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R·I·T

# **The Apple Tree**

by

Justin Scricco

A Thesis Submitted in Partial Fulfillment of the  
Requirements for the Degree of Master of Fine Art

School of Film and Animation  
College of Imaging Arts and Sciences

Rochester Institute of Technology  
Rochester, NY  
August 15, 2013

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## **Abstract**

We as human beings inherently strive to live the best life that we possibly can. We all want to be happy. Many times we see happiness in terms of what and how much we possess. This story is about how we don't always need the biggest and the best to be happy. The simple things in life are the ones that matter.

Through this paper I will document my process in the making of my thesis animation "The Apple Tree". I will discuss how my main character Zach, discovers through his interaction with a magical apple tree, that biggest isn't always best.

## **Acknowledgements**

There are many people that I need to thank in the making of this film. First and foremost I would like to thank Howard Lester. Without Howard's guidance and support, this project would have never been possible. I would secondly like to thank Skip Battaglia. After being away from RIT for so long before returning to finish my thesis project, I was very unfamiliar with the faculty who were now there. Skip was vital not only in directing me toward faculty who were appropriate to serve on my committee, but served as my main source of feedback in story development, and also served on my committee.

Thank you Atia Quadri who served as my chairperson, and helped me through numerous technical and editing issues. Also thanks to Mark Reisch, my third committee member.

## **Introduction**

The process for my thesis film “The Apple Tree” actually started way back in 1996 when I was first enrolled as a graduate student at RIT. I had made it through all of course work and was the majority of the way through my first thesis project about a couple of boxing chickens. It was during that time that I was offered and accepted a job with the company that I was interning with at the time. The lure of a good paycheck was too much, and I left RIT. After a lengthy absence, I returned in the fall of 2013 to finish what I had started even though it meant a whole new thesis proposal and project.

## **PRE-PRODUCTION**

### **Story Development**

The inspiration for the idea for my film came from an image that I had seen, but the actual storyline was really derived from my years of watching cartoons. Looney Tunes, Tom and Jerry and Woody Woodpecker were staples in my diet of weekly animation as a child. Looney Tunes being a favorite has stuck with me to this day. The brand of comedy that these characters brought is still funny to me as an adult. I enjoyed the slapstick aspect of the humor, and the over the top solutions for the most trivial problems. My goal in writing my story was to structure the flow of events similar to that of a Road Runner episode. There would be a Simple problem and in turn there would be crazy solutions.

The idea for “The Apple Tree” was born while I was teaching a class in animated film production several semesters ago at Villa Maria College. One of my students was creating a film that had vast expanses of grassy areas, which were visible in virtually every shot in his movie. The student was the type that needed a great deal of guidance, so I was inclined to do a fair amount of experimentation with different methods of creating grass within Maya. I had become intrigued with using Maya’s fur systems as they can be altered and stylized very easily, as well as rendered fairly quickly. The more I delved into creating this grass, I began to get an image in my head. It was an image of a large open grassy plain, with rolling hills, and a solitary apple tree sitting by itself next to a small section of old broken down fence that was once painted white, but was now chipped and faded from years of neglect. As I thought more about this image, I kept coming back to the idea that it would be interesting to explore this environment rather than just this single still picture. This would be a direction that I would attempt for my graduate thesis

film.

As the time drew nearer to start writing my new proposal, I started to get away from the original direction that I had intended to take this project. I started reaching back to past projects for inspiration. I went as far back as to write a treatment based on a deodorant advertisement campaign that I had created in high school. The treatment was based on an astronaut smelling bad enough to kill the first alien to make contact with the human race. It was made clear to me that this idea was more of a single gag and wasn't developed enough to be a thesis film. I was advised to move in a different direction. Although I thought that this idea was very funny, I had to agree it didn't have everything need to be a real story.

I knew that I wanted to say something with this film, but I wasn't really sure what that was. I didn't want to get really deep, or be overly profound. I wanted to keep it simple. I wanted to make a point, but at the same time I wanted to be funny and entertaining. I decided to go back to the apple tree image that was so intriguing to me several months earlier.

I began to see some things that I had never really noticed in the past. I observed that people in general always seem to want more. They want the best and most expensive. I guess that is human nature, but in my opinion it's not necessary. In this story, my goal was to make the point that although there are amazing things out there, there are things around us that can make our lives just as happy and fulfilled. Zach is hungry and want's something to eat. He isn't starving, so it isn't really a life and death ordeal, but there is a void to fill. His desire to get the largest, and shiniest apple is thwarted at each turn by the apple tree itself. Until finally he is made to understand that one of the many red apples around him will satisfy his hunger.

## **Art Direction**

I knew that I wanted this to be a 3D film. From the first time I saw 3D animation I had been drawn to it. Even the early animations that were nothing more than primitive shapes were fascinating to me. I remember being glued to MTV to get another look at music videos by Def Leppard and Dire Straits that were done in 3D animation. They were very crude by today's standards but amazing to me at the time. Early Pixar short films were also very influential to me in that this new medium was now being used to tell short stories that were colorful and humorous. Although all of this was very interesting to me, I didn't really consider animation as a career until I saw "Jurassic Park". The realism that was achieved in creating dinosaurs blew me away. I knew what I wanted to with my life.

Even before my final story was approved, I had begun working on concepts, for the main character Zach and for the apple tree. It isn't something that I would have normally done, but I knew that I would get the story right eventually.

