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Layout and Animation Development for the Animated Short *Making Friends*

Daniel Edward Raitz
Clemson University, deraitz@gmail.com

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LAYOUT AND ANIMATION DEVELOPMENT FOR THE ANIMATED
SHORT *Making Friends*

A Thesis
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Masters of Fine Arts
Digital Production Arts

by
Daniel Edward Raitz
May 2018

Accepted by:
Dr. Eric Patterson, Committee Chair
Professor David Donar
Professor Tony Penna

Abstract

Cinema is the result of crafting an illusion, an acknowledgement of character and art that works to convey meaning to its viewer. The audience recognizes the work to be fiction but still interprets meaning through abstraction. Animation is a cultivation of this applied abstraction to the art of film. As the evolution of traditional art transformed itself from realism into abstraction, animation picked up the torch and pushed the movement onward. Radically changed in the early and mid 1900 by Walt Disney Production, Warner Bros., and Metro-Goldwyn-Mayer; animation styles shifted to emphasize characters over abstraction, character being any object that possesses ethos, pathos, and a touch of logos. Inspired by and building on ideas of an earlier and simple 2d production, the animated short, *Making Friends*, implements specific film techniques and animation techniques based on the study of great filmmakers and their methods. The visual narrative that is strengthened by the fusion of these two driving forces. Adapting widely appealing shots from several established directors, the recreation of the story, *Making Friends*, told through a new medium and enhanced layout, creates a captivating story for viewers to enjoy, while conveying fundamental human themes in a compact form.

Artistic Statement

As an artist it is important to know and to measure one's own growth in artistic ability. Animation is a transformative and demonstrative medium of story telling and has the ability to capture the measurement of growth I seek. My hope is to use story telling as a device to draw the attention of the viewer internally and to address one's own prejudices as I have over my years of growth as a person. People have the terrible ability to be quick to judge, projecting fear and hate toward individuals just like themselves. My hope is to use animation as a device to present difference and demonstrate the evils of prejudice. *Making Friends* was originally a 2D short I created in 2012. With limited tools, knowledge, and skill, I was not happy with my telling of the story. Today I recreate this short with the knowledge and skills I have gained. The short focuses primarily on character animation and camera layout, with shots influenced by the suspense and anticipation Steven Spielberg depicts in his film, *Jurassic Park*, with the pacing and visceral action of director Quentin Tarantino, as well as the heart warming storytelling and spirit of Miyazaki films. The objective is to let the camera and the two characters, a robot and a dinosaur, tell a story of making new friends in a harsh situation. The short is a demonstration of thinking without recourse, forgiveness, and re-evaluating one's motivation. While one of our characters succumbs to their own nature, our jealous and enraged robot, the other shows optimism and forgiveness in qualities exuded by man's best friend, dogs. Animation and character influence comes from one of my favorite animated films of all time, *Toy Story*. The choice to move the short from 2D to 3D comes from my personal attachment to the ability for a camera in 3D space to create suspense and motivation for the viewer, acting as the unseen observer. The short directs the attention of the viewer internally, to convey that sometimes human nature makes us quick to judge and act; to make the best of situations in which we feel rejected or saddened as we should seek to understand the bigger picture.

Dedication

I would like to dedicate this project to my family, to whom which none of my being here or my bright future would be possible. To my little brother Dylan Raitz, who I deeply regret will never get to see my success but never doubted how far I would go.

Acknowledgments

I would like to thank my committee members, Professor David Donar and Professor Tony Penna, for guiding my creative process in my time here at Clemson. From making animated shorts of dancing politicians to creating a rock concert light show, their methods of teaching have always captured the fun and creative side of their studies. I would like to thank my committee chair, Dr Eric Patterson, who first put me on the path into Digital Production Arts. Without his initial guidance I would have never found my way to Clemson University. My experiences here at Clemson have only fueled my desire to entertain and create, while their teachings have sharpened my skills and knowledge of the career path I am set to take.

I would also like to thank my dear friends of the Digital Production Arts lab, who without my sanity surely would have snapped. My colleagues have helped me cultivate my art and without seeing their work and own drive, I might not have pushed myself as far as I have. Collaboration is the essence of film making and animation and I am honored to have worked with them.

I would like to thank Pallavi, without whom I would not have survived my final year as well as I have. Thank you for cheering me on when I thought less of myself than I deserve.

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Chapter 1

Cinema

Cinema is one of the grandest and widely consumed arts of the modern era as well as being one of the youngest. Not many art forms can be easily accessed and enjoyed from the comfort of one's own home nor are as socially common as gathering friends for a night at the movie theater. The art of filmmaking has only been in existence since the late 19th century and has undergone a massive amount of change in that time. Capturing images on film at a rapid speed in order to create the illusion of motion was such a strange concept that audiences did not know how to react properly to what was being witnessed on screen. It was such a novel idea that the concept of using it as a story telling mechanism did not come into play until the technology had already been around for more than a decade. The narratives of these times are drastically different from modern film, much like the start of Egyptian sculptures, they were flat and symmetric in the beginning, the films took on aspects of flat space, wide angle, and one shot basis. Into the evolutions of Hellenistic and Greek sculpture, taking on dynamic poses and the struggle of man, cinema too adapted to a level beyond what its creators could imagine. A large contributing factor to this was technology and the camera itself. Early models were bulky and could not be moved easily once set up. As the technology advanced, so did the art. This itself is the ultimate culmination of the idea of animation; as technology advanced so did the art form of animation, up to the point of now, where it is possible to create animation with the skills and knowledge of a handful of programs. [1]

1.1 The Art of the Camera

Cinematography is the essence of film as an art. Staging, framing, depth, balance, it is simply the presentation of an image, but it is how one presents that space to the viewer that is important. The intricate rules may make the art form seem technical, but the representation of the narrative in a frame is one of the most expressive aspects of a film as art. The adaptation of this branch of art has undergone a rigorous evolution that has captivated the world. The art of the camera is subliminal, with most viewers barely recognizing the framing and movement of each shot, if the cinematography is done correctly. Bad cinematography is starkly apparent to the viewer. Effective technique has been developed by generations of cinematographers and directors who have created a foundation for modern cinema to rest upon. [1]

One of the first concepts to narrative filmmaking that developed just before the cusp of the 20th century and revolutionized film was the idea of continuity. Continuity editing is broken into two basic rules, temporal continuity and spatial continuity. Temporal continuity is the concept of a sequence remaining in a constant chronological pace, meaning actions are unlikely to repeat in separate shots but also connect continuously. Spatial continuity requires objects in frame to remain in the assumed third dimensional space they were designated in the first shot they were represented; in context, a character, if established on the right of an object should only be shown on the right of that object unless a change stems from the camera moving. The first film to hold to this style of editing and narrative filmmaking is *Come Along, Do!*, a silent film crafted in 1898 by director Robert W. Paul. The prior stated camera set up is also exhibited in this short film featured in figure 1.1 demonstrating the wide shot encompassing both subjects. [12]



Figure 1.1: *Come Along, Do!* (1898) exhibiting the example of both continuity editing and wide angle establishing shot method of early narrative filmmaking

Soon camera technology started giving the ability to innovate more unique and narrative driven shots. The camera became mobile, and the artists and directors working on the film could take the camera to different parts on set and frame the characters uniquely to the action on stage. The wide establishing shot was still relevant for creating a sense of space, but then framing gave directors artistic freedom. Having the ability to frame a subject created a new plethora of new artistic cinema. This moved away from traditional theatre staging and allowed the camera to be a better silent observer. If a character was given something in one shot, the film could then cut to a closer shot allowing the actor to act to the gift more personally and display it for the audience. Framing an individual certainly is not a arbitrary task in narrative filmmaking, it requires a sense of purpose. The example given demonstrates a purpose, the character is given something, and the audience expect some sort of reaction so revealing the character's face in a medium to medium close-up is anticipated. Alfred Hitchcock was one of the masters at framing his films. He had a clear rule on how objects and subjects should be framed. He believed objects should have their relative size in any given frame match their weight in the story of that scene. While this rule applies throughout his films, it also echoes throughout modern cinema today. [2]

As film techniques progressed, more rules for camera work were developed by directors and became the working formula for camera work. A more common rule that is not as noted by audience members included was the 180-degree rule. The concept is simple enough, once a shot was estab-

lished with subjects, an imaginary line was drawn across the ground where the camera should not cross. The rule helps keep subjects on the same side of the frame from all future angles if the rule is followed. Keeping characters in the correct sides of the frame lends itself to spatial continuity. It is jarring and confusing to audiences when a character is seen on the right of the frame and in another subject, and then in the next shot seen on the opposite. Without the character physically walking to a different spot in the frame of a continuous shot, the audience will find the subjects' movement abrupt. If the rule is followed the viewer should almost never notice, if it is broken the viewer will certainly notice. This continues to reinforce the camera as the silent observer that makes the art subtle to the audience. Figure 1.2 demonstrates the cross cutting of shots using the 180-degree rule. [8]



Figure 1.2: *His Girl Friday* (1940) shows the subjects each hold a specific position in the frame relative to each other and it is not disturbed from shot to shot

Framing is also important for guiding the viewer's eyes to where they need to go. It is much easier in a scene for the viewer to look at what is intended to look at when it is larger on the screen. If a character's subtle facial expression is important, cut to a close up to let the character's face dominate the screen. This is not the only way to guide the viewer's eye, but it is an effective spoon feeding method. Composition is the dominate point in focusing the viewers attention. It is a combination of many rules, including the rule of thirds and golden ratio. Rule of thirds has dominated film composition since almost its birth as it was a guiding force in photography, the father of cinema. Plainly stated the rule of thirds divides the camera frame into a grid of nine equal rectangles, each line placed one third of the way across the frame vertically and horizontally. Figure 1.3 conveys the idea here, along with the concept of balancing a frame. While the rule of thirds is a good guide line

for framing a shot, it should not override the balance of a shot. If a character is featured towards one side of the frame balancing is more important than placing the character on the thirds. Placing a character closer to the center for balance is completely ordinary and done regularly, the importance is to give the character room for direction. [4]



Figure 1.3: This shot from the film, *2001: A Space Odyssey* (1968), demonstrates the points of interest along the rule of third guide lines

Composition evolved in the early twentieth century as narrative filmmaking moved into its own medium of art. As mentioned, most staging done in early narrative film was much like a theatre stage. Characters faced towards the camera with flat backdrops with basic framing. Where composition was an imitation of other mediums, it soon created its own need for new artistic vision. A notable movement towards this direction was the German Expressionism movement of the 1920s. With the films, *The Cabinet of Dr. Caligari* (1920), *Nosferatu* (1922), *Metropolis* (1927), new boundaries were pushed. Not only was the staging taken differently but the mise-en-scene of shots were pushed to an extreme as they broke away from flat backdrops. Mise-en-scene is a French expression meaning "visual theme" used to describe the design of the set or background as well as the composition itself. The movement also established the use of lighting as a tool for composition similar to framing. Lighting helps mold the frame further into guiding the eyes and constructing the scene's mood and balance. These elements are easily seen in figure 1.4, making the film one of the most notorious of the movement. While the movement did not last long, it left an everlasting mark on cinema that would help continue it along, with one of the largest takeaways being the evolution

of composition that became a technique for conveying meaning and visual delight. [11]



Figure 1.4: *Cabinet of Dr Caligari* left its mark in cinema for its unique mise-en-scene and use of high key lighting

Remaining are still plenty of rules to cinema to examine, the last basic tool to explain is the motivation to move the camera. A camera that moves without motivation undercuts its own story-telling mechanism. Sometimes this is done on purpose, like in Michael Bay movies. Bay uses it to disorient the viewer and constantly keep a moving pace of the action. However, it also undercuts moments he could use the movement of the camera to create more impact or an exciting moment for the audience. A director or cinematographer must ask themselves why does the camera need to move for the chosen shot, what does it add to the story or telling of it? Just like lighting contrast, movement contrast can add to a film's story. If the camera is locked in every shot prior to a move, the moving shot will stand out more to the viewer and create a stark contrast from that shot to its prior shots. A movement can make a statement that enhances the flavor of a shot and the feelings of the viewers. If one character is chasing the other, the camera can follow the chaser, thereby making the camera also chase the victim. The opposite is true as well, if the camera is with the subject being chased but keeps the chaser in its view, the camera is then being chased. This technique can create a unique subtext to the film that viewers may not notice but certainly feel. *Jurassic Park* (1993) set a precedence for intergrating CG vfx in shots. In a particular scene, the film pulls off a chase scene much like the one described when characters in a car must run from a rampaging and hungry computer generated Tyrannosaurus Rex. Figure 1.5 is a screen shot from this scene. The

camera stays with the jeep throughout the scene to make the viewer feel like the chased victim as the lumbering giant chases them down the path. This entire sequence mixed CG vfx and animatronics near seamlessly to captivate the audience as they themselves feel chased. [10]



Figure 1.5: Scene from *Jurassic Park* in which the victims and camera are chased by the massive and terrifying Tyrannosaurus Rex

With the basics understood, framing, staging, continuity, 180-degree rule, and motivation for movement, a technical look can be had at the foundation to creating a film. Many viewers understand these techniques without actually knowing them, as regular viewers of film will know when these rules are broken because of our innately developed sense of space and time. Implementation of these and the clever use of either following or bending them is what great cinematographers and directors do. The art of cinema is truly crafted when an individual or group understands the elements and nuances of telling a story through film, and the conglomerate force of filmmaking is pushed to beyond the realm of what has been done before. Films forged new intricacies as technology allowed and a similar pattern was also set in the development of animation over the 20th century.

