiphany; witnessing the orangutan-like ape-man, Alyami assumes that she must have evolved from the modern homo sapiens as illustrated by the book when it is read back to front.

Figure 4.6

Alyami's Recognition (April 2024)



Note. Turning the page with shaking fingers, Alyami awaits the reveal of her prophesied next evolution. What is revealed disturbs her: an illustration of a long-tailed macaque - the kind that screeches and squabbles loudly every morning. She turns the page once more to reveal an even stranger evolution – a walking fish. Alyami stares at the image in confusion, concluding that the author must have made an error.

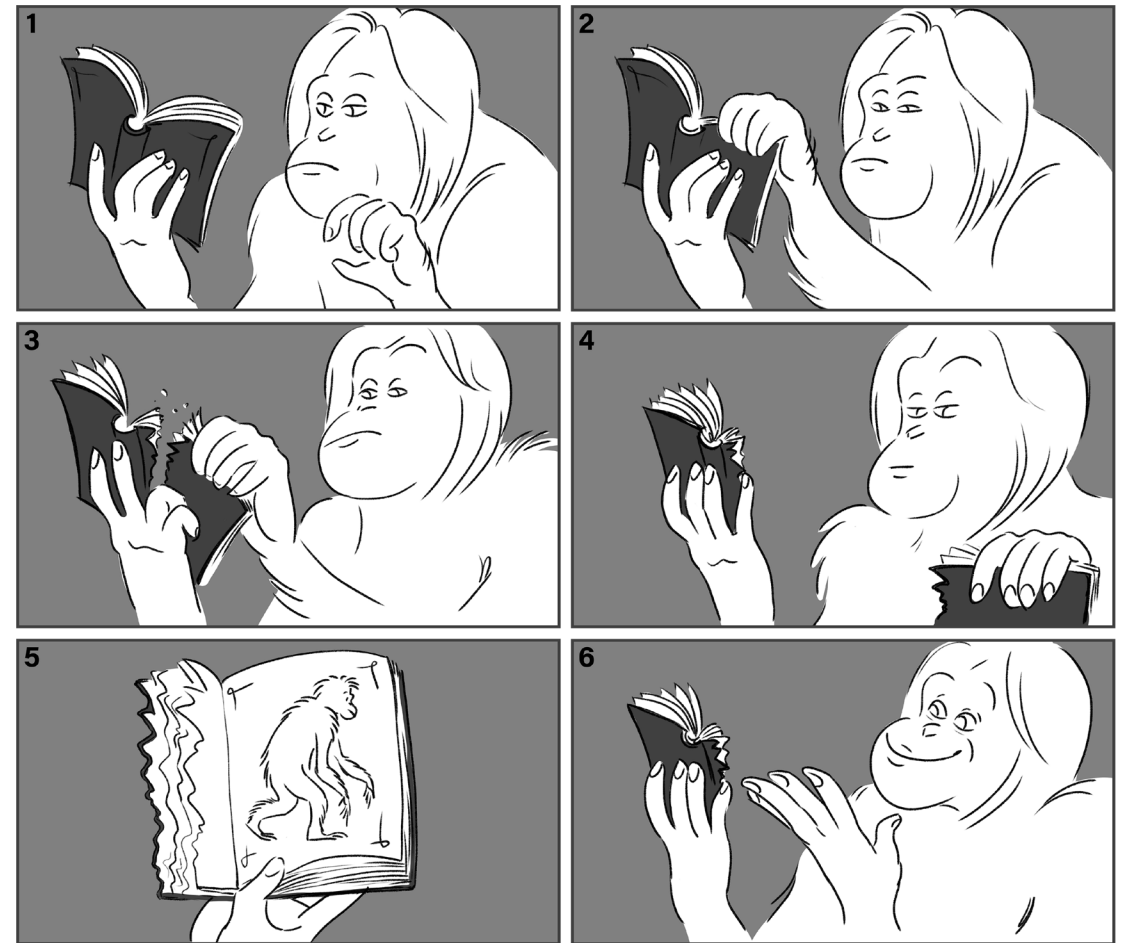
Repair

To rid her world of the disturbance, Alyami tears out the erring pages with the monkey and the fish. Thus, she corrects what she deems to be an untrue depiction of her kind, feeling that she is doing her world a favour by ridding it of a genuine mistake in the scripture (Figure 4.7). Her actions, therefore, are done not out of malice towards the monkey and the fish but out of a sense of justice for her innate self-importance. This behaviour allows her to reaffirm her self-worth and thus repair her inner world's peace through misconstruing a different species' existence. Such a position is synonymous with human nature, whereby we tend to utilise our mistaken understanding to lessen the existential value of other species in favour of emboldening our own (Marchesini & Celentano, 2021).