I had such a vivid and complete picture in my head of what I wanted this world to look like, that I didn't do a whole lot of sketching of the entire set. I thought it might be a waste of time because there really wasn't a lot there, just some rolling hills, a tree and a small fence. I had done a few minor drawings, but really just so that I would have a quick reference on paper rather than just in my head. These simple drawings helped me to work out the overall shape of the tree and hills, but that was about it, and although my choices for color were derived by time of day, the inspiration for the style of the entire film comes from many sources.

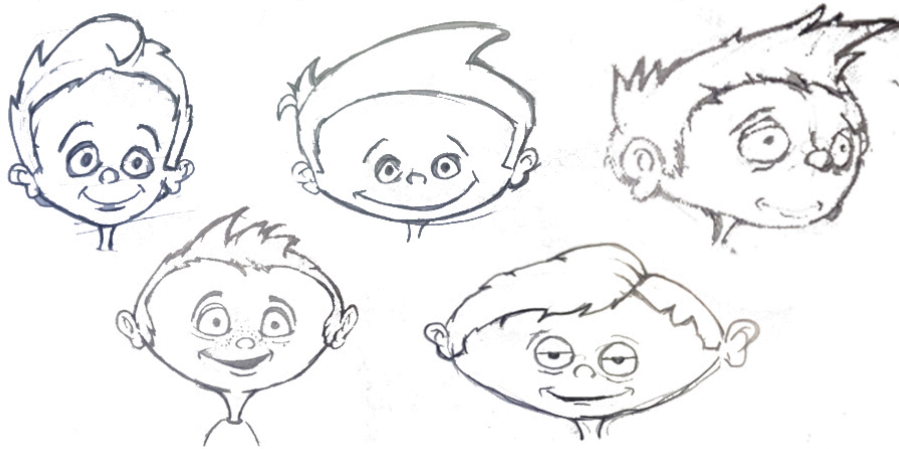
I have always been a fan of Pixar's approach to 3D, in particular lighting, color, and shadow. Their work is an amazing blend of cartoon and realism. I strived to have my film look as good as

theirs. I watched these films, not because they entertained me, but because they were visually stunning. They taught me about how color was used to set a mood, that shadows aren't always a shade of grey, along with many other things. Much of the inspiration for the overall look of my set came from several scenes and objects contained in Pixar films. In particular there is a scene in the film *Up* (2009, Pete Docter) where Carl and Ellie are going on a picnic under a large tree in a field. This scene really captured the essence of what I was looking to create. The tree was larger and more twisted than what I envisioned for my film, but the overall color palette and lighting were great. The set in my film would be in the morning so there would be a greater variation in the color of the sky.

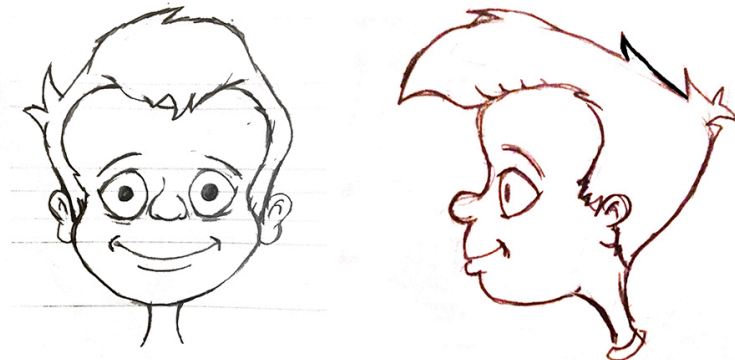


Although I love to draw, I have never been one who was talented enough to be able to get what is in my head down the minute that I touch pencil to paper. It usually takes me many revisions, and I have to do a lot of research. This case was no different when it came to designing Zach. I began by doing a Google search on character design. I looked at many characters that were in Zach's age range. I paid attention to things like head size, eye placement and eye size. I knew that Zach had to be cute so that's where I started my drawing. Some of the inspiration for Zach was based on Dash from *The Incredibles* (2004, Brad Bird), but I obviously didn't want to copy

him. I tried to combine my observations about what made a child character cute with as many basic shapes as I could. I thought that he should have a head that was large compared to his body along with big childlike eyes. I experimented with oblong shapes, slender shapes and round shapes. I went through many sketches before I had come up with something that was close to being what I was looking for.



From that point on, I began to revise the few drawings that I was happy with. Once I had the final design for Zach, I drew him from the side and also from the top to use as reference when modeling him in 3D space.





With the design for Zach complete, it was time to move on to storyboarding.

## **Animatic**

Due to the fact that I had gotten very carried away with developing the final look of my environment far ahead of time, the animatic didn't come until the majority of the modeling was complete. I know that this is completely backward when it comes to a production setting, but this seems to be where my strength is. I got caught up in it when I should have been focusing on the visual flow of the story.