1.2 Animation

Animation is a reflection of film that has broken free of the naturalistic template and convention. If cinema is a body then animation could be best described as the shadow it casts, a

rendering of reality with near unexplainable proportions and feats all while maintaining an illusion of life. While animation was technically developed earlier than cinema with a couple of inventions like the magic lantern and thaumatrope arriving in the 1800s giving the illusion of motion, the peak of animation would not arrive until film gave it a new medium. The process of projecting images on celluloid at a high speed to convey motion was the key take away for animation from early film, to portray the illusion of life. This would not be the only thing animation would take away from film; the two would feed into one another for the next century and continue growing and pushing each other further than they had ever been imagined. [6]

Walt Disney was a pioneer of innovation for animation, not for being the first to create an anthropomorphic character animation, but for progressing the art and reaching broad commercial success. Much like the process of filmmaking, projects needed to be marketable to continue, and Disney's second studio was able to do just that. Character animation was given new life as viewers enjoyed the antics of the famous mouse, Mickey Mouse, making music in *Steamboat Willie* (1928), beginning the Golden Age of Animation. This era included not only a plethora of characters and a synchronization of sound and animation, something never done before. Disney found out a key process in the making of an animation to be recording sound prior to animation as he suffered much difficulty syncing the music to the animation, which became the standard after his revelation. It brought color to animation as well, with the cartoon series that came after Walt Disney's new direction of sound and animation, Silly Symphonies. These events would influence the developing animation pipeline that would be forged over the coming years. [7]

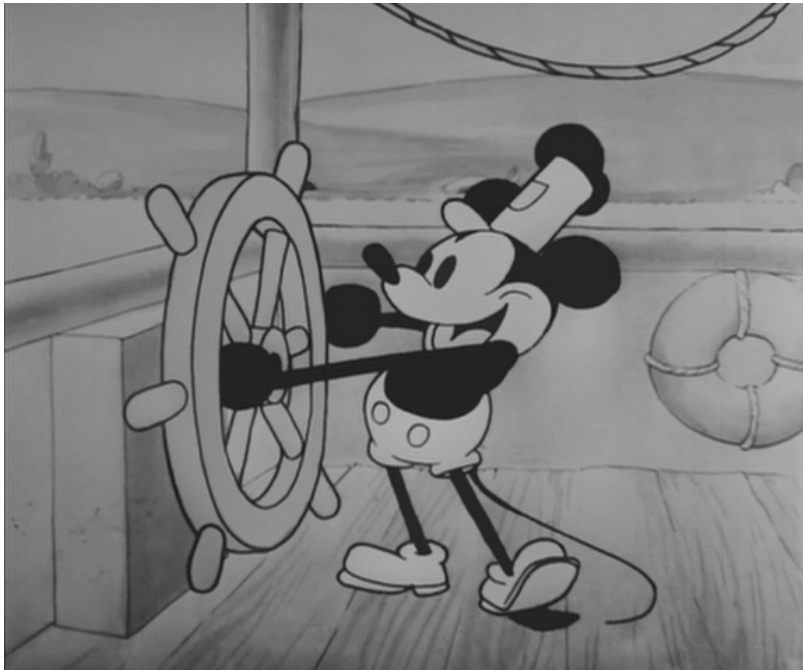


Figure 1.6: A still from *Steamboat Willie*, second sound and animation synced film, Disney's first major success

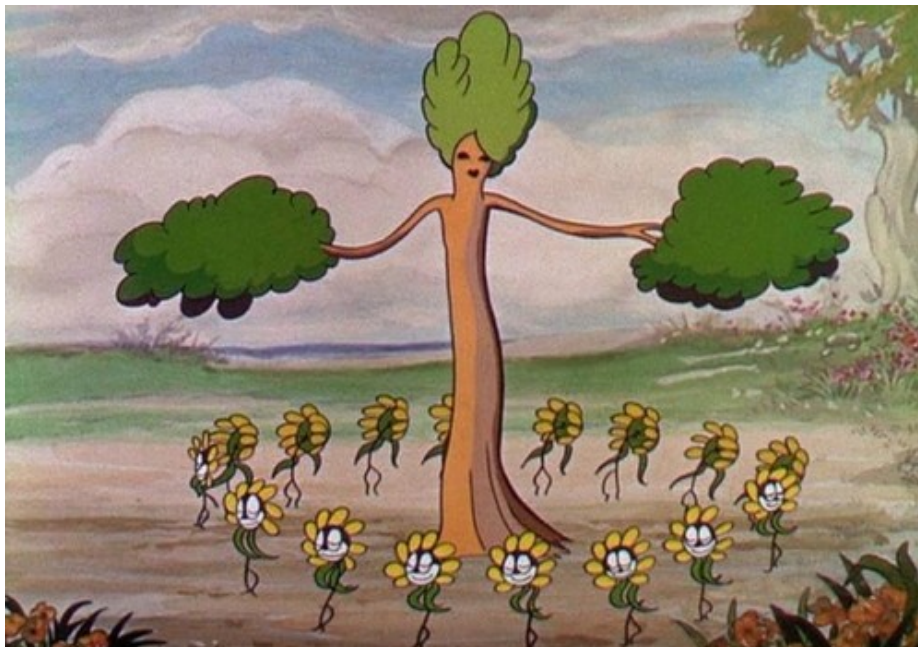


Figure 1.7: The first commercial color film, *Silly Symphonies: Flowers and Trees*

The development of a production pipeline is crucial to the the speed at which animation is created. A streamlined guide to creating all the characters, poses, backgrounds, and shots, would need to be created in order to best follow the visual development and planned narrative. When everything costs money in a production, leaving little to chance was the goal of animation studios. A pipeline involves all the macro and micro facets of pre-produciton art, like visual design, character development, storyboards, layout, voice recordings and song recordings, leading into production which heavily relied on the animators, finally into ink and painting, compositing, and additional sound. Disney's ability to create the first forms of these pipelines led to the studios success and the creation of other animation studios like Warner Bros, and ultimately the process animation would take in modern day. [3]

Animation has always adopted properties of traditional cinema as it grew and adapted. First it focused on character with gags and unrealistic antics. It then added new layers of setting, backdrop, and traditional layout, giving a place for these characters to act. Finally as the development of computer graphics enabled animation to forge into the 3d world, no longer was the illusion of depth dependent primarily on environment artists, the art of the camera could be more easily and powerfully applied to the world of animation.

Pixar Animation Studios would mirror the success of Disney Animation's *Steamboat Willie* with their CG animated short *Luxo Jr.*. Demonstrating the power of computer animations, John Lasseter became a hero for showing the lamp character who won the hearts of everyone attending SIGGRAPH in 1986. Just as Mickey became the icon for Disney, Luxo became the mascot for Pixar. Paralleling Disney's choice to experiment with animated shorts, like *Flowers and Trees* and *The Old Mill* (1937), before taking on a full feature film, Disney's *Snow white and the Seven Dwarfs* (1937), Pixar would go on to produce several shorts before its attempt at a feature length movie, developing the tools and strategies needed to create a great feature film. [10]



Figure 1.8: *Luxo Jr.*, the first major success for computer graphics driven animation

Teaming up with Disney Pixar produced the first ever fully computer graphics generated animation, *Toy Story* (1995). This film established that CG films were possible and could captivate audiences. 3D space was no longer an illusion and could be used just like live action to tell a compelling story with characters as wonky and weird as they come from the animation side. It was the ultimate cross over and gave life to a new wave of cinema. The familiarity of 3D space and ages of camera work cultivated into one of the strongest forms of expressive film art. Soon other CG animation studios would crop up and add to the growing art as it paved its way to modern day. DreamWorks Animation studios, Blue Sky Studios, and the now popular Illumination Studios, all came to the table to join Disney and Pixar in the plethora of entertainment that 3D animation has become. [10]



Figure 1.9: This shot from the animated film, *The Incredibles*, demonstrates the matching of a camera in 3d space and using basic cinema principles to drive the camera work

Chapter 2

Narrative Design

Story is the basis of all film and is of the utmost importance. The narrative of *Making Friends* is an original concept of the author. The characters, while extravagant to the world of the viewer, are based around two simple character archetypes: a boy and a dog, translated into a robot and a dinosaur. The concept of the story is broken down into a classical story arc with elements of setup, conflict, climax, resolution that almost all film follows.

2.1 Story

The setup is dedicated to the robot and his emotional void that he exhibits externally. Simply put our robot is jilted from his expulsion as a child's best friend. The robot laments over their relationship through a series of pictures that help the viewer digest the exposition. The set up portion of the story is a challenging part as the child character is only seen through the series of photos and must establish a working relationship with the one character seen thus far. The series of four photos show the growing separation between the two characters, while also conveying the child's love for dinosaurs through his unrelenting attachment to a stuffed dinosaur figure seen in every photo. Ultimately this division of the child's affection results in the conclusion of the robot characters state of current being.

The conflict of the story arises as the robot peers off into the distance to fixate on a far off character that resembles the dinosaur toy the child held in all four photos. This creates a link not only for the robot but for the viewer, to target the robot's new found jealousy into abundant rage.

The robot's saddened visage evaporates into anger as he charges at the dinosaur without caution, and eventually when the dinosaur acknowledges the robot's approach, he is met with the robot's fist. Celebrating his victory for only a brief moment the robot plunges through pride into fear and shock as the dinosaur gets back up and now seeks vengeance. This rise of conflict is chosen as the center piece to this animation as the most time and work were put into this area to create an exciting conflict to solidify the attention of the audience, the process is described in a later section.

Now that the dinosaur knows the robot is a threat, the climax begins as he retaliates with action. The robot loses all composure of confidence as the dinosaur now approaches with malicious intent. The Dinosaur charges and knocks the robot on his back, as the robot brings his arms up to defend himself the dinosaur bites down on his arm and pulls it right out, stepping back and whipping it from side to side, much like a dog with a toy.

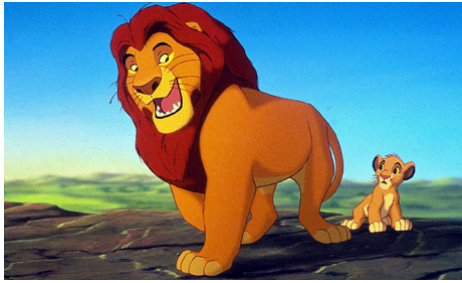
With his arm removed the robot bolts up to keep his attention on the dinosaur who now locks eyes with him again. The dinosaur drops the arm as he inches closer, but instead of a second attack the dinosaur opens his mouth and licks the robot across his face while wagging his tail. The robot comes into slow consideration of his situation and realizes he has made himself a new friend.

2.2 Characters

The characters of a film are of the highest importance in regards to the interaction of the viewer and the art. They give the emotional connection needed to create an engaging and compelling storyline. The characters are who the audience roots for, to overcome their challenges, to go to the brink of everything they stand for and return, or at least when the story has a happy ending. Characters must typically fulfill their own arcs, grow to what the situation demands in order to achieve what they desire. The audience thrives off the satisfaction of the character obtaining their desire. This concept holds true in almost all cinema, from Dorothy and Toto overcoming the grip of the Wicked Witch in *The Wizard of Oz* (1939), to Martin Brody's want to stop a vicious man eating shark in *Jaws* (1975), and even to the desire of John McClane to take down and kill Hans Gruber in *Die Hard* (1988). The characters wants must become clear to the audience and drive to the story. [9]

The recognizable goals must be involved into the characters appeal. In the art form of film, very little is left to chance. If a character must appeal as a rugged and independent character, they

would not be dressed as a depended well groomed character. The quality and appeal of character is sought after even more so in animation, the character must look the part of its ethos. The essence of this characterization is pushed by artists to a grand scale. The characters will manifest the attributes into their form, greater pushing their own personality into the physical embodiment of their character. The advantage of this not only plays a part in younger audience’s understanding a characters role externally but allows the artist to add finesse to a character not always obtainable in a live action film. Figure 1.2 highlights the difference between two lions from the Disney movie *The Lion King*(1994) and how their external aesthetics lend to their characterization. [5]



(a) Mufasa is larger with a large rounded mane, conveying aesthetics of a leader



(b) Scar is thinner with a slicker fine haired mane, conveying aesthetics of a villain

Figure 2.1: The differences between two lions to convey distinct external characterization

2.2.1 Robot: Friendbot3000

The robot character, nicknamed Friendbot300, is a combination of many different references. The main purpose of his appearance is to give the viewer a human like character to interface with. His emotions and desires are immediately surfaced from the beginning of the short by his humanly recognizable features. His design style is appealing due to the nature of his form. His basic shapes comprise of cylinders and spheres giving him a soft roundness to almost every feature of his body. His eyes are large and round with a jaw that already curves up into a smile by default. These features add to his appearance as a friendly character. The story behind the character is he a robot produced to become friends, hence the name itself, Friendbot3000. The tag to his name, 3000, is a throw back to the older science fiction movies, as if he is a product in a series of Friendbots.

