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Gary’s Sneakers

A 3D Animated Short

A Capstone Project Submitted in Partial Fulfillment of the Requirements of the Renée Crown University Honors Program at Syracuse University

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and Renée Crown University Honors

May/2010

Honors Capstone Project in _______Computer Art_______

Capstone Project Advisor: __________________________
(Heath Hanlin)

Honors Reader: ______________________________
(Gail Hoffman)

Honors Director: ______________________________
Samuel Gorovitz

Date: ________________________________________
Abstract

Gary’s Sneakers, a collaboration between Kelsey Adams and myself, is a 3D animated short about a young boy and his sneakers. The short features Gary, an unmotivated individual who has no other apparent interests aside from playing video games. Unfortunately, his unused pair of running sneakers are very bored and, upon being inspired by a magazine advertisement, conspire to get Gary up and in action.

To create this, Kelsey and I covered the entire animation production pipeline. We began with a story, and proceeded to create an animatic that further developed and clarified out storyline. We chose to created our project in Lightwave 3D, so Kelsey created 3D models which I rigged. I then animated the short while Kelsey textured all of her models and added lighting to the scenes. Once this was complete, we rendered the shots, edited it together in Final Cut, and recorded sound with Logic. With this complete, we were able to render the final piece onto a DVD.

The animation is an exploration in character. Gary is an exaggeration of today’s topical sedentary individual who is addicted to technology and forgoes and semblance of real action or communication. The static camera shots and lack of movement represent the shoes' boredom with the situation. This is also represented in the characterization of Gary’s movements: he is visibly sluggish, uncoordinated, and out of shape. The shoes, by contrast, move in a much quicker and snappier way, making them foils to Gary. Once the shoes engage Gary, the viewer is also engaged, as there is much more movement from the characters and the camera.

In the end, I felt the project was a success both artistically and personally. Artistically, the short gets it point across and provides the audience with a sense of enjoyment. Yet to complete the project, I had to overcome a myriad of technical difficulties, and by getting past them I feel that I am competent on a professional level.
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Reflection

I cannot remember a time when I did not enjoy animation. My early years could be measured in cartoons and movies, while my adolescence was filled with VHS tapes of animation festivals that a high school photography teacher lent to me. Perhaps the most significant event, however, was when I found out that people made those things as a job. Up until that moment, which was in third grade, I just assumed that those cartoons and movies simply fell out of the sky and into my television. The day I watched a special on the behind the scenes of a Disney animated feature, everything changed. I knew exactly what I wanted to do.

Flash forward to college; at the time, I wanted to be a storyboard artist or character designer, so Syracuse was a logical choice. I began college as an illustration major, but after one class with a computer, I was hooked. I liked the workflow, I liked the potential, I liked it all. Halfway through freshman year I had changed my major to computer art, and by the end of sophomore year I wanted to be an animator. It was as though the decision was made for me.

Fortunately, I grew up in an era when the industry was blossoming. In the last decade and a half we have seen an explosion of creative talent in the field of 3D computer animation. Large studios such as Pixar and Dreamworks are responsible for box office hits like Toy Story and Shrek. These films are made by large teams of talented artists over a three to
four year span and backed by significant amounts of money to cover production costs.

However, every studio needs to start somewhere. Before they made films, Pixar began with making shorts – brief, one to two minute animations made in order to familiarize oneself with a medium or act as a form of creative expression. Beginning with *The Adventures of André and Wally B.* in 1984, Pixar created five animated shorts before completing their first motion picture, *Toy Story*, in 1995. Each film acted as a learning experience for those who animated on it – be it how to make geometric computer shapes move organically, or how to make particles look and feel like snow in a snow globe – which were successful and productive enough to lead them to become the animation powerhouse they are today (www.pixar.com).

While each of these animations were made by the studio, the studio itself is comprised of a large team of artists. Like the studio, these individuals had to start out small. Many of the animators created their own short animations, and quite a few of them did so in college. An animator’s senior thesis animation is one of the most essential learning experiences in his or her career. It teaches the animator the whole production pipeline: story, storyboard, animatic, modeling, texturing, rigging, animation, effects, rendering, editing, and sound (even though in the professional world, one is usually only responsible for one element of the pipeline). Thus, it
seemed natural for me to choose to create my own animated short for my Capstone.