Considering this position, I propose that such mistakes in mutual understanding between the species suggest that the centric perspective, whether human-centred or animal-centred or otherwise, is an inherently flawed way of perceiving the self and others.

Figure 4.7

Alyami's Repair (April 2024)



Note. Alyami tears out erring pages with the entire cover, thus getting rid of the book's original title as well. In leaving the orangutan at the figurative and literal top of the evolutionary lineup, she feels she has done the right thing by her kind – creating a net positive that speaks her subjective truth.

New Equilibrium

Alyami, satisfied with her amendment of the artefact, thus establishes a new equilibrium state of her world wherein the Orangutan-centric perspective reigns true. Her backwards reading of Darwin's theory transforms the anthropocentric agenda into the orangutan equivalent – mirroring an equally biased way of perceiving other species.

In refusing to accept that she is not the pinnacle of evolution as per the book's agenda, Alyami defies the anthropocentric human artefact. As the book attempts to correct and punish her self-centric worldview, she disregards its opinion and restores her position of self-importance by correcting it in turn. She escapes the book's symbolic punishment by altering it, thus creating a new equilibrium. Todorov describes this escape of punishment as a prerequisite to the new equilibrium, declaring that “we begin with a state of equilibrium which is broken by a violation of the law. Punishment would have restored the initial balance; the fact that punishment is avoided establishes a new equilibrium” (1969, p. 75).

While this equilibrium-based narrative subverts notions of anthropocentric thinking by rejecting the human as the pinnacle of evolution, it does not suggest that the extreme inverse of the Anthropocene is any better of an alternative. Contrarily, it rejects the absolute dogma that animals are inherently more pure, more noble, more environmentally aware, more spiritually enlightened, and therefore more worthy of life than humans (Taylor, 1986). This project emphasises that no matter the type of centrism we propagate, every one of them will suffer from the same problems that our modern Anthropocene is exhibiting – the damage to our worldwide environmental ecosystem due to the overwhelming bias towards one species (Bell, 2021; Lunstrum & Bose, 2022).

Instead, the narrative of *EVO* proposes that there is no need to swing the centrism-pendulum in the opposite direction – just the necessity for it to settle at a healthy middle ground between the two extremes. Thus, this narrative subjectively suggests the pluriverse idea of the many coexisting universes that work in parallel but non-symmetric ways (Escobar, 2017; Noel et al., 2023). Their differences are so varied that there are bound to be misunderstandings; however, it is these exact differences that their value lies in.

EVO as the Title

The title of this animated short film, *EVO*, is an abbreviation of the word evolution. It is titled so for its three layers of meaning that this project ideationally aligns with. The first meaning of evolution defines the biological process by which different kinds of living organisms are believed to have developed on the earth (Oxford English Dictionary, 2024) – a theme that this project takes literally as an ape considers Darwin's theory. The word's second meaning describes “the gradual development of something” (Oxford English Dictionary, 2024) – an element that this short film portrays through the character's development of a centric self and the audience's discovery of the faults of a self-centric perspective. The word's third core etymological meaning stems from Latin *evolutionem* for the unrolling of a book (Oxford English Dictionary, 2024) - an idea that this narrative materialises in a literal and metaphorical unfolding of a book and its subsequent reading from different perspectives.

Anthropomorphism and its Applications

This project employs anthropomorphic character design in three spheres: the character's mind, the character's expression, and the character's morphology.

The Anthropomorphic Mind

The first and primary application of anthropomorphism in this project's character design is the ingraining of Alyami's animal mind with the inherent understanding of the foundational concepts of human culture, time, history, and evolution.