His original asthetics are based on older blocky robots from 1950s and 1960s sci-fi movies, like the images in figure 2.2. This design was meant to be stiff and rigid but holding a vintage feel

as this version of the robot was created by a mad scientist. The shape and stiffness worked for the original short as it lacked heavily in animation talent, but needed to be reworked for the new version of the short. A need for a neck, posable arms and legs that were more closely related to human anatomy, and a soft body gut for spine movement was taken into consideration in the redesign for the new Friendbot

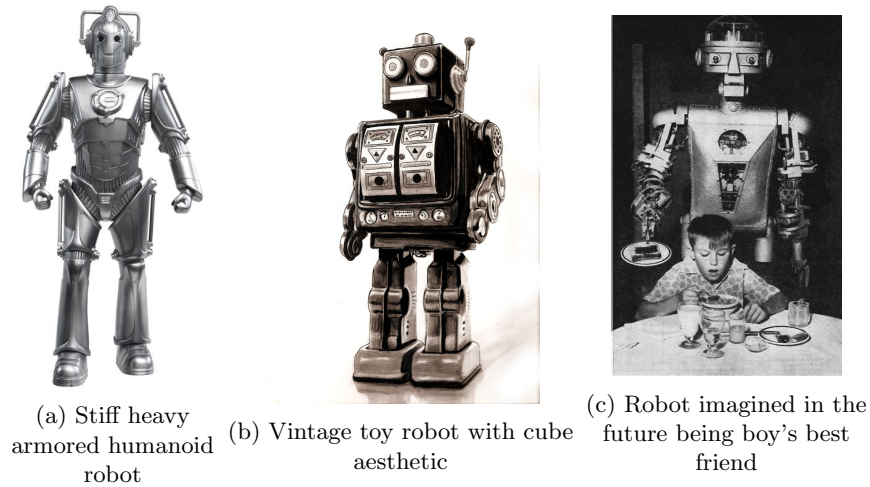


Figure 2.2: The influences for the original design of Friendbot

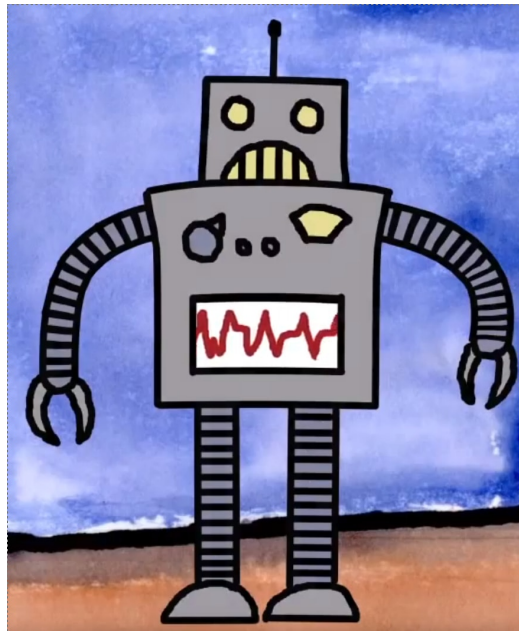


Figure 2.3: Original design featured in the 2012 version

A challenge to creating the character was how to get his face to read clear emotion as his task was to convey sadness, anger, and happiness. His large eyes would need softbody eyelids since the eyes are the first read of most characters, this would be his primary way of displaying his ethos. To back follow up and reinforce they eyelids was the slightly soft jaw of Friendbot. His simple curve gave him a concieved smile by design but needed to remain a little movable to allow reinforcement. If his eyes were reading one emotion but his jaw still curled in a smile, it could be confusing for audiences; therefore a flexible jaw was needed, but it had to maintain the illusion of being a hard bodied jaw.

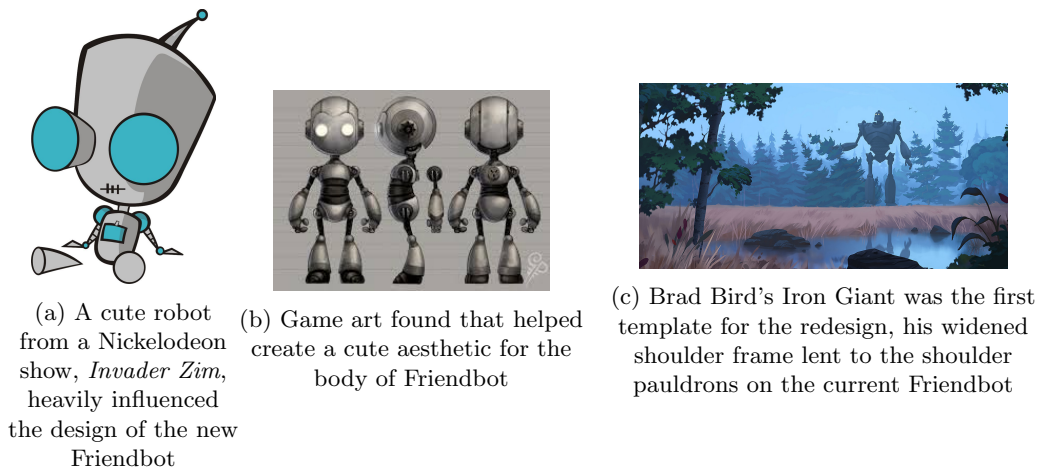


Figure 2.4: The influences for the new design of Friendbot3000

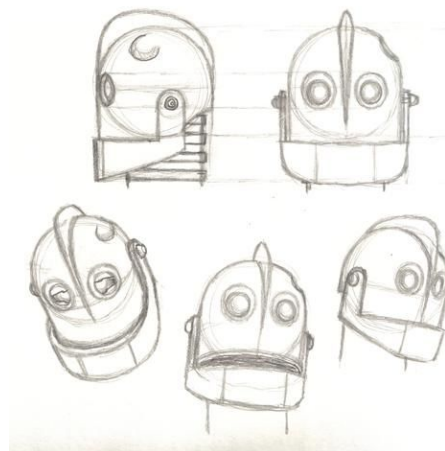


Figure 2.5: Facial features to convey emotion of the *Iron Giant* were studied for implementation of Friendbots face

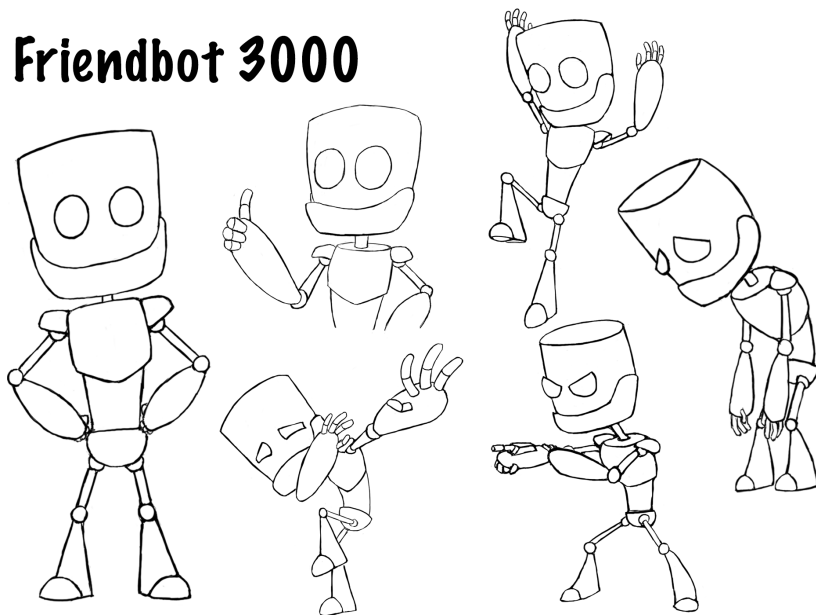


Figure 2.6: Friendbot300 derives from many influences but stems from the idea of a toy best friend



Figure 2.7: Final design of Friendbot3000 found in the animated short

His characterization was based off of both Woody and Buzz lightyear from *Toy Story*. In the film, Woody undergoes fits of jealousy and rage as he is replaced by the new toy, Buzz Lightyear. Woody is comfortable being the best friend of Andy in the film and feels dejected when removed

from that position, dejected enough to commit acts of violence. Buzz on the other hand has much of his character pulled from his back story, being a space cadet, he faces forces with a bravado and unnerve. Ultimately he does not exactly think before he acts and finds himself in precarious situations due to this. Friendbot is a bold and daring while slightly absent minded like Buzz but jealous and spiteful and longing for companionship like Woody.

2.2.2 Dinosaur: Dogasaurus Rex

The dinosaur, given the name Dogasaurus, is a primal character based off of a dog. Neither speaking nor interacting in a way that is human like, his actions are portrayed by his enormous head and eyes to convey emotion and character. His original design stems from a character from a childhood show, *Rugrats*, where the kids praise a cartoon star called Reptar, featured in figure 2.8, who in turn is based off of Godzilla. Reptar was too fierce, however, and needed more cute features for the original short. The original Dogosaur would have short appendages and lack the show of any teeth or claws, that is until he retaliates the assault from Friendbot.



Figure 2.8: Reptar, the original Dino's inspiration



Figure 2.9: Dino design in the original short

For the new design, a desire to make Dogosaur even cuter was the driving force in his redesign. Instead of conveying the idea of the dinosaur being any sort of an adult, the design was heavily put on creating a young child-like dinosaur. An immediate choice down this path was to make the head his largest and most predominate shape. Inspired by characters like Agumon from the Digimon series, Chomper from *Land Before Time II: The Great Valley Adventure*, and Tyrunt from the Pokemon series, Dogosaur needed a heavy and defined shape to his head. Chompers visual aesthetic played the largest role in influencing his squared off snout and large eyes, while Agumon and Tyrunt informed proportions of body to head.

In terms of characterization Dogosaur is more closely related to Pluto from the mickey mouse series, an expressive companion without the need for dialogue. Pluto's typical antics are influenced by another characters actions, as Pluto rarely gives off any disposition other than friendly and aloof. This matches the character of Dogosaur as he is not threatened or provoked until he is attacked by Friendbot.



(a) Digimon monster Agumon, one of the main characters to the first installment of the series



(b) Tyrunt, a pokemon, was a supreme choice in designing a young and cute Tyrannosaurus Rex



(c) Chomper heavily guided the shape and design of the face for Dogosaur

Figure 2.10: The influences for the redesign of Dogosaur

Dogasaurus Rex

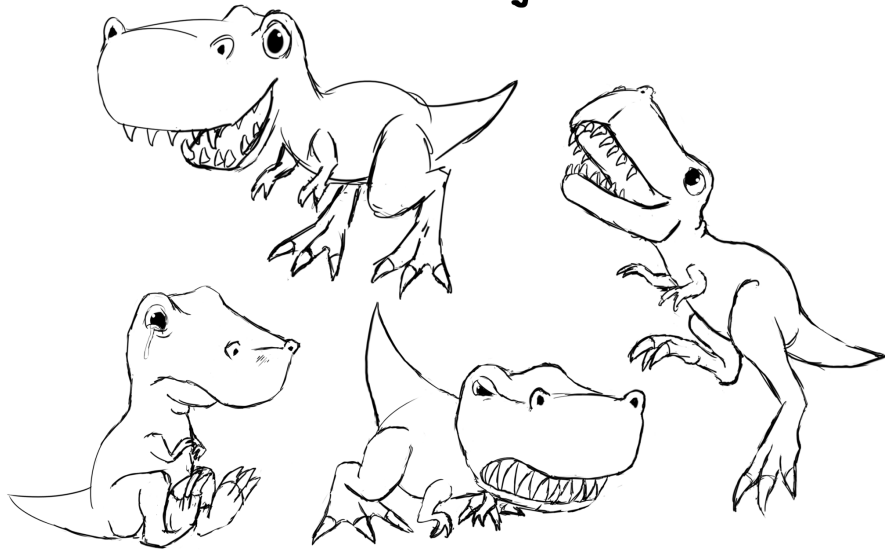


Figure 2.11: Dogosaur is a mix of cute and cuddly as well as toothy and deadly

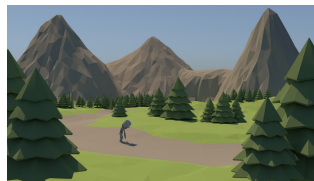


Figure 2.12: Final implementation of Dogosaur

2.3 Story through Camera and Animation

As described, the camera is as much a story teller as the characters. Specific camera techniques helps create the feelings the viewer will imply on the scene. Motivation for movement and framing, as well as following good film conventions, is one of the largest dictators of camera work. Action must drive the scene first and foremost, this includes the action of the camera itself. Broken down into three acts, the camera and its pacing is apparent in its different emphasis in each corresponding part.

Act one comprises of the setup as described, this setting up of detail is given to the viewer in a series of stills displaying the robot in single centered frames that stages him facing a direction for movement to the right in shot one and two. Shot one tilts down to expose environment, driving this movement to reveal the character from the title set in the sky. Once the frame is found on the extreme long shot of the robot, the camera goes back to static at the correct mark to let the frame have its own driving composition. The shot holds long enough to allow the viewer to digest the scenery and identify the character, both elements saturated with information. The environment informs the nature of the set, the character is out in the wilderness; the character informs his state of nature and his contrast in the environment, being a mechanical creature in an organic world. The shot intention is to only exist for these purposes and end, the crucial part of the pacing. The following shot is still as it lets the robot come to a stop in frame as he is now the only subject necessary to driving the plot further. The shot's importance is now to give characterization to the robot, which is reflected in the framing of the character in a medium shot. The frame also leaves space to the right to match the characters direction from the last shot. His posture and pose now dominate the frame as the main informant to the shot for the viewer, contrasted from the last shot which was dominated by environment



(a) First shot, gives spatial sense of env and introduces character



(b) Second shot, lets the viewer identify the character and his current state of emotion

Figure 2.13: Shot 1 and 2's introduction to character and environment

Act two highlights the conflict of the short. With the combination of animation and layout, the series of shots stands out on its own as an exciting sequence of confrontation. This sequence begins with shot four, with Friendbot's attention pulled away from the device that holds his fond memories of him with the boy who was his friend, a straight on shot was chosen to ode back to the original format of the film and give clear view for the character to express himself. Friendbot looks past the camera and squints to visibly show he is straining himself to look at something. This is a visible queue to the audience that what he sees is not directly in front of him. Figure 2.14 and 2.15 shows the representation of the same shots from both the original and the new version of the short.