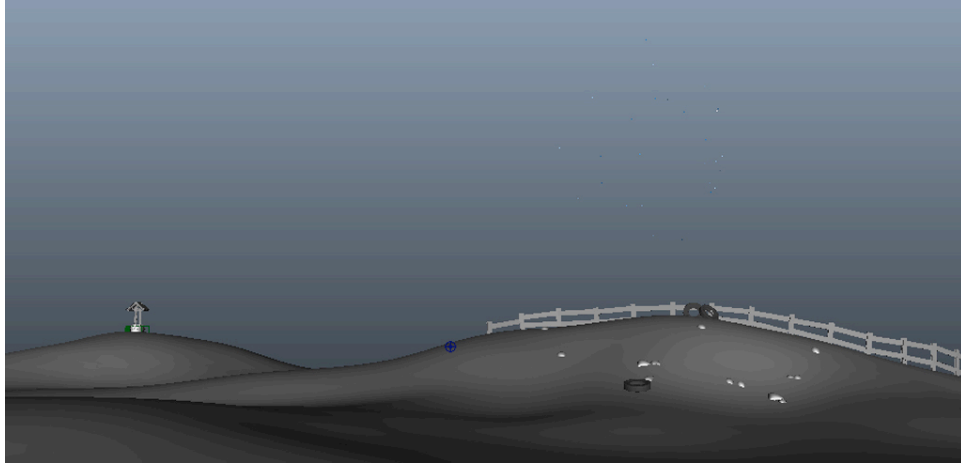
Since the majority of the modeling was already complete, this animatic was really made up of a series of what were for all intensive purposes, finished rendered still frames. The fact that I had most of the 3D assets in the scene, made it much easier for me to change camera angles where needed, in order to get the story flow better. As the animatic took shape, it became clear that I would need more shots in order to convey the idea that I was trying to get across. I inserted several more close up shots that were needed to convey focus and emotion.

# **PRODUCTION**

## **Modeling**

When I first started modeling, I started by creating the ground that would be used for the overall set, that was done by simply creating a polygonal plane that was in turn subdivided until there was a sufficient amount of resolution. Once I was happy with the number of polygons, I began sculpting the rolling hills with Maya's 3D sculpting tools. The polygonal mesh wound up having

two hills. The first hill, being a large one where my apple tree would be placed, and a second hill that was sculpted much smaller in order to convey distance.

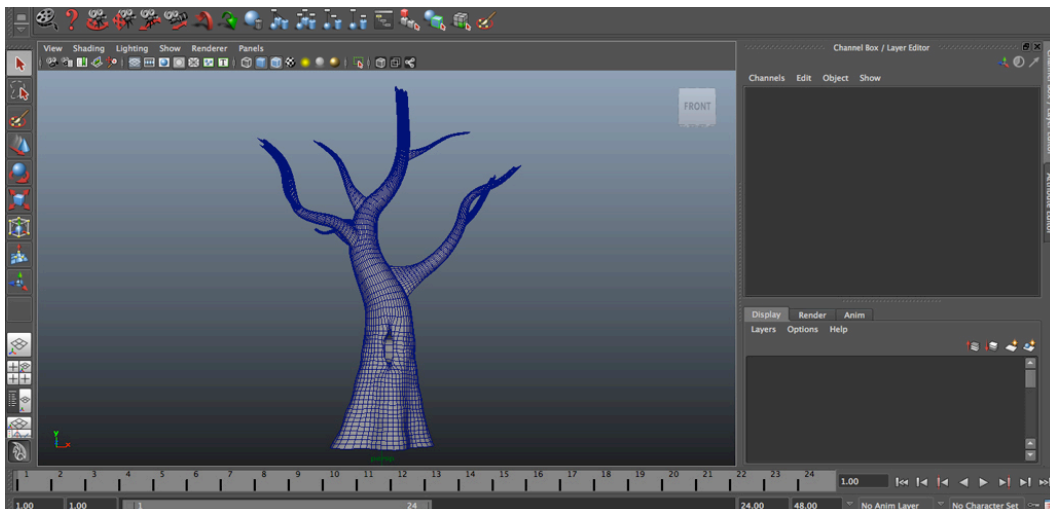


Now that I had the ground, which would serve as the home for my magical apple tree, it was time to address modeling the tree trunk and branches. I would also have to come up with a solution that would allow me to generate a convincing amount of leaves. These leaves would have to look and move as I had envisioned, and still render at an acceptable speed.

I had a specific style that I was looking to achieve in regard to the overall look of my tree. I wanted it to be larger and taller than a normal apple tree, and I also wanted it to appear a little cartoony in its style. I experimented with several different ways of creating the trunk and branches before I settled on the final 3D shape. I didn't want to spend a whole lot of time sculpting primitives, or lofting curves, so I turned a couple of different solutions to get me started. One being Maya's built in Paint Effects package, the other being a 3<sup>rd</sup> party application call Speedtree. Paint Effects was my first choice simply because it is free and it's built right into Maya. Paint Effects gives a variety of trees to use as a jumping off point. I had started out with an oak tree preset. Once I inserted the base oak tree, I began to play with all of the attributes that

were available to me through paint effects. There are hundreds of things that can be changed that will alter the shape of the tree. After playing with this shape and others for a day or so, I was a little unhappy with the results. I decided to see what was available to me outside of Maya.

I purchased a series of training videos in order to really help me understand the ins and outs of Paint Effects. During the introduction of that series, the instructor gave some examples of other pieces of 3<sup>rd</sup> party tree generating software. One that he mentioned was Speedtree. Speedtree is a very high-end tree generator that has been used in feature films. I proceeded to find a trial version that I would be able to play with a little. This application is a lot of fun to use, but can get a little confusing if you're not experienced with it. What I found was that I managed to get a better base shape with Speedtree even though I was a complete novice, but would need to do some additional sculpting to the base shape once I brought it into Maya.