When I mentioned this idea to fellow computer art major and honors student Kelsey Adams, she informed me that she had been considering the same thing. However, she was hesitant because while she enjoyed modeling, texturing and lighting, she did not consider herself an animator. This was extremely convenient because I loved to animate. I did not love modeling and texturing. In the end, we felt that collaboration would yield the best results. Kelsey would be responsible for the modeling, texturing, and lighting, while I would storyboard, rig, and animate. Together, we would tackle rendering, sound, and DVD authoring.

Naturally, we looked to other artists as sources of inspiration. Having seen countless animations over the years, I feel that I have too many inspirations to pin down in one place. However, I can narrow it down to a few specific sources. One of my first stops was other student films. Kim Hazel's *Snow Day*, for example was intriguing because of its story structure. It is short and humorous, utilizing characterization as the source of its humor. Hazel attended the Ringling College of Art and Design, which has an entire major devoted to computer animation that leads up to their senior animation thesis. Syracuse’s computer art program, by contrast, covered a variety of fields so students were not limited to a single track. While this broadened my horizons, I did not
receive specific training in animation, nor would there be as many
students with whom I could compare my work. Feeling that most of my
knowledge had come from outside the classroom, it helped to look at what
other students were doing so I could find footing my own piece.

Another piece Kelsey and I looked at was *Oktapodi*, a French animation that was nominated for an Oscar. The short follows two octopi as its main characters who gesticulate and transport themselves mainly through the use of their tentacles. Once we had settled on a story idea, this was excellent reference for our animation because we hoped to do the same thing with the shoes and their shoelaces. For lighting, we also studied Chris Wedge’s (director of *Ice Age* and *Ice Age 2) Bunny*. Its moody, single room setting was similar to ours, so we could study how he made use of both ambient and artificial light.

There are, of course, numerous other shorts and films Kelsey and I have looked at, but perhaps one of our biggest inspirations has been the collective work of Pixar Animation Studios. Not only are their movies top notch, but they have continued to create animated shorts since the original five that predated their current ones. Each short is inspirational in its own right, from the arc of its story to the individual character quirks that propel the narrative, from the mastery of the animation to the subtle detail injected into each set. I have admired Pixar for 15 years, and have the lofty and difficult goal for myself to work for them one day. While I strive to find my own artistic voice and not copy their style, it was still quite
appropriate to look at their work in a mentorship kind of way to help pinpoint the flaws in my own work.

The first step, always, is the story. After pitching several ideas (a man lost in the desert who finds a series of mirages, a witch brewing in her cauldron while her black cat meddles) we finally settled on the mere heartbeat of an idea: a pair of shoes who were bored because their owner never used them. After a couple of sessions, we had put together a skeleton of the story. A boy, Gary, was too busy playing video games to notice that his unused pair of running shoes were bored. Once one of the shoes notices a running advertisement in a magazine, it decides to round up the other shoe and trick Gary into running around with them by stealing his video game controller.

Originally, the story had many more elements, all of them complex. He was going to crash around his room, knocking down everything in sight. After becoming too exhausted to chase his own shoes anymore, he would tie the shoes and the controller together by their own shoelaces. However, this would mean that he has effectively tied his own feet together, and he loses his balance and falls, knocking the open a window shade in the process. He glimpses the sun for the first time, and it seems for a moment that Gary has learned his lesson - there is life outside of his video game. But in a twist, Gary returns to playing the video game.
However, it soon became apparent that all of this would be too difficult to accomplish. On top of this, the story did not seem to be sitting too well with our classmates. The consensus was that the end was not very satisfying. Throughout the next year, the story would go through many revisions and many meetings with our advisor, Heath, before finally settling with the current ending. Changing the story was stressful, but worth it, as I feel that it is one of the most important parts. Flashy technology will only take a piece so far. A good story will captivate anyone.

In the end, the first half of our story remained the same, with the shoes distracting Gary by unplugging the television. While Gary goes to investigate, they situate themselves so when he sits back down, his feet slide right into them. At this point, they hijack his controller and Gary dashes off after them, but eventually becomes so exhausted that he passes out. Realizing that they are now stuck on Gary’s feet, the shoes end the short by simply shrugging.

Yet story is just one leg of the race. Kelsey and I began work in the summer of 2009 - she modelling, I handling the story. We would have a little under a year to work on it - Kelsey would continue to model and texture while I would rig until September and animate until February 2010. At this point, we would render and then complete the sound design. We gave ourselves the buffer at the end for unforeseen problems. Unfortunately, nearly every week turned up another unforeseen problem.
I had never attempted a project this ambitious before, so even though I had prepared everything to the best of my ability, there was no way to anticipate the new and unusual problems I would encounter. I still had several other projects that my major assigned that required my attention. There was another technical problem everywhere I turned. Each time, it seemed overwhelming.