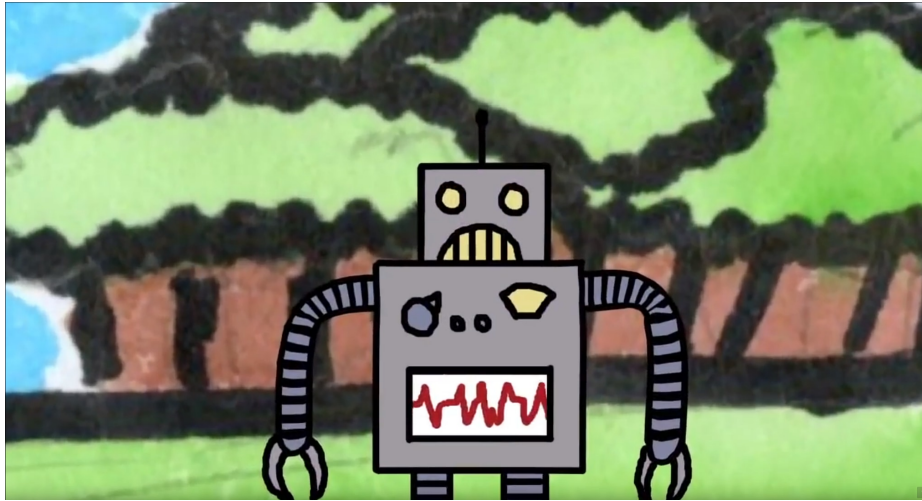


Figure 2.14: The shot from the original of Friendbot looking past the camera, no additional animation in the shot



(a) First frame from shot 4, with Friendbot looking down at the device shown in the previous shot



(b) Friendbot looks up and notices something off in the distance



(c) Friendbot squints to look at a distant figure or object

Figure 2.15: Shot 4 framing and animation

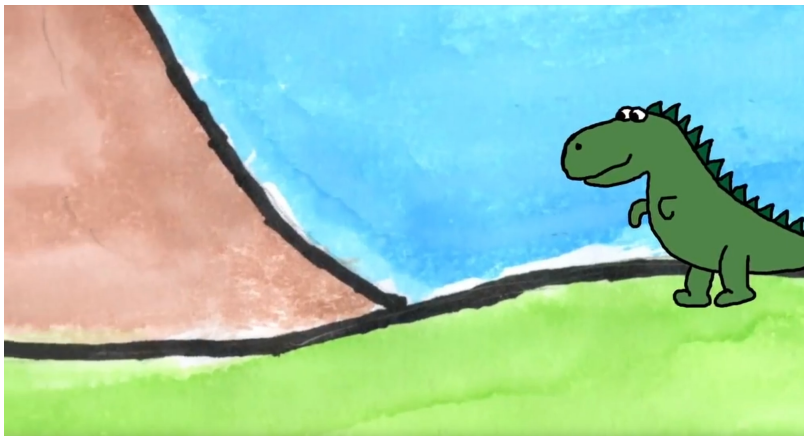
The film then cuts to a point of view shot with eyeline match. This shot, while containing none of the subject from the last shot, uses basic film language that the viewer subconsciously understands. Eyeline match is an editing technique best characterized from Sergei Eisenstein montage and juxtaposition style that explains that when a character is notably looking at something off screen, the next shot will reveal what it is they are looking at, regardless of spatial continuity. So it is understood by the viewer that the dinosaur featured in this shot is the subject of the robots gaze. In the original short, Friendbot's gaze follows the horizon for a bit before notably locking on to the dinosaur. This was mainly due to the lack of eye animation in the original character from the prior shot; however, in this updated version, the animation demonstrates Friendbot's clear eye line and therefore this search is unnecessary. Instead a slight focal length is used to keep the shot from feeling too static and to reinforce the robots focus, as the dinosaur obviously sniffs the road. This is the first introduction to the dinosaur in the short, aside from the toy the boy holds. In order to convey the dog and primal nature of the dinosaur character, he is seen engaged in sniffing a section of the road. Much like a dog on a walk who decides a particular spot is of great interest. Figures 2.16 and 2.17 demonstrate the difference in the two shots.



Figure 2.16: Shot 5, a slow push in on the dino as the focal point of Friendbot



(a) Shot opens with the dino just off left of the frame



(b) Friendbot looks past the dino



(c) the pov then snaps back to the dino

Figure 2.17: How the camera was handled in the original short, it pans across passing the dinosaur and then snaps back just before he exits frame for a comedic effect

Now for the cut back to the robot for his reaction, again expected by the audience with the classic use of an eyeline match. This shot matches shot 4 that started this sequence, as if the camera is just simply looking back to Friendbot after seeing what he sees. The mood quickly changes for this shot, Friendbot reacts by a little snap of his neck to be upright, the motivation being his distasteful reaction to the presence of the dinosaur. Quickly it devolves into rage, his eye lids moving to form an angry shape and the camera snaps in to an extreme close up of his eyes to emphasis this. The motivation for this move is the stark change in Friendbot's mood from sad to anger; the camera representing the sudden change. The original short handled this much differently as it evoked images of a thought bubble to represent his internal thoughts and then snaps back to the robot with angry red eyes. The camera move is a more artful way of representing the swift change as it conjures a physical manifestation of the change as well as not coming off as a basic camera cut as done in the original. Figures 2.18 and 2.19 show the representation of these shots in the shorts.

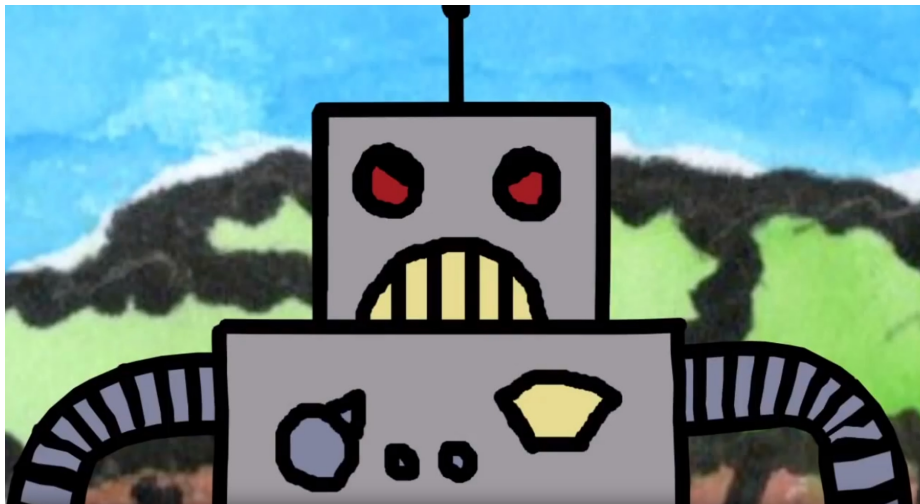
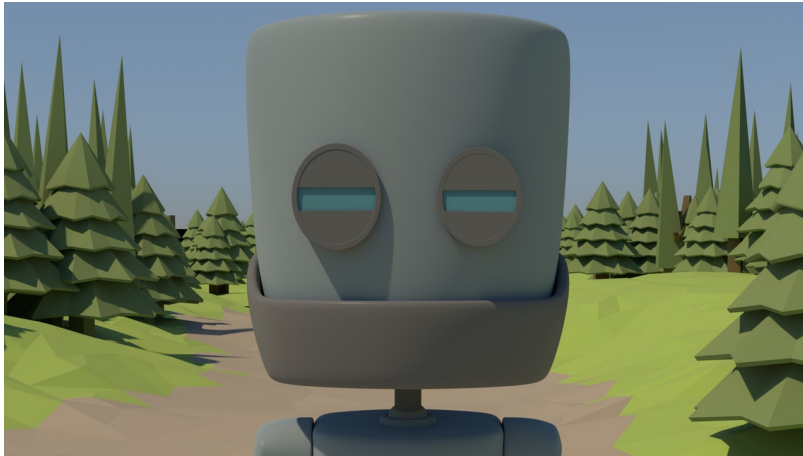


Figure 2.18: Friendbot's original cut to anger, which was juxtaposed with his external thought bubble of dino and the scientist becoming friends, the original shorts source of Friendbot's feelings of rejection



(a) The cut back to Friendbot, maintaining continuity as he is in a pose similar to when he was last seen



(b) Friendbots quick evolution into anger and extreme close up on his eyes

Figure 2.19: the start on the static camera leaves the same mood as shot 4 with similar framing but the camera cuts in for an extreme close up to then show the swift change in Friendbot's emotions

Shot 7 is the first shot that starts the action of the sequence and is animated to have a bit of a hand held feel, which can help the viewer feel even more like the spectator to the action. Starting with a close up on Dogosaur, who is still seen engrossed in sniffing the path, this feels slightly discontinued from the last as the viewer is expecting action from Friendbot based on his sudden change in disposition. This lingering anticipation is actually part of the ploy for the shot, for within a second, Dogosaur moves to the right of frame revealing a moving figure in the background. The Camera quickly snaps in to focus on the figure, who is none other than Friendbot charging at

Dogosaur. The snap zoom, a signature technique found in Tarantino films, is a quick focal change and shift in framing while feeling fluid and natural. Tarantino's inspiration for this kind of shot stems from genre of westerns, where extreme close ups define a characters motive and demonstrate to the audience the inner thinking of a character. Figure 2.20 demonstrates a snap zoom in the film *Django Unchained*.

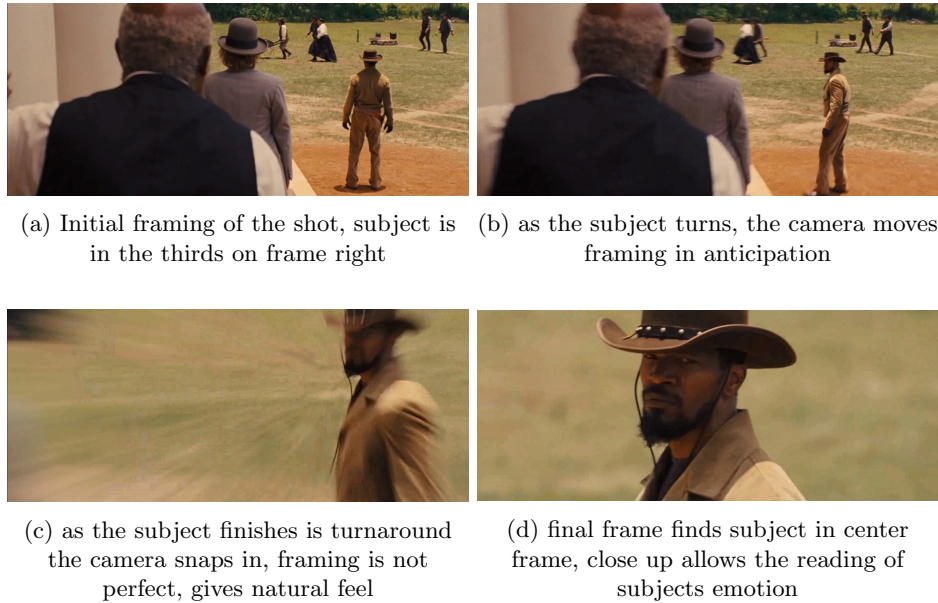


Figure 2.20: A snap zoom can help assert focus and gives a visually stunning impact compared to just a cut

The framing of this shot was originally built off of a shot from *Toy Story*, in a scene where Woody is angry at Buzz, still jilted from his rejection from Andy, and turns to attack. Figure 2.21 demonstrates the use of anticipation as Woody spins around in rage and then cuts to a medium shot of Buzz with Woody charging at him in the background. By adding a snap zoom we add a little bit more focus on Friendbot's angry charge by letting him dominate the shot but maintain the lack of awareness from our foreground character. This was achieved by a framing adjustment to allow Dogosaur to fill most of the frame and then reveal Friendbot in his frenzied charge. Figure 2.22 shows the final framing of the shot from *Making Friends*.

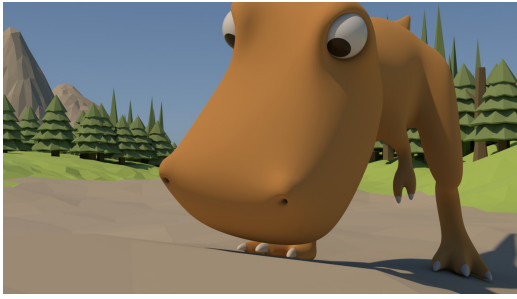


(a) Woody spins around and shows a face of pure rage, similar to the shot 6 from in *Making Friends*



(b) Framing is set similar to shot 7 but begins tighter and leaves Friendbot's reveal till about 30 frames into the shot

Figure 2.21: Stills from *Toy Story* that match some of the expressive characteristics and framing from *Making Friends*



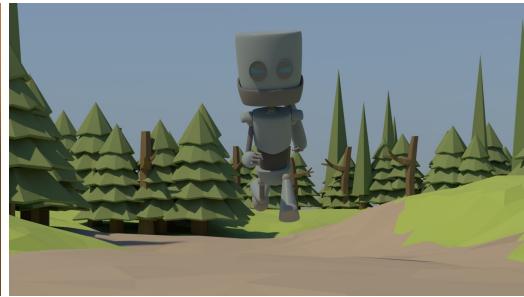
(a) Dogosaur is the only character in frame, a play on anticipation



(b) Dogosaur moves his head to frame right revealing Friendbot



(c) Camera performs snap zoom to reveal focus on Friendbot's charge



(d) Camera now frames Friendbot, as he is driving the action of the shot

Figure 2.22: The snap zoom's execution from shot 7 in *Making Friends*

The pacing is important to maintain during this action sequence, so few shots are longer than 60 frames. The next cut to shot 8 is from underneath Friendbot's feet as he races forward towards Dogosaur. The choice to have the camera underfoot is an homage to a specific chase shot from *Jurassic Park*. This camera move is zeroing in on Dogosaur with Friendbot, feeling the anticipation of the closing gap. Figure 2.23 demonstrates the original shot from *Jurassic Park*. Framing within a frame is a common practice in film, it heightens the focus and draws the viewers eyes. The legs of the raptor in this scene frame the boy as he chases him through the kitchen. Shot 8 of *Making Friends* is an attempt to recreate this using Friendbot's legs to frame Dogosaur. Figure 2.24 shows the frames from the short.