This understanding of human concepts is evident in the way she interacts with the book; Alyami understands the concept of a book as a physical manifestation of abstract ideas – a temporal artefact that transcribes vital information across time, travelling through many generations of readers as a vessel of archived knowledge (Figure 4.8). In possessing this understanding, she can analyse the meanings in Darwin's theory through her unique worldview and cultivate her individual position on the text – however erroneous it seems from the audience's point of view. The fact that she interprets the book's contents, judges them, and corrects them to reflect her worldview indicates that she deems the book as a receptacle of subjective and objective truth that will be passed on to future generations. Thus, it is her scholarly contribution to the argument on the origins of her existence.

Without this de-facto anthropomorphism, the animal character would remain clueless to the core ideas and messages explored in the narrative, thus being reduced to an oblivious tool for happenstance storytelling (Wells, 2015). By endowing Alyami with an anthropomorphic mind complete with prior knowledge of the human condition, this project allows her to definitively polemise with human concepts of her own accord, thus appointing herself as a thinking, reasoning individual with an explicit positioning. Such an anthropomorphic agenda allows the animal anthropomorph to assimilate the human experience - therefore exploring philosophical, ideational, and political questions in an outright, first-person manner (Wells, 2009).

Figure 4.8

Alyami Interpreting the Book (April 2024)



Note. This frame depicts Alyami's anthropomorphic mind in action. While she improperly reads a Western book from right to left, she is still well-versed in the core concept of what a book holds and represents.

The Anthropomorphic Expression

The second application of anthropomorphism in this project's character design is the imbuing of Alyami's form with human modes of physical expression of emotions. While emotions are intrinsic internal elements of any feeling being, how these emotions are physically expressed differs between various species. Thus, incorporating proper physical behaviour can enhance the emotional credibility of a character in the eyes of specific audiences.

Throughout the short film, Alyami adopts anthropomorphic modes of emotional expression through her posture, gesture, fidgeting, composure, and faces (Figures 4.9.1, 4.9.2). While stylistically subtle, these human actions help to synthesise Alyami with an authentically human visage – bringing her character closer to the audience's comprehension and favour. Since these human codes of communication are so ingrained in people's behaviour and understanding of others, an audience witnessing anthropomorphic expression in a non-human being automatically establishes said being as intelligible. Alyami's anthropomorphic behaviour, in this case, equips her with the necessary tools for non-verbal communication with the audience – allowing her to bridge the animal-human language barrier and articulate her worldly position on a subconscious level of contact (Karlsson, 2012).

For this project, Alyami's anthropomorphic expression is akin to her speaking the universal human language – applicable to a worldwide audience for its deep-set conditioning in human communication (Mazur, 2016). Fittingly, Mazur (2016) and Staats (1963) surmise that the physical expression of felt emotions is a learned behaviour – nurtured and conditioned through interaction with a community of kindred beings. Consequently, this learned behaviour can become so ingrained in the being's way of expressing themselves that it persists as second nature, wherein the physical, external articulation of their internal experiences becomes habitual, involuntary, and almost instinctive (Mazur, 2016). Therefore, in giving Alyami anthropomorphic modes of expression, this project allows her to embody the human way of experiencing the world. As such, Alyami exists as a dichotomy of her animal self – she is both a tree-dwelling ape (orangutan) and a ground-dwelling ape (human). This half-and-half anthropomorph exhibits elements of both species – embodying the self-centrism of the human ego while simultaneously bonding with the eco of her natural birthplace. This project explores Alyami's dichotomic nature as a facet of environmental discourse - presenting the animated image of the animal-human amalgamation as a critique on the anthropocentric mentality (Schmitt, 2023).

Figure 4.9.1

Alyami Smiling (April 2024)



Note. Alyami is smiling subtly, squinting with her eyes. The use of such a fundamental human expression of happiness suggests a human capacity for warm emotions, bringing the character closer to human relatability.

Figure 4.9.2

Alyami grinning (April 2024)



Note. Alyami is grinning on a deep exhale – an animated embodiment of meditative relaxation.

The Anthropomorphic Morphology

The third application of anthropomorphism in this project's character design is the shaping of Alyami's animal morphology to reflect human-like elements of aesthetic appeal.

Alyami is foundationally built to mimic the fairer attributes of human physiognomy and morphology to bring her character closer to the positive perception of the human audience. Her features are specifically designed with the admiration of the human gaze in mind; her hair is soft, glossy, and groomed; her fingers are long with neat nails; her eyes are large and almond-shaped; her figure is gently sloped; her skin is smooth, and her teeth are clean and straight (Figures 4.10.1, 4.10.2). These outward signs of health suggest similar well-being in the creature's psyche and intentions - leading to greater trust and, consequently, greater emotional connection between Alyami and the audience.