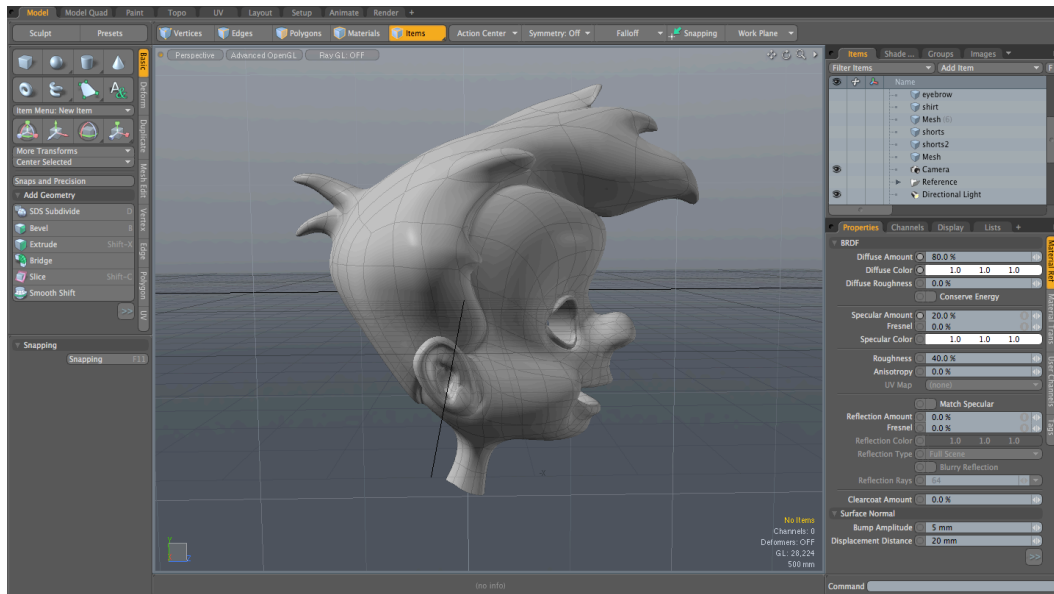
Now that the base trunk was complete, I modeled a few different leaves to get the look that I was trying to achieve. I modeled these leaves after actual apple tree leaves, even though the tree that I was creating wasn't scientifically accurate. Once I had that leaf, the next thing I did was to create the general shape that would be the tree in its normal state. After the general base shape was

created, I copied that shape node and molded it into the shape of an apple. I would use the two shape nodes to deform the tree canopy when needed. I would be using particle replacement and goal weights in order to create the tree canopy. So, in theory, the leaves should stick to the base tree shape as it transforms between blend shapes.

I have been a user of Maya ever since the very first release. Over time I have experimented with other pieces of software. Several years ago, a friend turned me on to Modo. Which was primarily a modeling tool when I first began to use it. It remains a spectacular modeling tool, but now has many more features. I decided to my modeling of Zach in Modo and bring it into Maya once complete. The modeling went smoothly, but I ran into several issues when bringing the final model into Maya.

I Modeled Zach's head with and edge modeling workflow, defining key areas such as the areas around the eyes and mouth, and bridging the gaps between them with different polygon creation tools. This was really a painless process. The rest of Zach was created by altering primitive shapes and adding detail where needed.

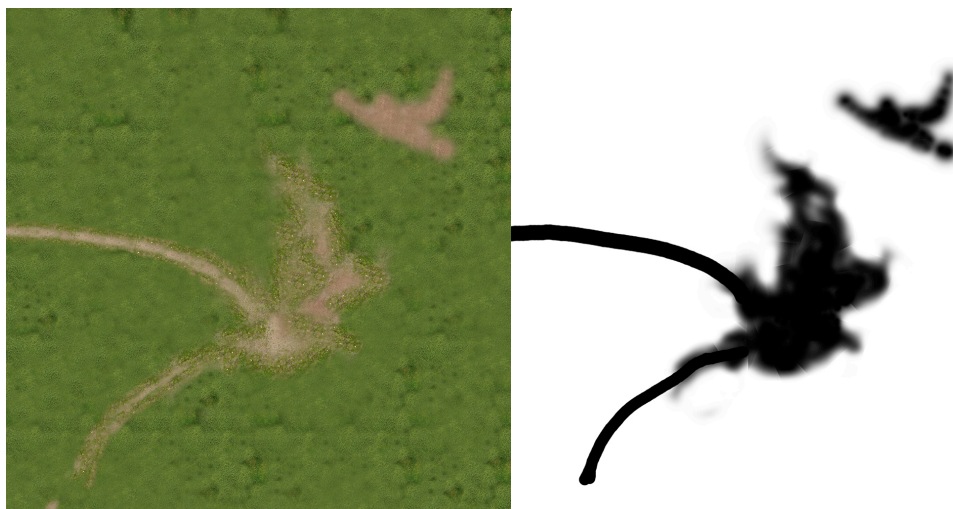
The remainder of the objects, such as the apples and the bees, were done on very basic level since we would never be close enough to them to see very much detail.



## Shading and Texturing

Texturing and shading the models was an ongoing process that I tackled simultaneously while I was modeling my assets. To start, the ground plane was the first thing modeled, so it was the first object that I focused on when it came to the look and feel of the field. In my opinion, it was important to have a high resolution base texture because it would be seen through the field grass, and it would also be used to create the map that would define where on the ground plane grass would be generated.