Figure 2.23: A still from *Jurassic Park* demonstrating a frame within a frame within a chase sequence using the chasers legs



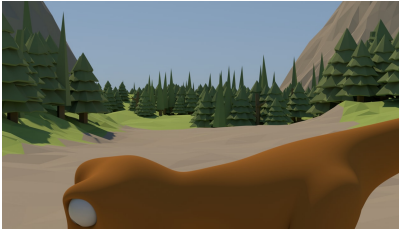
(a) The start of shot 8 which frames the Dogosaur using Friendbot's legs



(b) Near the end of the shot as Friendbot makes his hasty approach

Figure 2.24: Stills from shot 8 that exhibit the attempted recreation of the shot from *Jurassic Park*

As if almost cutting away from the narrative itself, the shot 9 is a still shot with a mostly empty frame with Dogosaur near the bottom, will sniffing the ground. It is at this point Dogosaur finally notices the approaching threat and lifts his head to see his possible assailant. An additional beat is given here to allow the dinosaur to tilt his head to the side much like a dog to convey his confused nature. This moment is to exude the gentle nature of Dogosaur and his calm demeanor. This shot is 80 frames and contrasts the quick cuts from the action to better convey the characterization of Dogosaur. Most creatures when approached by anything at the pace Friendbot is setting has a primal instinct to run, but this calm moment from Dogosaur represents to the audience the misjudged anger toward Dogosaur by serving as contrast from the rest of the shots and the contrast in animation action. Figure 2.25 shows the poses from Dogosaur in this shot.



(a) First frame of the shot, leaving lots of headroom for Dogosaur



(b) Dogosaur now looks directly past the camera at the assumed space of Friendbot



(c) After a beat, Dogosaur tilts his head in curiosity, demonstrating his calm and curious nature

Figure 2.25: The breakdown of the animation in shot 9

After teasing the closing gap, shot 10 finishes this running action sequence but cutting to a point of view of Dogosaur, with Friendbot reeling back for the punch. Within moments Friendbot launches himself at Dogosaur and rails the frame with his punch. This cut back to a point of view mimics the sequence of shots earlier from Friendbot's pov, creating symmetry to the scene. Even after the punch in shot 10, the next shot frames just like 9 and shows Dogosaur taking the punch and falling off frame. This symmetry helps shift the viewers emotional attachment from Friendbot to Dogosaur as he becomes the victim of hate. Allowing the viewers to identify with both characters is the key to creating the ending of this short, knowing that neither truly has malicious towards the other. Shot 11 finishes with Dogosaur taking Friendbot's punch and collapsing down towards the bottom of the frame. Figures 2.26 and 2.27 show these shots while figure 2.28 demonstrates the symmetry of the point of view sequences.

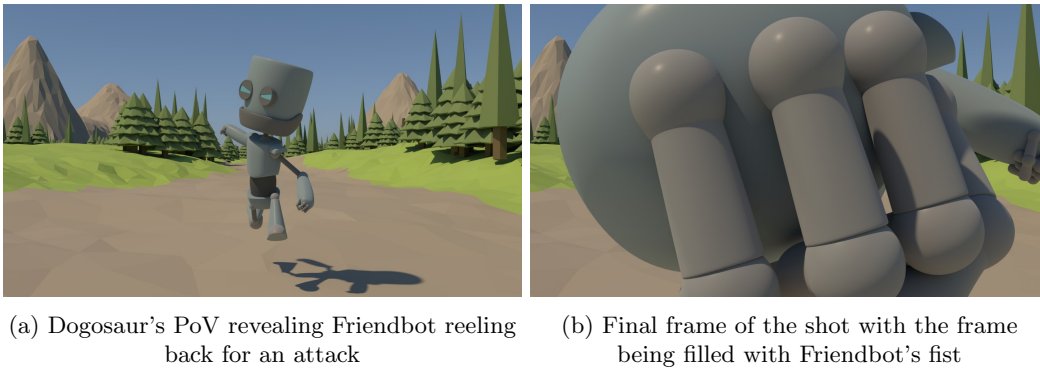


Figure 2.26: Shot 10's punch animation landing directly into the camera as Dogosaurs PoV

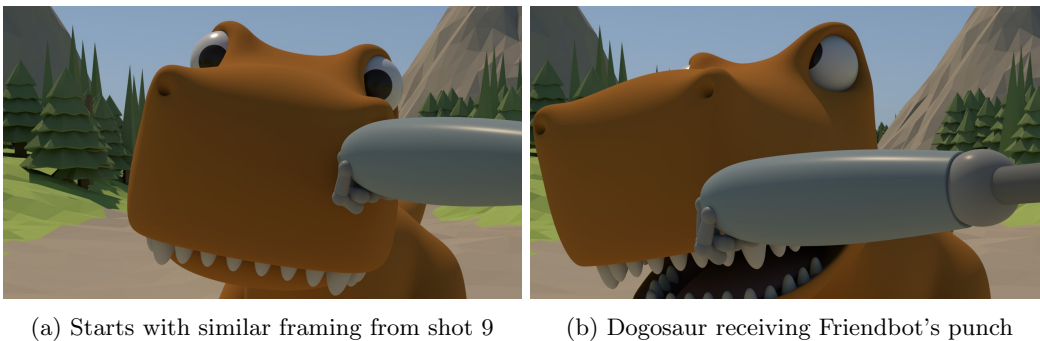


Figure 2.27: Shot 11 the results of Friendbot's punch

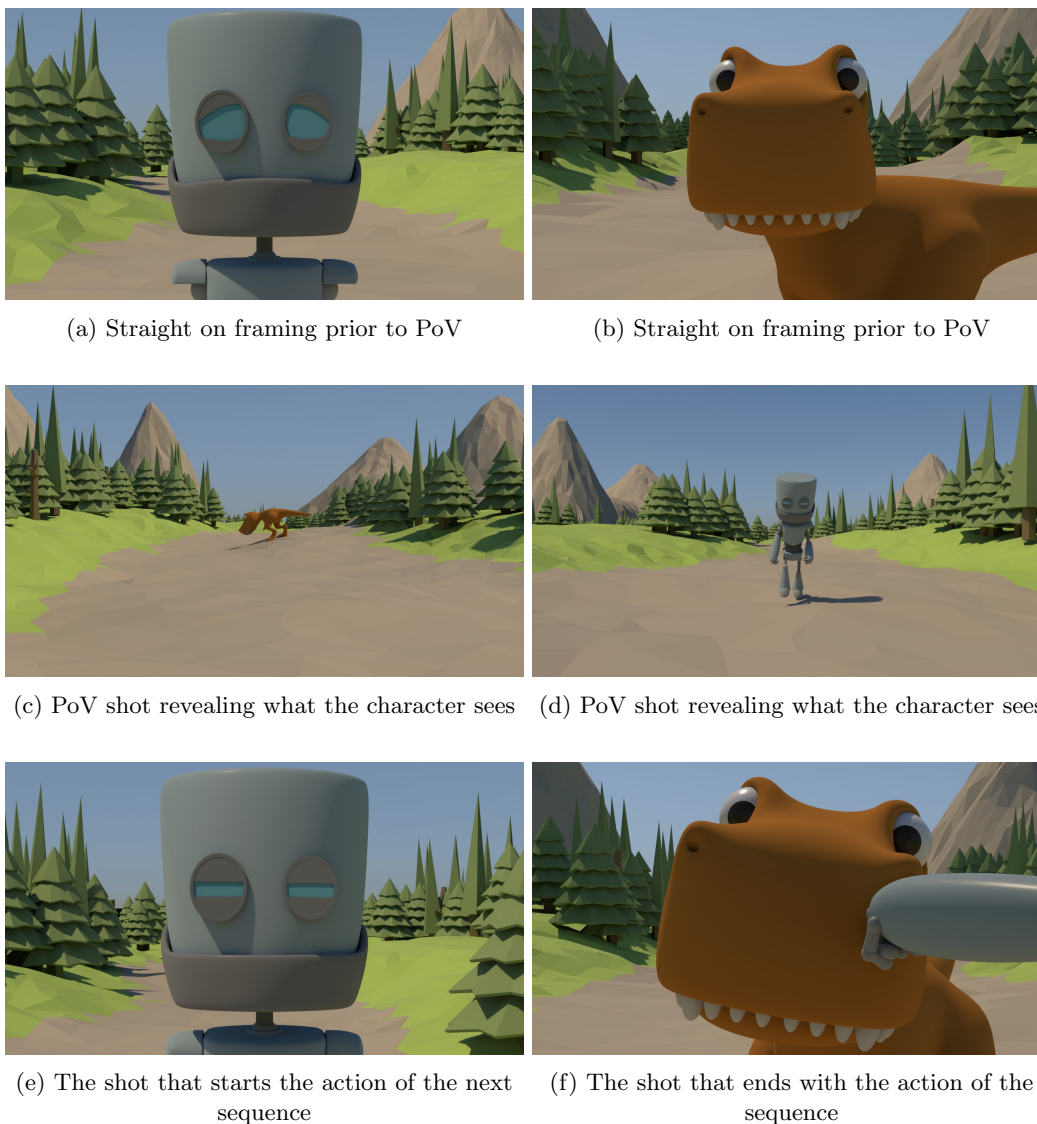
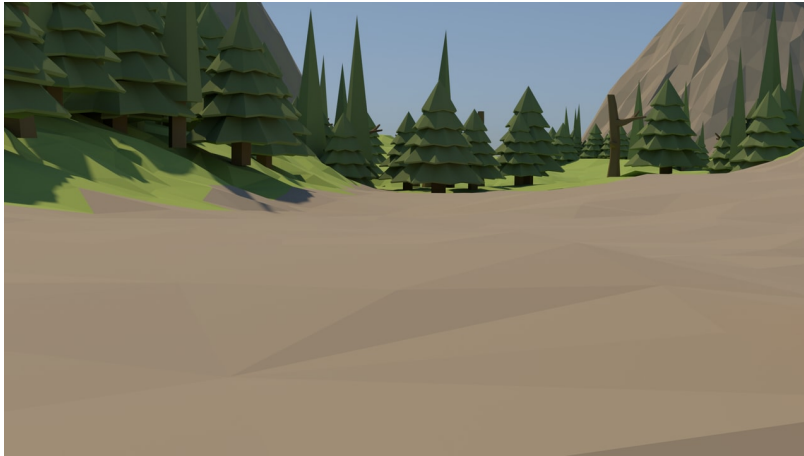


Figure 2.28: A breakdown of shot symmetry starting and ending the punch sequence in *Making Friends*

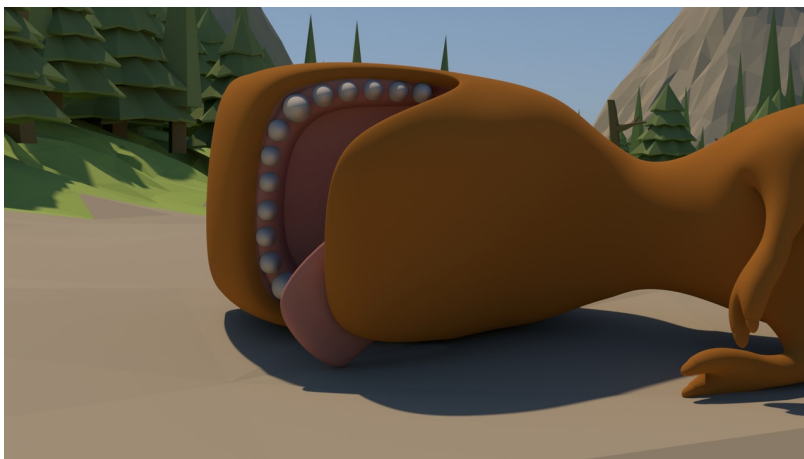
To finish our Act 2, shot 12 is an empty frame near the ground that drops Dogosaur into the frame still reeling from the punch. Dogosaur hits the ground bounces once and lands flat, with some light overlapping action to help enunciate the fall. The tongue settles down as Dogosaur lays defeated, unmoving. This ends the entirety of the action as it is the final result Friendbot set out to do, defeat the symbol of his rejection. Figure 2.29 is a demonstration of the animation of the shot.