Yet each time I managed, somehow, to get past it. Whether it be desperately searching Google for someone who had the same issue, meeting with Heath, or endless sessions of trial and error, I could find a way to work through, or work around, a problem. This, in turn, gave me confidence when I faced the next predicament. The mantra was, “if I could solve the last problem, then I can solve this one too.” It was frustrating, it was exhausting, but despite everything, neither Kelsey or I quit.

So as our project progressed, so did my understanding of it. Since I worked on it nearly every day for a year, the story and animation became as familiar to me as a family member. I felt like I knew Gary and the shoes, to the point where I even began dreaming about them. With this level of understanding, I was able to rationalize and confirm my creative decisions.

Gary is a clear reflection of the growing societal trend of the sedentary lifestyle. By sitting and doing nothing but playing video games,
Gary leads a boring, and rather pointless, existence. This is manifested visually by the boredom of the shoes and the static look of the shots of Gary playing his game. His expression is vacant and his movement is nearly non-existent, which is not especially entertaining to watch. Despite this, Gary is not a villain or a cautionary tale; like everyone, he is flawed, with his major flaw being his own extreme laziness. I feel that Gary is slightly misguided and blissfully unaware of what he is missing in life. All he needs is a push.

This is where the shoes come in, acting as the catalyst that gets Gary moving. When the shoes engage Gary, the viewer is also engaged. Suddenly there is action, and there is a point to the story. The shots change – the camera becomes active. The viewer can now participate because Gary is finally participating in his life. The shoes, in turn, get a few moments of joy.

Just as I became more familiar with the story and the characters, I advanced my abilities with one of the main reasons I chose to take on this project: animating. My experience with animation up until this point had been trial and error – lots of trial and error. Classroom experience had only offered me opportunities to animate, animation as a skill could only come with time and practice. So with lots of reading and referencing, I set to work animating. I studied how people walked on the quad. I reenacted shots in my living room and shot video of it as reference footage. I literally laid on the floor, pretending to be a shoe, and hoisted myself around using
my arms as “shoelaces.” Yes, it looked odd, but it was all in the name of Capstone.

No one magically becomes an animator overnight. It requires years of practice, discipline, and dedication. An animator has to be responsible for every frame, and when there is 24 to 30 frames per second (30 in the case of this project), that is a lot of responsibility. Kelsey and I had decided early on that we did not want any dialogue. Given the technical limitation, lip synching would be exceptionally difficult, and the stipulation of no dialogue gave our story and animation the chance to shine through. With these parameters, I wanted to express character through movement: Gary as lazy and bumbling, the left shoe as the proactive one, and the right shoe as the sidekick. This meant that I had to animate accordingly. Gary’s movements, when he moves at all, are floppy and demonstrate as little effort as possible – initially. When the shoes prevent him doing the one thing he cares about, playing his game, Gary becomes more motivated. However, I wanted his actions to be uncoordinated since he is not accustomed to physical activity. When he first gets up off the couch to pursue the shoes, he runs in a rather flat-footed manner, and is easily duped by the pair. He also exhausts quickly.

With the shoes, it was key to demonstrate that they could not move of their own accord. They can only propel themselves, slowly, through means of their shoelaces or thrust themselves upwards into a jump. The shoes are incapable of running on their own. Though as a foil to Gary, the
shoes’ actions are much snappier and quicker. Their laces often move like whips to demonstrate their greater level of ambition. The shoes also demonstrate a more clever and effective decision making process, even though this backfires on them in the end.

The shoes had an added level of difficulty in that, unlike Gary, they did not have faces and thus could not communicate emotion through facial expression. Here, animation and acting skills were more important than ever. Much of their emotion is shown through pantomime, and I rigged the front part of their model to form a shoe’s version of a small smile or frown when the situation called for it.

As it turned out, “Gary’s Sneakers” turned out to be the most intense and effective learning experience of my college education. A lot of times, I felt like I was animating this project in the dark. It was as though blindly feeling around, knowing what I was looking for but having no idea how to find it. This project was well beyond anything I had ever experienced, in the classroom or out. The animation was too complex, the technical problems were unable to be remedied without starting certain aspects over from scratch…everything seemed overwhelming. For one difficult shot that involved Gary and both shoes, 50 frames of animation (a second and a half of screen time) took nearly 55 hours of work.