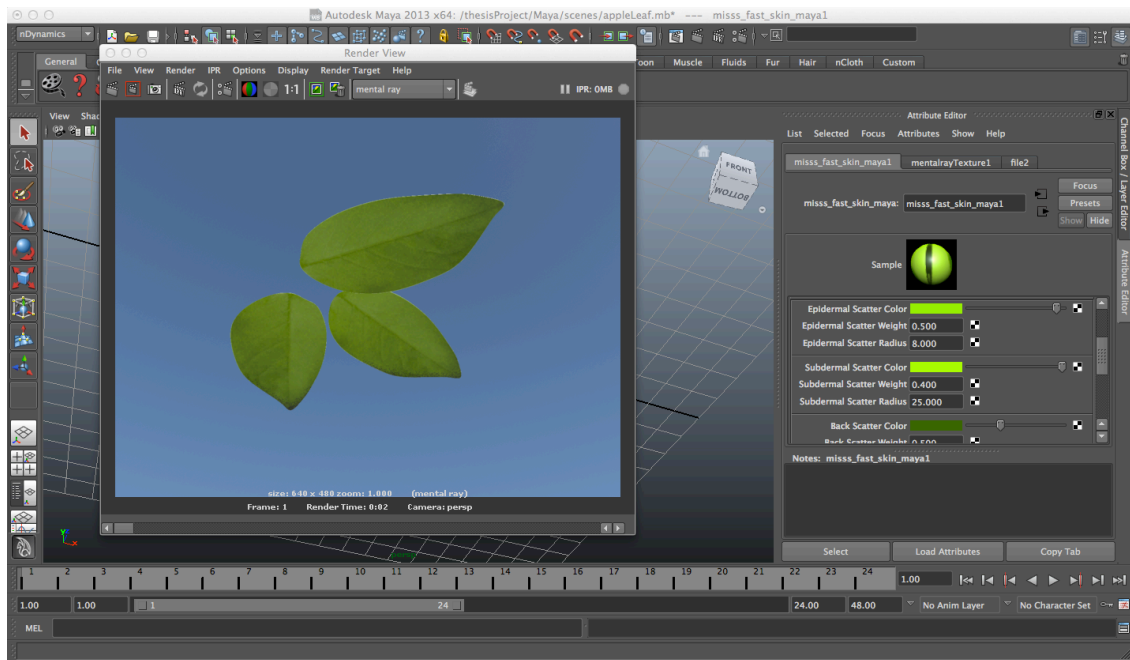
There wasn't anything out of the ordinary when it came to creating the color map. My biggest concerns were to be sure that the images that I would use to create it were at a high enough resolution, and that I would be able to use it to generate a useable grey scale image from it.



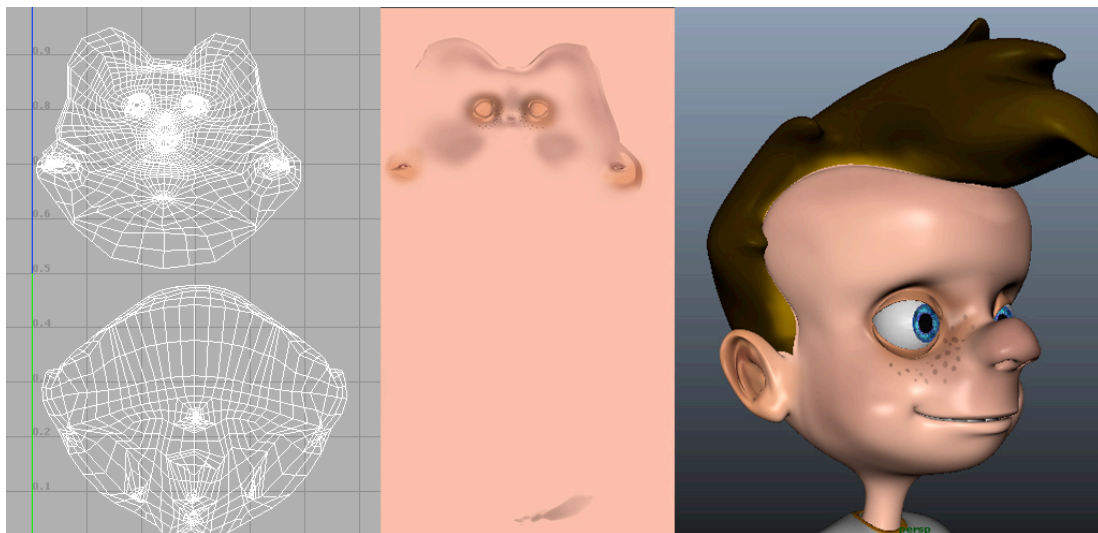
I created a blank 4k Photoshop file. There, I began clone stamping from a series of other grass images. Some of which I photographed, others I found online. I was able to get a good base image that was only made up of grass textures. After the grass was done, I began to paint in bare areas that were made up of dry dirt. These dry dirt areas would be used to define the areas where there would be no grass generated when the fur system was applied.

I wanted some of the sunlight to be able to show through the leaves, similar to real life, but not exactly. In order to achieve this, I had to use a mental ray `misss_fast_skin` shader. It's set up almost like the layers of the skin in that by setting each of the "layers" to a progressively darker shade of green, I was able to get the color.

I was also able to let the light shine through as I wanted, which varied the tone of the green across the leaves depending on how much light was hitting them. One drawback I ran into was that in the areas where the greens were the brightest, the depth of the tree seemed to get lost a little bit. Some areas looked flatter than others.