(a) An empty frame gives the audience the anticipation of something entering



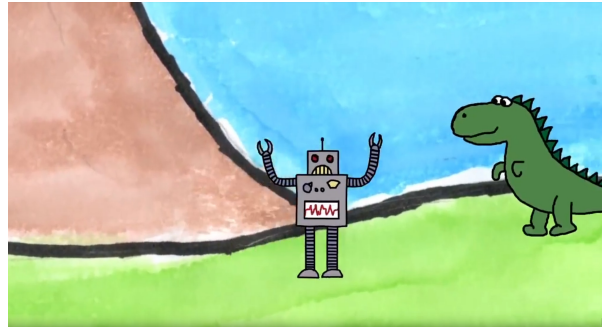
(b) Dogosuar falling into frame from the force of the punch



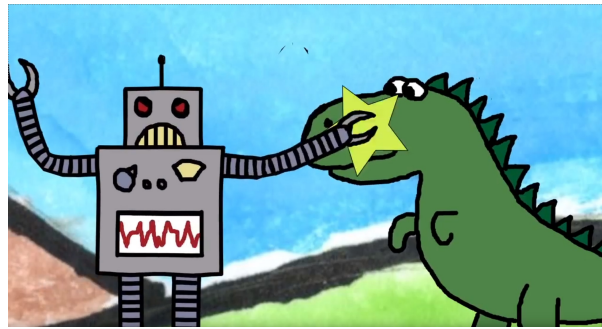
(c) Dogosaur, defeated, lays in the frame unmoving

Figure 2.29: Shot 12, the defeat of Dogosaur

The original take of this moment from the first short is a much different approach as the sequence of action only consists of three shots, Friendbot's charge, the punch, and Dogosaur's reaction. The extension and addition of shots, not only creates a more exciting action sequence with a better pay off, but creates better anticipation in the viewer. Figure 2.30 demonstrates the original take on the sequence.



(a) Friendbot's charge



(b) Friendbot's punch



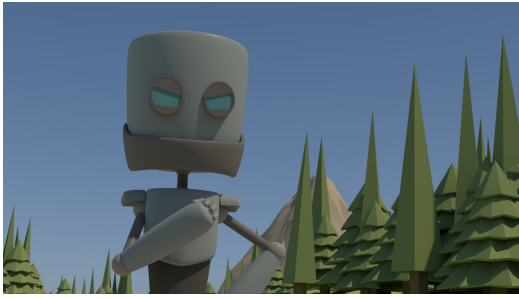
(c) Dogosaur's reaction

Figure 2.30: Original take on the action sequence from the original short

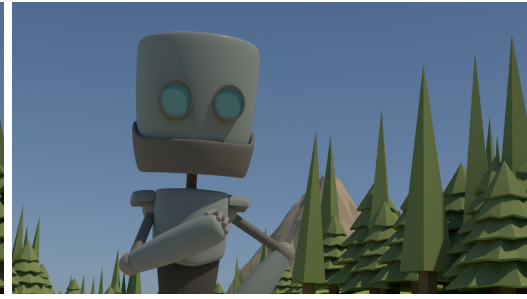
The final shot of Act 2 that sets up the climax of the short, is a shot designed after another shot from *Jurassic park*. Friendbot now stand proud over his defeat of Dogosaur, looking down in victory. His taste of satisfaction quickly sours as his eyes quickly pop open and the camera dolly's backwards giving room for Dogosaur's foot to enter frame right and slam down in defiant retaliation. The camera even shakes a bit on the impact of the massive oragne leg dominating the right side of the frame. This is to emphasis the anger now in Dogosaur's character without actually showing his face. It is important that Dogosaur's actions speak for his emotions in this scene as the camera holds allowing Friendbot to react to his reinvigorated foe. Friendbot's head keeps moving up, as if sizing up his opponent for the first time, and all bravado is quickly lost as he blinks twice and arms go limp. Friendbot's animation reinforces his swift change in mood and the intimidation factor from Dogosaur's now angry disposition. Figure 2.31 demonstrates the similarity and inspiratoin of the framing of this shot from *Jurassic Park*, while figure 2.32 breaks down the camera motion and animation of the scene.



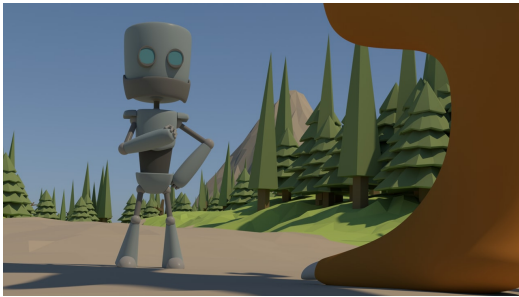
Figure 2.31: A still from *Jurassic Park* showing the source of inspiration for the final framing of shot 13 in *Making Friends*



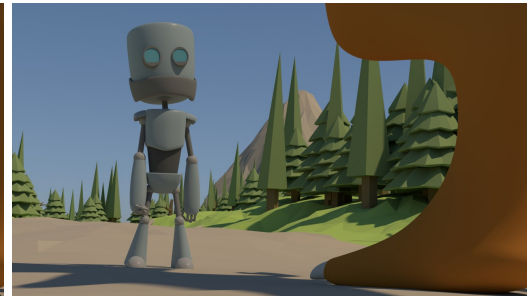
(a) The shot starts with Friendbot in frame standing over his 'defeated' foe



(b) Friendbot's face and disposition quickly change, motivating the camera's move



(c) The camera backs up to reveal Dogosaur's leg stomping down in defiance



(d) Friendbot loses all bravado and his arms go limp as he succumbs to fear

Figure 2.32: Breakdown of shot 13, leading to the climax of the short

Chapter 3

Production Process

The production process for an animation is much like that of live action. From the pre-production phase of storyboards, concept art, location scouting, into production of filming, which includes capturing audio, lighting, staging, and camera, following into post production of compositing and editing and additional audio. The advantage to animation, which adds to the excessiveness of the art, is the ability to create anything for the animation needed. Storyboards and concept art are still important to the preproduction but rather than location scouting, additional concept art for environment is needed. During production the lighting, staging, camera movement and placement are done in separate stages. First the characters and environmental models must be created for the rest of the process. Surfacing and rigging are usually done in tandem as the layout process begins with the staging of characters, environmental placement, as well as camera techniques; Animation for advanced staging and character animation; all wrapped up into lighting for final renders before post production. Compositing editing and audio follow suit in post production much like a live action. The breakdown of the actual production process creates extensive hours of work for artists and techs as the process must be meticulous and correct before sending off renders. This process is the key to animation and its the same processed used for the making of *Making Friends*. The process is detailed here from the beginnings to the end of the production in the following sections which mirror the stages of production.

3.1 Pre-Vis

The heart of the story and development of the actual production is almost all laid out here in Pre-visualization. Storyboards and character designs are brought to life by artists, as well as the varying environment concepts that will contain the adventures or misadventures of the characters. Characters undergo vigorous changes as the vision and identity of them are found. *Making Friends* followed the traditional process of starting in 2D sketches and boards to create a map for the production. The fact that this short was a pre-existing concept in 2D helped guide this process. The foundations of the story had been laid, the original artistic style of environmental and character contrast was present, as well as the initial character design and inspiration were all found in the original short. The next task was transferring this all to 3D animation. The characters received special treatment, as well as the environment as stated in prior chapters.

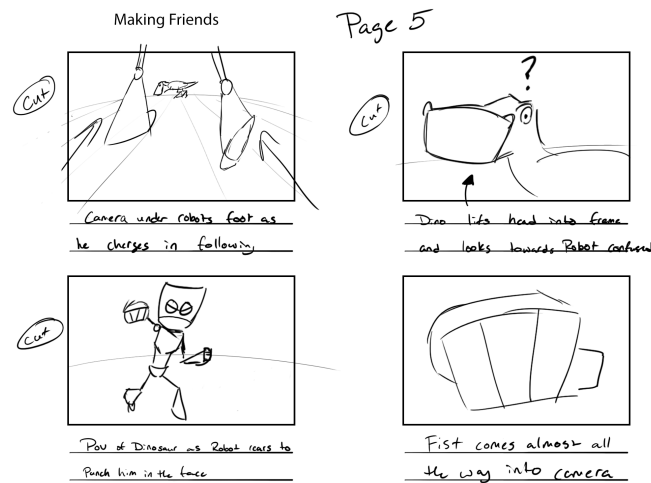


Figure 3.1: A page from the first thumbnailed storyboards, the start of the process for mapping the animated short

The largest task was the story telling of the camera in 3D as it was to take a completely different approach from the original. Many of the original shots were kept and transferred to the boards as the sentiment of the original shots were still very present in the new short. There was also a lot of room to had for improvement of the shots

3.2 Modeling

Characters do not exist in 3D animation until they are created using a complex method of mapping vertices in 3D space. Luckily technology has advanced far enough to create an easier and fun process for doing this rather than the daunting process it sounds like. Autodesk Maya is the power house of this animation's production process, and modeling starts here. Both characters were modeled using a method called box modeling. Box modeling starts with exactly as expected a box, referred to as a cube in 3d space. The robot character is comprised of several different parts that almost all started as a cube. Once a cube is placed in 3d space it is then edited using a variety of tools in Maya's toolkit to better form the shape. The more elaborate parts of the model are the torso and fingers. The torso is a single mesh with two hard body pieces, the chest plate and the hips, connected together by a soft mesh to allow flexibility in the spine. The technique used for this was blocking out the sections with cubes and then combining and merging vertices much like grafting. To keep symmetry the mesh was cut in half vertically along the center, then cut again into a quarter. Once the model was set correctly in this portion it could then be duplicated across an axis, combined and merged. The process was then repeated to create the entirety of the torso.

Blocking the entire model is essential to capturing the correct size and proportions to model from the reference. Just like in life drawing, gestures are important to start with so proportions line up on the detail pass. Figure 3.2 shows the evolution of the blocking and detail process as the model evolved. Image a is the absolute blocking of parts and shapes through box modeling. Important shapes such as the jaw and eyes needed to be placed for relative sizing based off the reference. Friendbot3000 is meant to be cute, therefore his eyes and jaw needed special attention during the process to maintain the factors that lend themselves to his cuteness factor. The correct ratio of the eyes and the jaw were not met until the third image shown in figure 3.3, which was when the eyes were decided to be elongated and asymmetrical. The jaw also needed to flow in silhouette with the general shape of the rest of the head as it was too wide in the first few iterations. Finally a roundness quality was brought back into the primary shape of the head that allowed for smoother edges and a dropped back on the top of the head, these choices gave him a more recognizable and distinct face needed for the emotional connection he was set to play for the viewers.