Figure 4.10.1

Alyami's Anthropomorphic Face (April 2024)



Note. This rendered pose exemplifies Alyami's anthropomorphic facial features. In being made by a human designer – these features naturally reflect the health signifiers of a human being's subconscious judgement.

Figure 4.10.2

Alyami's Anthropomorphic Hand (April 2024)



However, despite making these anthropomorphically focused decisions in her design, this project considers Alyami's primary identity as an orangutan to be of utmost importance for its contribution to environmental discourse. Thus, Alyami's prevailing morphology remains as close to a genuine representation of the real-life orangutan as possible – retaining the image of the animal through her anatomy, proportions, colouring, and principal modes of movement (Figure 4.11). Thus, this project's main character preserves her animal *morphē* identity above her *anthrōpos* identity (see Chapter 2 page 30), aligning her predominant positioning not with the human world but with that of her animal kind.

Note. While still closely adhering to the orangutan's naturally elongated proportions, Alyami's hands were made deliberately more human-like.

Figure 4.11

Alyami's Orangutan Identity (April 2024)



Note. This render exemplifies Alyami's orangutan identity as a flexible, tree-dwelling being. Alyami represents my observations of the animal from a biologist-enthusiast's point of view – she captures the orangutans' nimble, athletic movements, glowing orange coats, spindly proportions, and distinct colouring.

Such use of anthropomorphic elements in animation has been widely documented throughout the centuries of the medium's existence as a storytelling device that garners audience attachment and engagement (Power, 2008). However, if misused, the anthropomorphic likeness of a character yields adverse effects – repulsing the audience with a deep-seated, rudimentary fear response as the character becomes a threatening imposter which is both human-like and completely foreign (Jentsch, 1997). In animation, this sense of audience repulsion is considered a symptom of the character falling into the Uncanny Valley (Mori et al., 2012; Tinwell, 2014). The Uncanny Valley delineates the point at which the familiarity of human-like features in a creature or object develops a sinister quality - insinuating menacing intentions behind a poor attempt at their concealment (Tinwell, 2014). Thus, if brought to the extreme, an anthropomorphic feature which initially nurtures the sense of familiarity, affinity, and kinship invokes an overwhelmingly distressing and repelling reaction in the audience (see Chapter 3 page 40).

This project seeks to balance the human and the non-human qualities of Alyami's morphological design, incorporating elements of human appeal while being careful not to stray too close Uncanny Valley. In this way, Alyami is categorised as a well-meaning and harmless kin of the human – a being which invites understanding and empathy towards her kind and her cause (Figure 4.12).

Figure 4.12

Render of Alyami as human kin (April 2024)



Note. The sweeping objective of this project's anthropomorphic character design was making Alyami as appealing as possible both in behaviour and form. The more affection the audience could experience towards the character, the more inclined they would feel to place themselves in her shoes and listen to *EVO*'s environmental messages.

Conclusion

This chapter has discussed the two core aspects of this research and evidenced their applications in animation practice. This discussion encompassed a reflective analysis of the film's narrative structure, then progressed to considering the three spheres of the film's anthropomorphic character design.

Having now resolved the critical commentary, this research will progress to discuss the final thoughts and reflections within the conclusion chapter.

Conclusion

Summary of the Research

This research project has employed artistic practice while asking the question:

How might anthropomorphic character design and 3D animation be used to shape environmental narratives that reflect the designer's subjective worldview?

In addressing this question, this research has chronicled the development of a 3D animated short film – thus divulging the presence of the designer's subjective presence within each stage of its ideational, creative, and technical process. In doing so, this research has progressed through the chapters as follows.

In the first chapter, I presented the study's rationale, significance, key terms, the nature of this practice, and the structure of this exegesis. Then, I situated myself as a researcher and designer with subjective positioning in cultural, social, and political spheres. In doing so, I have acquainted the reader with the origins of my involvement with the environment and animals and my early fascination with anthropomorphic animation as a storytelling and observation medium. Through this chapter, I have expressed my worldviews, beliefs, and values driving this artistic research and declared the unavoidable biases influencing its direction.