Before any shading or texturing of Zach could be tackled, I obviously would have to spend some time on the UV's. Although I dreaded this step, I knew that it would have to be done in order to be able to paint on him, and to apply other textures where needed, shorts, shirt, etc. Surprisingly, I had very little trouble creating UV's for any part of Zach.



The shading Zach was done in a similar fashion as the leaves were, but without the concern of

light shining through his skin. The same `misss_fast_skin` shader was used for Zach, but now that goal was to give him the look of skin. I wanted the light be absorbed into his surface, to give him a little bit of a waxy look and the illusion of a slight glow. Again I set the colors of the epidermal, sub-dermal, and backscatter section to that of what the different layers of the skin would be. This method enabled me to get Zack to look fairly “cartoony”, without using a toon shader.

## **Grass Generation**

I knew that I would be using Maya’s fur system to create the grass in my film. I also knew that the grass in my movie would be a bit more complicated.

Unlike the grass that was created for my students’ films, for my film I would require areas where there was a great deal of grass down to areas where there was no grass at all. After a little research, I was able to find a method that allowed me to use a gray scale images to define areas where the grass would grow, and where it would not. When a fur system is created, you are presented with many attributes that allow you to control whatever it is that you want to control. One of the attributes that is associated with a fur system is the ‘baldness’ attribute. The gray scale image gets plugged into the fur that will define where the grass will and will not be generated. Once the image is plugged into the baldness channel, we have to “bake” the attribute. Once this is done, the grass representation will appear where we have white, and gradually disappear where the image falls off to black. Once the grass is complete, the connection to the gray scale image is broken, and our color image is connected. Now I had finished field.

I then ran into an unforeseen problem. A Maya fur description is not affected by Maya’s dynamics. This means that the grass in the field will not sway in the slight morning breeze that I



had envisioned. The solution for this was to control the fur, with a hair system. When I first came across this technique, it seemed very complicated. In reality it was easy to connect the hair to the fur and then the wind to the hair. This technique worked very well. However it was very heavy on the computational side. It was important to have the hair turned off when working the viewport because the dynamics that controlled the hair, and in turn the hair controlling the fur made Maya virtually unusable.

## **Lighting**

I've always been drawn to colorful things and I've always been interested in how color works. In particular how color can invoke a mood or trigger an emotion. I wanted this to be an intense morning scene. I wanted the sky to be a very saturated gradient of bright oranges, pinks and purples similar to how the skies were in Illumination Entertainments' *Despicable Me 2* (2010, Pierre Coffin, Chris Renaud). I loved the way that they handled color in that film. Everything was very saturated and bright.

Lighting the scene wasn't entirely difficult. I used Mental Ray, so I had options right off the bat for overall lighting. I thought I could get off easy here by using Mental Ray's physical sun and sky option. I thought that I could insert just one node and tweak it to get the look that I wanted. I was wrong in that the physical sun and sky node doesn't really allow much control over shadow color, which was extremely important when it came to establishing the mood and time of day.

I was forced to turn to the image based lighting option. This was actually very good because it forced me to really explore the kind of background sky that I was looking for. I was able to use Photoshop to actually paint the sky that I was envisioning.



I wasn't dependent on color sliders and ramp textures. This sky was useful in generating an overall tone for the scene, but more lights were needed. Although the sun was painted into the sky, it did not give off an intense light as would be needed. Other lights were used for this, as well for fill lighting and for back lighting. This approach allowed for much more artistic control over the lighting process.

## **Rigging**

The process of rigging has come such a long way since the last time I had attempted it. Knowing that, I think it's safe to say that this was going to be the most challenging part of this whole project for me. Fortunately I was lucky enough to have a colleague that was able to give me a little guidance when I needed it. After he and I discussed the rigging process for a little while, he told me that an auto rig would probably be ok for what my character was going to have to do. He pointed me in the direction of a plug in for Maya called the AB Autorig. The script allows you define your skeleton from a dialogue box. Once that is done, all of the controls for the arms, legs, hands, feet, and head, are set up automatically with just the push of a button.

Before moving on to binding Zach's geometry to the skeleton, I had to go in and set up the blend

shapes for his facial expressions. I didn't need to many since there wouldn't be any dialogue. There were about 12 blend shapes that were created in all that would be used to show varying degrees of facial expressions. This is where my inexperience as a rigger hurt me. I didn't know how to create controllers that would help me animate the blend shapes inside of Maya's viewport, rather than having to open the blend shape window every time Zach's expression had to change. This proved to be very inefficient, and definitely hindered the quality of the facial animation that I was able to produce.

Binding the geometry to the skeleton was pretty simple. Everything seemed to be in the right place after the smooth bind was done. There were some vertices that were assigned to the wrong joints, but that would be taken care of once I started to paint the weights on the vertices.

Everything seemed to move the right way for the most part.

Painting the weights on the vertices was time consuming, but seemed to work. Once I started animating I did notice some areas that I had missed, but due to the fact that Zach was referenced from another file, these issues were corrected without too much trouble.

I did run into an issue where I had to go through the entire process again because Maya kept crashing. I thought that it might be due to Zach's geometry being corrupt. I found later that this was not the case; a simple software update seemed to correct the problem.

Zach wasn't the only rig that I had to create for this movie. Zach was required to interact with a root from the apple tree. Because of the nature of the root, it was going to have to have a serpent-like motion. In order to achieve this, I created a spline deformer that had about twelve joints. For every two joints, I created a cluster. This was done to enable multiple joints to be animated at once, hopefully saving time and effort down the road.