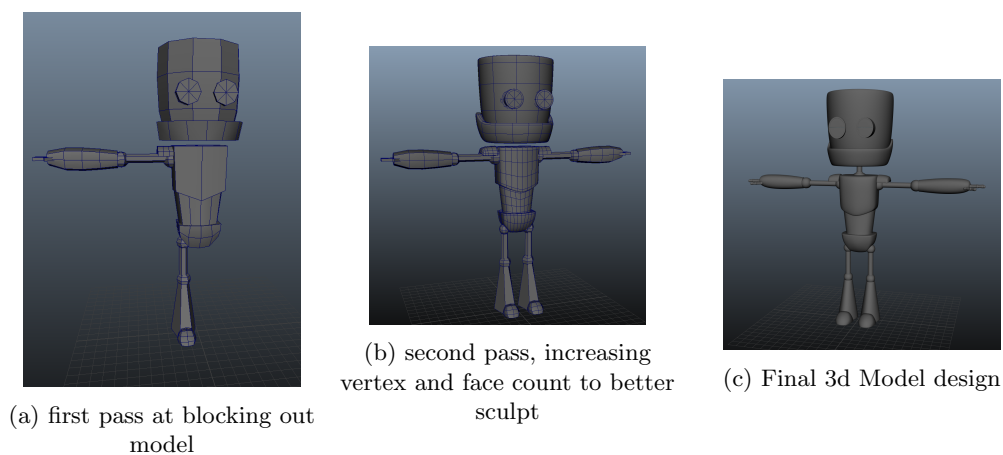


Figure 3.2: Demonstrating the blocking and polishing process of Friendbot3000

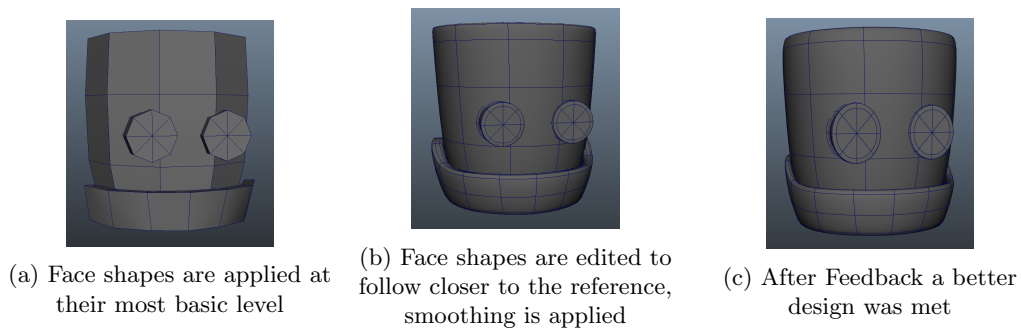


Figure 3.3: Demonstrating the blocking and polishing process of Friendbot3000

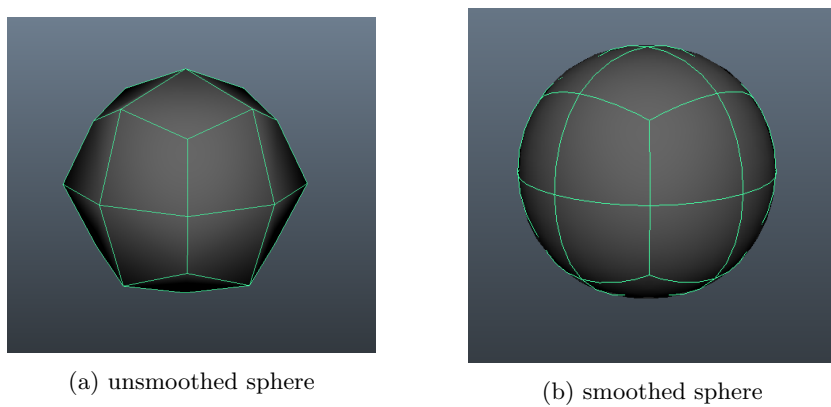


Figure 3.4: Demonstrating how smoothed algorithm works on the mesh

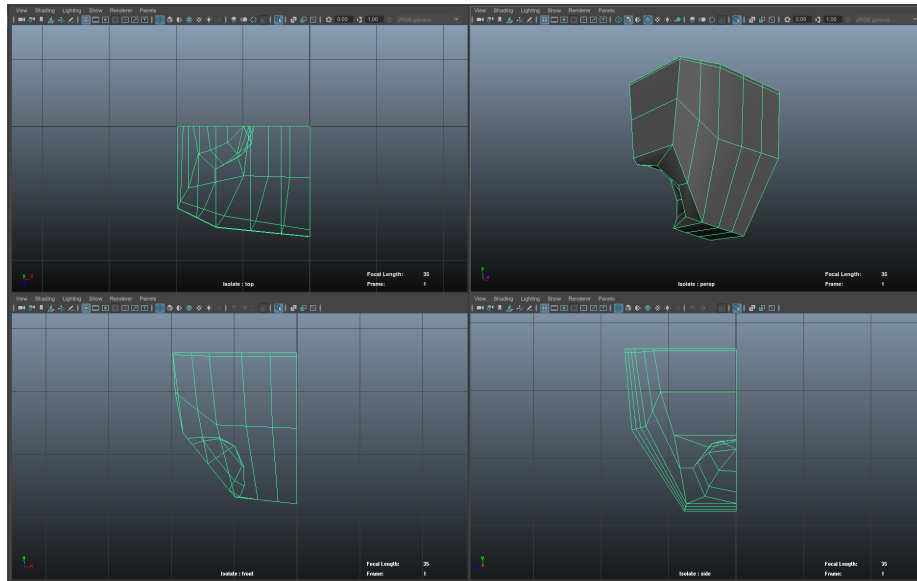
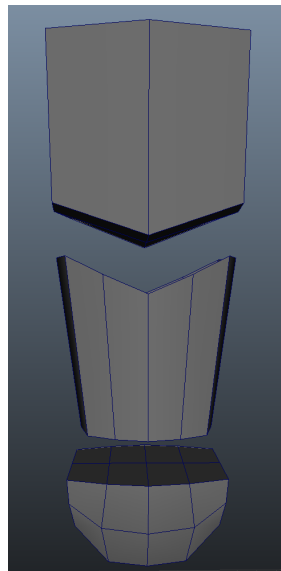
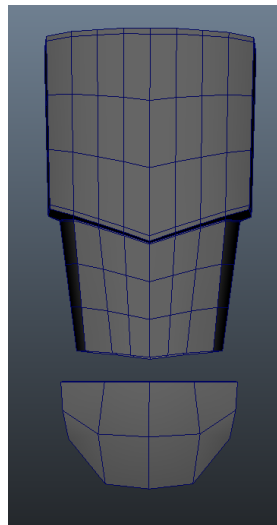


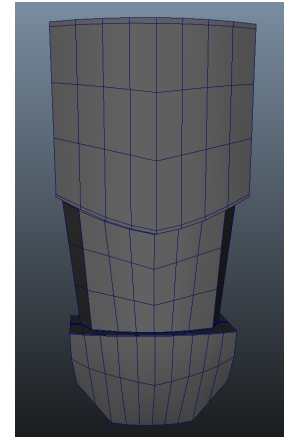
Figure 3.5: Maya Orthographic view as well as displaying a mesh ready for duplication across axis x and z



(a) unsmoothed box model blocked



(b) vertex merged with upper torso



(c) vertex merged with all parts

Figure 3.6: Demonstrating the modeling process taken with the torso

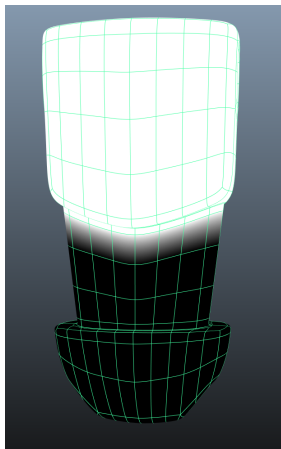
Smoothing is another portion that was important to the model process. Smooth mesh is when Maya subdivides the mesh on an iteration set by the user. For the model of the robot who

was created with a low number of polygon faces to avoid unneeded intricacy. Maya has a smoothing method that adds more subdivisions to the mesh and averages their position based on the relative location of nearby vertices. This was absolutely necessary for the models as it adds finer detail on curves and corners for the characters which ties to establishing character traits. Examples of this smoothing can be found in figures 3.2, 3.3, and 3.4

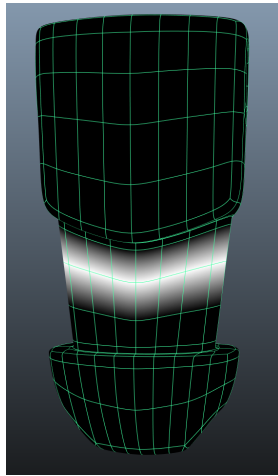
3.3 Rigging

Following the model creation comes the hard task of rigging the model. Rigging is a system of creating vectors within the model known as joints. These joints allow the mesh to be deformed for animation in ways the character should be deformed. Each joint is binded to the mesh with skin weights. Skin weights is a binding of vertices to the joint and how much that joint influences the deformation of those vertices. Friendbot3000's rig was simple in design, as it was a standard human bipedal figure. His model, comprised of multiple mesh pieces rather than a single mesh and being a mostly hard body creature, made the process of binding of his vertices to joints easier compared to his dinosaur companion, who is mostly one soft body mesh. Vertices can have multiple joints influencing them as needed on soft body meshes to deform correctly. In the instance of Friendbot300 simply flooding the single mesh to the joint with a single influence was the most effective method for his skin binding.

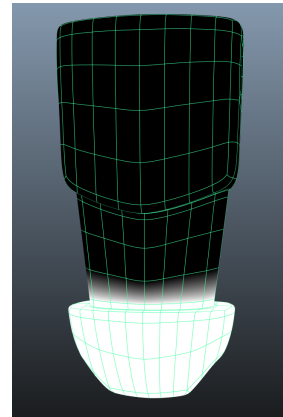
The next task is constraining controllers to the joints inside the mesh to allow the rig to be animated. The joints have specific values in order to keep the integrity of the model during animation, so the animating the controllers allow the animator more freedom without damaging the joints. The values can be set back to zero in order to put the model back into the bind pose. Doing this on the joints would put the joints back at the center of origin, destroying the mesh.



(a) The hard chassis of the upper torso was a large area with an influence of one joint



(b) Middle torso received 2 separate joints to influence smaller areas for better flexibility



(c) the hips mirrored the chest as it needed to stay the same shape

Figure 3.7: Demonstration of painting skin weights to specify deformations during animation

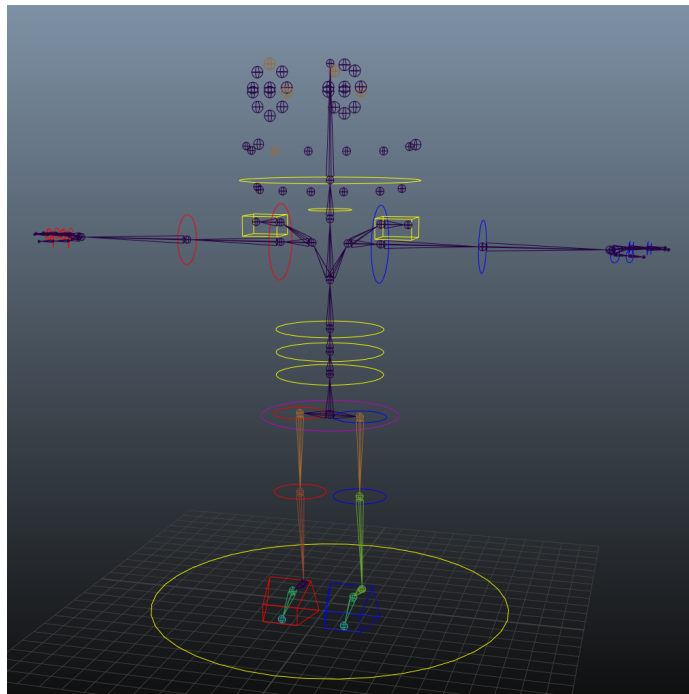


Figure 3.8: Controllers and Joints aligned without the mesh present

3.4 Layout

Layout was a unique and welcoming challenge, as the basis for this project was converting a 2D short to 3D. With the change of the story of cutting down the exposition we now had to establish the characters surroundings and feelings within the first few shots. Creating a sense of space where Friendbot3000 would be small and feeling insignificant in his massive environment, this was achieved by using an extreme long shot. The first shot not only needs to establish setting and character but it also needs to draw the eye of the viewer to the subject. Below is the first layout render from the short, lacking color can make everything meld together but an important take away was how composition of the shapes led the eye.

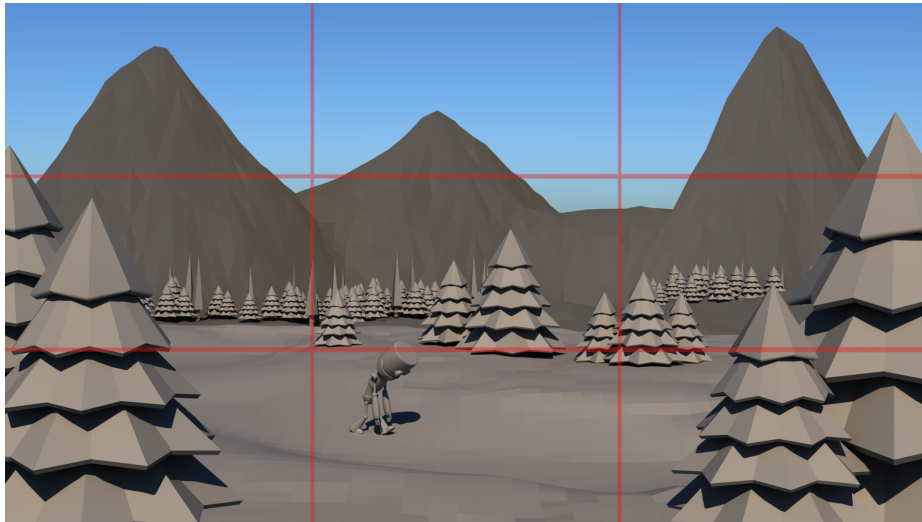


Figure 3.9: Demonstrating the use of composition to draw the eye to the subject in early layout stages

Most of the camera's in the short lack a rig, so they are simply animated with group nodes or on the object themselves. Aim constraints are sometimes created in order to keep the camera on a specific object during a move. In order to best frame the action, cameras are placed and animated first with proxy geometry before being handed off to the animation files where the animator will animate and pose with the view of the camera in mind.



Figure 3.10: Showing the camera in the Maya file amongst the animation in shot 7

3.5 Animation

Animation is more than simply the change over time, it is the style and flair of a character to convey emotion and appeal. Timing out the action and making sure intentions, motivations, and reaction are clear is the most vital essence to animation. After a rig is built the animator can add key frames, that is to say specific key poses on specific frames, to the controllers in order to manipulate the character. Maya automatically interpolates the motion between key frames using tangent functions. A user can change and manipulate these tangents to better form the action. There are many practices when entering animation but the route taken for this short is by blocking out the poses needed and finding the timing of them, then manipulating the tangents in the graph editor to find the correct motion and timing the artist was looking for. This iterative process can take many hours and a bulk of the time is spent manipulating and re-timing the animation of each shot. Reviewing and understanding the masters of animation is key to pulling off great work. So applying the 12 principles of animation is absolutely necessary when going through the artistic process that is animation. The principles of animation were a guiding factor to Disney Animation's success. They include core fundamentals to timing and movement such as squash and stretch, anticipation, staging, overlapping action and arc. The principles help establish the illusion of life with establishing weight and spacing as well as the exaggerated effect of character animation on screen.