In chapter two, I offered a review of related knowledge that contextualised this research project. This review focussed on the contextual subsidiaries that make up the historical, narrative, aesthetic, anthropomorphic, character-building and world-building. The chapter also reviewed the behavioural and political concepts of anthropocentrism and the Anthropocene, thus structuring an overview of the foundational contexts considered within this animation research project.

In chapter three, I established the artistic research paradigm from which this project's practice-based methodological approach emanated, thus defining the research as one that deals with the creation and experience of animation as a mode of inquiry. This chapter proposed a tailored framework of methods for 3D animation that a sole designer might follow, thus emphasising the role of the researcher's subjectivity in design through the application of heuristic principles of inquiry. As such, the chapter delineated the eight core methods of technical and creative development that served to realise the final animation artefact, evidencing the researcher's making process as reflective and subjective.

In the fourth and final chapter, I reflected on my findings by discussing two core aspects of the resulting animation practice – the narrative structure and the anthropomorphic character design of the short film. The analysis of the film's narrative structure through Todorov's equilibrium theory supplied a discourse on self-centric thinking, thus proposing a reconsideration of the current anthropocentric mindset in favour of broader, more inclusive pluriversal ideas. The demonstration of anthropomorphic design within the character's mental, expressional, and morphological creation exemplified the uses of anthropomorphism within the animation medium that may help to generate empathy towards pluriversal environmental causes.

Contributions to the field

Animation can convey visual ideas in ways no other filmic medium can, and animated anthropomorphism offers a way for the audience to witness facets of themselves within the character, thus viewing them with an extended empathy. This mirror image allows the audience to consider a perspective of pluriversal thinking before that of the anthropocentric. This depiction of animated characters facilitates the possibility of nurturing the audience's understanding and connection to an environmental perspective. Thus, this project asserts the application of anthropomorphic design and animation within environmental discourse as the opportunity for audiences to see the world with renewed empathy. In doing so, it contributes to the understanding and application of anthropomorphic identity in animated media to develop a narrative with environmental considerations. This project also contributes to the application of Todorov's narrative structure within 3D animation through curating a commentary on the methodological process and subjective design practice of an animated short film.

Further research

In conducting this research, I have witnessed the communicative abilities of anthropomorphic character design and animation in cultivating empathy towards environmental ideas. I believe this combination could be applicable to various other issues - whether it be in articulating the values of marginalised groups, or bringing awareness to social, political, or cultural contexts. Thus, I plan to follow this thread of research in my professional and personal future projects – utilising anthropomorphic character design in combination with 3D animation techniques to draw empathy towards critical issues.

I plan to submit the completed film to the New Zealand Best Design Awards as a part of the Student Moving Image category and to international animation film festivals like the Melbourne International Animation Festival (MIAF). I plan to submit the research conducted through the development of this project to the LINK International Conference and to submit a full article to the LINK PRAXIS Journal in Practice-oriented Research.

Reflection in closing

Conducting this research has encouraged me to meditate on my thoughts, feelings, and intuitions about my environmental and pluriverse positioning - helping me to draw a clearer image for myself. Articulating these dominant senses through practice has solidified my standing on them – bringing me closer to my values and concerns and their realisation in future animation projects.

This animation research project has pioneered much of my personal and professional growth within the medium. While I had previously self-directed 3D animated films during my pursuit of a Bachelor's degree in Digital Design, through the Master of Design I have experienced the single designer's 3D film creation process with an expanded degree of complexity as a solo player in a team's task. In aspiring to design and manufacture a fully furred humanoid mammal as a protagonist, this project has inadvertently forced me to develop skills in new technical fields that were completely foreign to me before: rig-oriented character modelling, full-scale facial and body rigging, corrective blend shape creation, and hair grooming. While these new aspects of the project initially seemed like a bottomless investment of my time and effort, they ultimately became indispensable to the short film – articulating and embodying ideas encoded as messages in EVO. They likewise became indispensable to me as a designer and a thinker.

In the culmination of this exegesis and its animated short film, I would like to leave the reader with a reflective Russian quote:

Сказка ложь, да в ней намёк, добрым молодцам урок.

‘The story is a lie, but holds a hint, for the good fellows a lesson.’

From the 1834 Tale of the Golden Cockerel by Alexander Sergeyevich Pushkin.

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Appendix

The Link to Watch the Short Film *EVO*

<https://vimeo.com/943126959>