## **Dynamics**

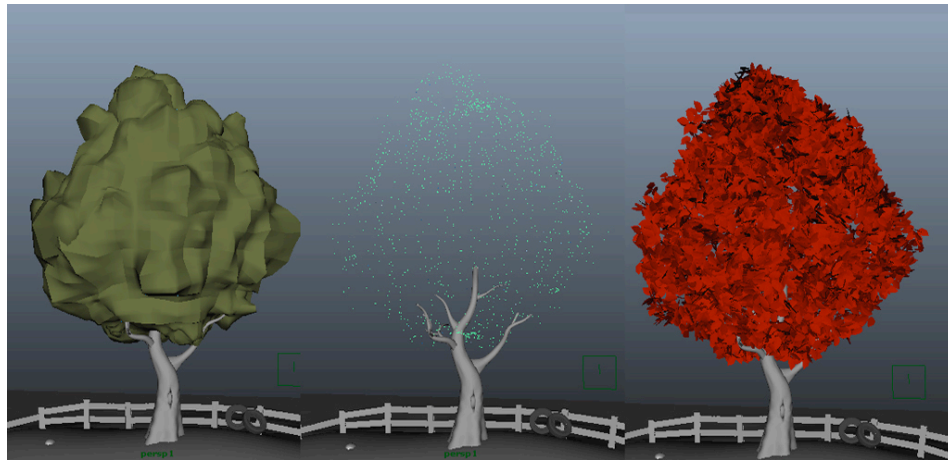
Many of the scenes and gags that take place throughout my film were heavily dependent on the dynamics and particle systems within Maya. Swarming bees and many apples dropping from the tree are just two examples of how these systems were used in the making of this movie.

Having already created my leaf model, I now had several challenges staring back at me. The first being how do I turn this one leaf into many leaves, the second being how would I get all of the leaves to form the shape that I wanted, and the third challenge was to make the leaves that formed the tree shape alter their position to form the shape of an apple.

I would be using particle replacement to populate the base tree shape with instances of the leaf model. To do this, the base tree shape became a particle emitter, allowing that surface to generate the particles that the leaf model would eventually be hooked up to. Initially the particles that are emitted from the object would be flying off in all different directions. This was obviously unacceptable in that we want the particles to stick to the surface of the base shape so that the leaves work together to form the shape of the tree. This can be accomplished by simply adjusting a few attributes within the particle emitter itself, mainly the speed, friction and stickiness attributes. Setting these attributes to a low level prevents them from flying off into space, allowing them to stick to the shape as I wanted.

The one thing that I learned was that it was extremely important to stop the particle emission once the shape has created an acceptable number of particles. Then set the position of those particles to an initial state so that no run up is required at the beginning of a shot. Once the initial state is set, you can turn the emitter off so that your scene isn't over run with particles.

The process for particle replacement to my surprise was only a three-click process but would need some adjustment once all the leaves were in place. Initially, the leaves that replaced the particles were all where they were supposed to be. There was however one major problem, the leaves that made up the shape of the tree were all laying flat. A mel script had to be written in order to apply some random rotation to each of the particles and in turn to the instanced leaves. I was never really into programing, so this was another intimidating thing for me. Particularly because if I couldn't get the leaves to lay the way I wanted them to, I would have to find a different way to create them. Luckily, with a little research, I was able to find some code that I did understand. I was able to alter this code just enough to get the leaves to rotate and finally create the tree that I had pictured in my head.



The leaves that are attached to the tree would have to change their positions in order to make the shape of a large green leaf covered apple. There were several ways that I could go with this one. I chose to use particle goal weights to get the particles/leaves to jump from one shape to the other. I chose this method rather than using blend shapes because the goal weights allow for the particles to overshoot their target, then come back to it again creating a springy and more interesting transformation.



Particle replacement was used in several other places in this movie. The swarm of bees, and the apples that were dropped to make Zach slip as he ran toward the tree were both done with particle replacement. The bees also employed a particle goal in order to get them to follow Zach as he ran from them. It looked a little too springy, but it was something I could live with.

The last dynamic issue was again related to the tree and it's leaves. The leaves of the tree would have to blow in the breeze just as the grass would, but being instanced geometry, how would I get all of these leaves to move together as a group. What I came up with was apply a wind force to the single leaf model that I used as the base for all the instanced leaves. In theory, this should get all of the instances to blow in the proverbial breeze. The theory proved to be correct, but the

movement of the leaves was a little too rigid. In order to adjust this and make their motion a little more fluid, I turned the base leaf model into an nCloth, and pinned the stem side so that only the leafy portion would be able to move. This worked like a charm.

## **Animation**

All those Saturday mornings spent with the Looney Tunes and Woody Woodpecker had a great effect on me. It seemed like every character had their own way of moving, that was truly part of their personality. Wile E. Coyote would sneak around on his tip-toes. Daffy Duck's temper was illustrated with clenched fists and raised shoulders. I was really shooting to give Zach personality through his movement as was done with these characters.

I haven't really done a whole lot of character animation since I left RIT in 2000. So being as out of the loop as I was, I started off animating Zach by creating a run cycle, then animating his base controller along a path that defined where I wanted him to go. This really didn't work out too well for me. It looked as though he was running, but also as though he was floating along as he went. This definitely wasn't how I wanted his motion to look. I envisioned him with a bouncy run that would portray him as being very aloof and care free at the beginning of the film, and then very focused and determined toward the end. After consulting with my committee chair I was back on track. I learned I shouldn't be animating the base controller, and that it was there just for placement. From that point on, things went better.