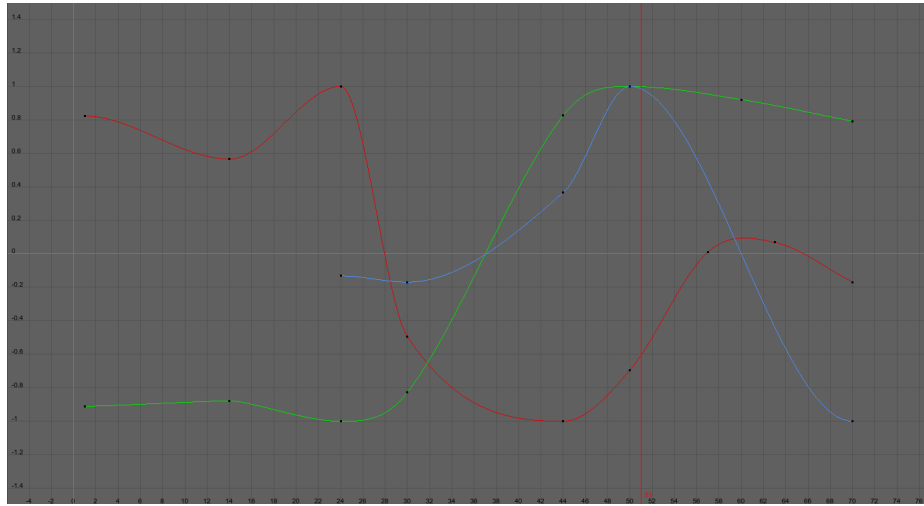
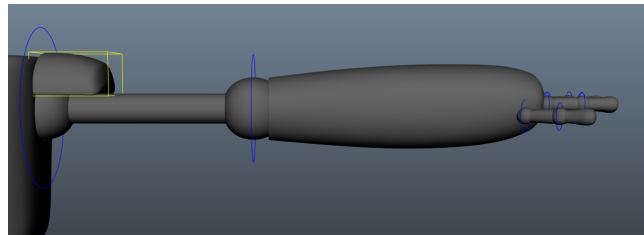
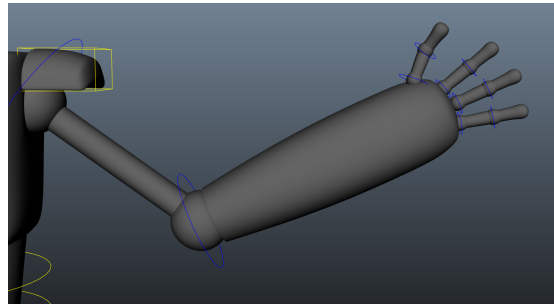


Figure 3.11: The graph editor displays the keyframes, the black dots, along with the interpolations, the lines



(a) The pose of the arm when controllers have zero manipulation to them



(b) The pose of the are after the controllers have been manipulated

Figure 3.12: Demonstration using controllers to pose the arm

Chapter 4

Results and Conclusions

The remake of *Making Friends* was an extensive and exciting process. Seeing the development of my original concept rehashed into a 3D animated short with new skills and objectives gave me the challenge and satisfaction I sought. Working on a short with a strong vision for its look and execution has yielded a developed sense of spacing, timing, and framing of a narrative that only practice can give. Reworking the concept and characters came across very successfully in my belief. The reuse of assets for environment worked well to convey space and environment through layout, and the strong sense of character and story telling communicated the desired themes.

One of the challenging elements was developing storyboards for strong layout. While many of the shots from the storyboards made it to the final cut, a better understanding of space and depth in the storyboarding phase would strengthen conveying the narrative. Translating a 2D short into a 3D was a creative challenge, and I had hoped to keep more of the elements from the original short's intention in the film. Although not all were kept, many of the elements that I found to be appealing in the first short came across with great success in the second. The connection with the character's emotions, the blend of simple but appealing characters in a similar environment, and the mending of future tech (represented by the robot) and the past (the dinosaur) came together well, and it has been well received. One of the enjoyable parts of the production process was creating the homage shots that fueled the action of my sequences. Copying the techniques of great artists but using them forming my own story not only yielded exciting material but taught me that techniques are applied through individual expressionism best when a strong sense of passion is applied to the art.

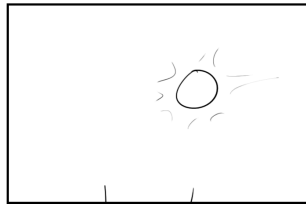
I do believe this short is a testament of my growth as a filmmaker and artist, as my under-

standing of camera has improved by leagues in animation, as well as my understanding of animated timing and story beats. I look forward to completing the short to submit for screening at film festivals as well as developing these skills on my future projects in the industry.

Appendices

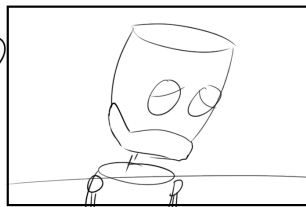
Storyboards

Making Friends



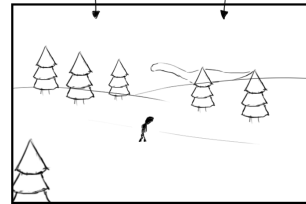
Start on sun glazing down
(Sound might be necessary)

Cut

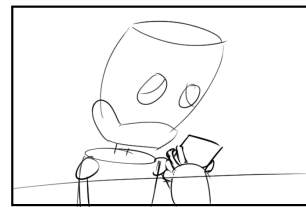


Medium close up on Robot
Looking Sad

Page 1



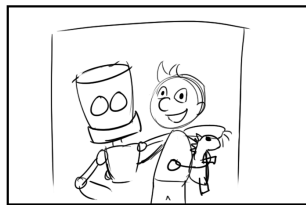
Tilt down to show Robot
walking around in Prehistoric zone
Possibly Dino seen in background to help establish setting



Robot holds up
picture device

Making Friends

Cut



Close up
Picture Device shows Robot
and boy, happy. Boy holding Dino toy



Boy excited points to time travel
Article showing dinosaur

Page 2

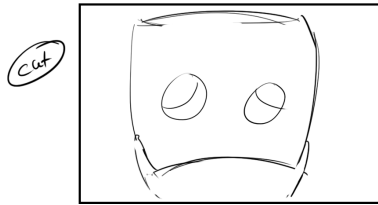


Next image shows
boy holding Dino toy lovingly

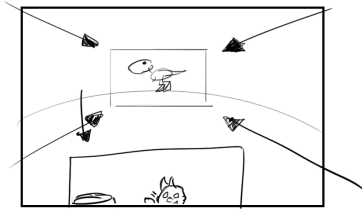


Boy waving good bye to
Robot

Making Friends



Enlarge up to Robot as he
looks at last image

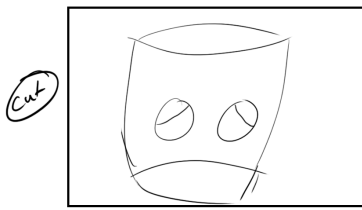


Robot lowers device he sees
dinosaur zoom

Page 3

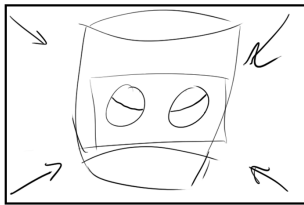


Cut back to picture device
POV of Robot

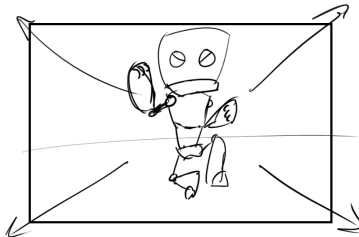


Back to Robot being sad

Making Friends

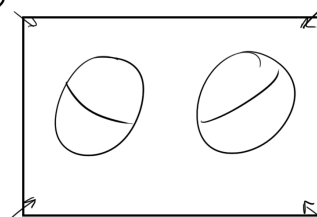


Robots face twists
into anger zoom on eyes

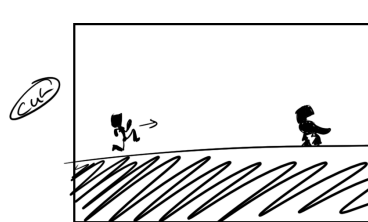


Camera zooms out as
Robot Brakes into angry dash

Page 4



Eyes turn red with
anger

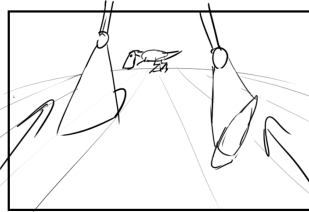


Silhouettes as robot dashes
to dino who is oblivious

Making Friends

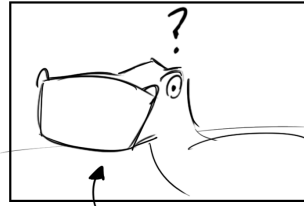
Page 5

Cut



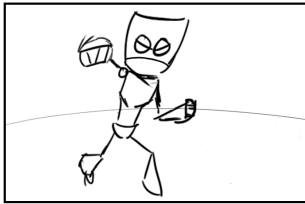
Camera under robots foot as
he charges in following

Cut

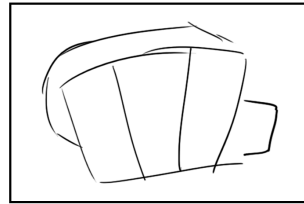


Dino lifts hand into frame
and looks towards Robot confused

Cut



Pov of Dinosaur as Robot rears to
Punch him in the face

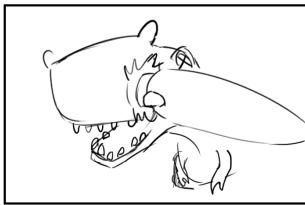


Fist comes almost all
the way into camera

Making Friends

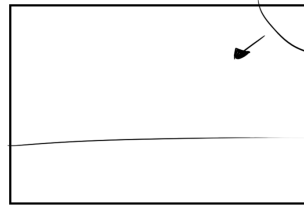
Page 6

Cut

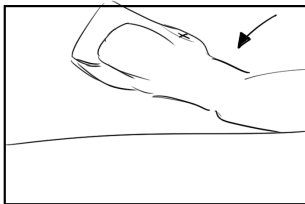


cut to close up of contact
as Dino gets sucker punched

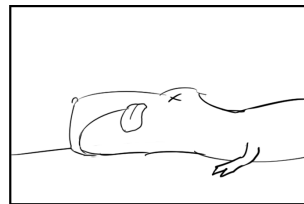
Cut



low shot of ground
Dino enters frame

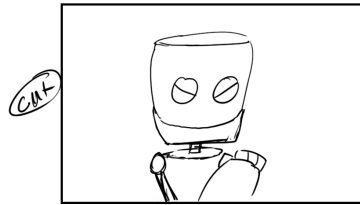


Dino falls flat on the
floor

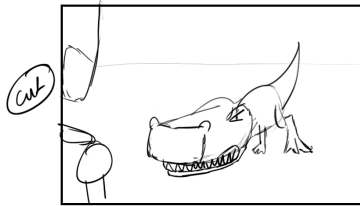


Dino hits floor

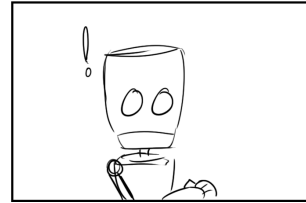
Making Friends



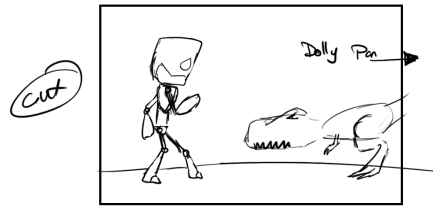
Robot stands over in
victory



Over the shoulder down
Dino gets up and mad!

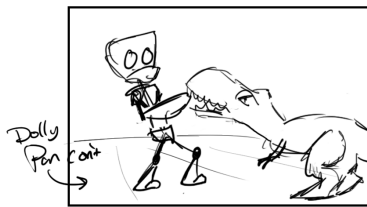


Robot becomes visibly
shocked

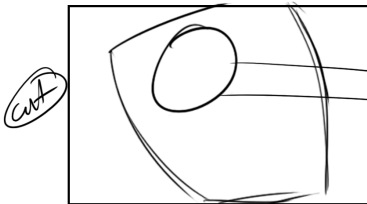


Frame Robot and dino
Camera starts pan to right

Making Friends

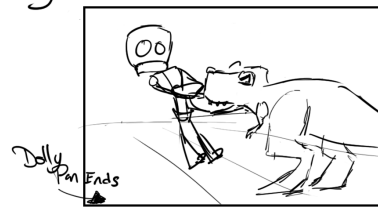


Dino moves in to bite
Robot arm

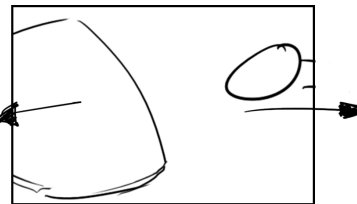


Extreme close up on arm
socket

Page 8



Dino clamps and
tugs a war for arm

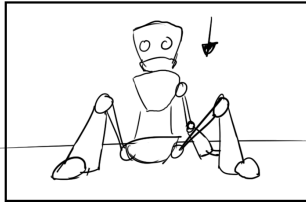


Arm pops out and
the two parts go off screen

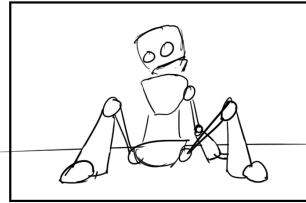
Making Friends

Page 9

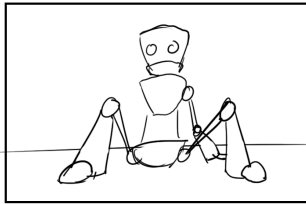
Cut



Robot falls down missing
his arm

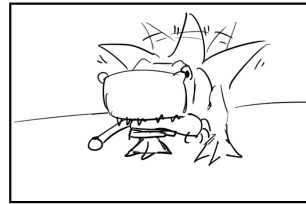


Robot looks
at missing arm



looks back at
camera

Cut

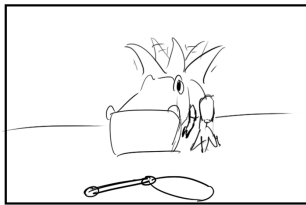


Dino looking back excited
and wagging tail, Dog Like

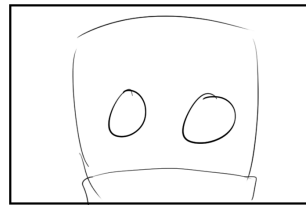
Making Friends

Page 10

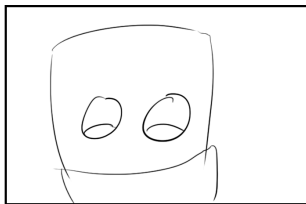
Cut



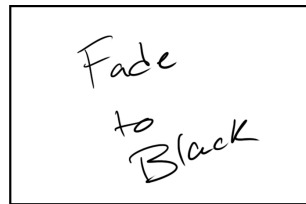
Dino places arm down
gently and waits in anticipation



close up on Robot



Robot starts smiling
and colors change to blue again



Fade
to
Black

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