I did most of my animating using a pose to pose technique, setting key frames for key poses, then adjusting the in between poses after the fact. This technique was effective for me. It helped me in visualizing and timing out the animation before refining it. I had a character set defined for Zach, so each time I set a key, key frames were set for all of the animation controllers that were

contained in the character set. This obviously creates a great deal of information to edit when the time comes. It was daunting, but I managed to get through it.

In general though, there were places that could have been improved. I was brought to my attention during the screening that the weight of Zach wasn't reading very well. I did notice this throughout the animation process, and tried to work on it as much as I could. I thought that I had it to a good point, but the audience felt that the motion wasn't quite what it should have been.

One of the issues that was difficult for me to remedy during the whole animation process was that of popping joints. There were times that I spent at least a couple of hours trying to keep a knee or an elbow from popping. I was fortunate that most the areas where the popping was happening was while Zach was either running or doing something quickly, so it didn't seem really noticeable. I seemed to get better at animating as the production went on. I got faster, and the popping seemed to go away, even though I didn't really understand what was causing it.

Animating the tree root was challenging to say the least. I had never really even looked at the spline deformer in the past, so I didn't realize that they were a little difficult to control. The geometry for the tree root would slide up and down the spline at times depending on which joints were transformed, and in which direction. This made it difficult for me to predict how the root would move as I animated it. I did manage to get used to it after a while, at least enough to get the action that I needed for a decent interaction between the root and Zach.

## **Rendering**

As I got into the rendering stage, I was fairly confident that it would be smooth sailing from here on out but there were a few things that needed attention.



After looking at a couple of shots after they were finished rendering, we noticed that some of Zach's arm and leg geometry was showing through his pants and through his shirt. Again, since the model that was used to animate Zach was referenced into the scene, it wasn't a big deal to go into that file and adjust the placement of the vertices that were causing the problem. I simply scaled them in onto each other and that was that, problem solved.

The biggest thing in my opinion was that many of the shots looked very washed out. Things like the inside of Zach's mouth weren't as dark as they should be. They lacked the contrast needed to give them depth. It was obvious that just about the entire movie would need an ambient occlusion pass. I was trying to get away without one to save rendering time, but it was clear when my chair brought it up that it would have to be done. Setting up the occlusion wasn't difficult it was just time consuming. Due to how long ambient occlusion takes to render, I only applied it to things that were important to the overall shot. Things like the grass only received the occlusion when it was up close to the camera.



As far as audience response goes, this was the area that received the most positive reaction. Several people made comments that it was beautifully rendered. I was extremely pleased that it was appealing to people. I truly enjoy creating environments that have their own style, but that are realistic and believable at the same time. I really believe that this was the most successful part of my film.

## **POST-PRODUCTION**

### **Compositing**

Rendering is finally done. It's time to start combining the color and ambient occlusion passes into individual Quicktime movies that could then be used in the editing process. There were about three places where the ambient occlusion had to be rendered because the frames weren't lining up with the color frames correctly. I had about 12 movie files that would be used in the makeup of the film. There were approximately 40 individual shots, but there were multiple shots contained within several of the movie files. Several of the scenes required that I animate the position of the camera so that I was able to render several shots at a time without constantly having to babysit the rendering process.

### **Sound**

When my rendering was just about complete, I had about a month until the final movie was to be turned in. In my opinion, I had plenty of time to have someone create a musical track that would go along with the action of the film. I really was looking for a music track that was similar to the Looney Tunes style in that there really wasn't a musical score, but music was used to enhance

the actions of the characters. Things like footsteps would be musical notes rather than the actual sound of feet hitting the ground.

After giving my composer Gil Jacobs a copy of the final rough cut, I waited about a week and a half to hear back from him. When I did finally get to listen to what he was working on, I was shocked to see that he had only given me one option to choose from, and it was terrible. The music was incredibly slow and drawn out. I didn't go along with either Zach's personality, or how his mood would change as the film progressed. I thought I had done a fairly good job of explaining to him what it was that I was looking for. We were so far apart on our vision for what the music was going to be. In his explanation to me, he stated that he wanted the music to reflect a lazy summer day. My vision was for the music to indicate the mood of Zach throughout the film.

I tried to make it clear to Gil that the tone and tempo of the music should be more upbeat. I wanted the music to speed up as we went through the gags in order to build a sense of frustration.

Gil came back to me several weeks later with a score that I was extremely happy with. The problem was that the music that he used for the arrangement were all sections of famous classical pieces. In his defense we had both thought that this was completely acceptable. As the deadline approached, I began to worry about copyright infringement, and made the decision to find something different from stock music libraries online. Luckily, I was able to find something that I thought would fit very well rather quickly.

Sound effects were also taken from online libraries. Some sounds were used on their own, while others were created by combining several different sound effects into one single effect, some with more success than others. For example, Zach's stomach growl was made from several

different gurgling sounds. The unfortunate thing was that it sounded more like a belch than it did a stomach growl. As inaccurate as this sound was I would have to revisit it at a later date. I was running out of time.

## **Conclusion**

All in all, this was a wonderful experience for me. Despite the issues that I had with Maya that caused me to lose at least a month's worth of production, I had a great time. This project forced me to experiment with new tools and processes that I may never have explored otherwise. I feel that I am now much more equipped and more confident to use new techniques where I never would have in the past.