In January, after having animated for about five months, I felt more confused than ever about animating. The shots were not looking how I
wanted, and I had no idea how to fix it. Everything looked stiff and unconvincing. I could not believe that I had worked this hard for this long and the project looked the way it did. Yet just when all of this frustration had met a breaking point, something clicked. I had animated the shot where the right shoe jumps back into its box, and, to my astonishment, it actually looked good. Everything – the timing, the spacing, the curving, the stretching – worked together cohesively. For the first time, I showed a test render to Kelsey and my peers and their reaction was jubilant. For the first time, I thought, maybe I can do this.

Much like surmounting the technical obstacles, knowing that I had done it once gave me the confidence that I could do it again. Each shot still took obscene amounts of time, but the end product was something I was okay with, and not a perceived failure. The floodgates had opened, and I produced what I felt was my finest work.

It was with this newfound clarity that I grasped what I had not understood about animation before. As far as the practical revelations, I found that the animation was at its best when the weight and the timing was perfect. That is, the characters needed to look like they had mass. This may seem rudimentary, but it is difficult when the computer inherently wants to make things look weightless and geometric. Weight was best achieved through the spacing of the movements and the tried-and-true technique of squash and stretch. As for timing, it was all a matter of practice, practice, and more practice.
Beyond this, it was the first time I felt that I could truly refer to myself as an animator. I had always been hesitant to do this in previous years because I often felt like I was stumbling through the process, creating artwork but not really knowing what it was or how I did it. Now, however, that blind feeling was gone. With the experience of “Gary’s Sneakers” under my belt, I can talk to and relate intelligently with other animators in the field. Not only do I understand what makes an animation work, but I can pinpoint what exactly I have done wrong, and can set about fixing it. Naturally, I have many years of practice ahead of me, but what is animation if not a prolonged learning experience?

Moreover, I was ecstatic to say that I do not like animation – I love it. Aside from the constant technical problems and endless piles of outside homework, it was wonderful just to sink into a shot for hours, feeling and analyzing, building it until it became complete. I had complete control over every tiny movement the character made, down to a blink of an eye, and so I could mold the shot into whatever I wanted it to be. There is nothing, absolutely nothing, like seeing your character come to life. Even though it is just an illusion, these characters feel like they are thinking and breathing on the screen. So while animating was extraordinarily tedious and time consuming, the end product was what motivated me and made everything worth it. This, more than anything, was the most rewarding aspect of the project.
It also inspired me to try harder, because I want to make this a career. In the professional world, animators work on teams to complete the projects (which means that there is a whole team assigned to technical issues, much to my delight), and I would love nothing more than to work with a team of talented individuals to complete a feature film. With the experience I have had working on my Capstone, I am now familiar with the entire pipeline, which works to my advantage. I also now possess the drive to push myself through any possible problem that could occur, as working on Gary’s Sneakers has tested the strength of my commitment to a project. I could easily see myself doing this every day.

The animation industry has made a name for itself as an extremely competitive field and is notoriously difficult to break into. However, Gary’s Sneakers increases my chances in that it demonstrates not only my animation skills but also my collaborative ones. The ability to work well with others is key in the field, because it is impossible to create a film on your own within a reasonable time and budget. Thus, studios look for those who can act as a team without allowing their egos or attitudes to impede a project. Here, Kelsey and I have demonstrated that we can work with someone else in an effective manner to produce a strong piece of work.

With the culmination of my project, I feel a sense of accomplishment. In the end, the thing I want most for Gary’s Sneakers is for someone to enjoy it, even if it is only a small, particular moment. If one
person gets wrapped up in the world that Kelsey and I have created, then
everything is worth it. Those who have viewed our project so far have all
returned positive reviews – hopefully my audience on presentation day will
feel the same.

There is no way I could have completed this project, mentally or
physically, without the help of others. First and foremost, I would like to
thank Kelsey Adams. This project simply could not have been made
without her. Kelsey worked hard from beginning to end on this project -
everything in Gary’s room was created from scratch by her, and she was
the one who took my wild sketches of Gary and turned him into a 3D
model, she was patient with me whenever I would vent my frustrations
about the whole project, and she was always there to offer words of
support. I am thrilled to say that we continue to be friends after the
gauntlet that was Capstone.

Next I would love to thank our advisor, Heath Hanlin, for guiding us
through the project and encouraging us when we were both feeling down.
He was, thankfully, relentless about never abandoning the story,
reminding us that it was key, and helping us when we were struggling with
an ending. Heath was also one of the very limited group of individuals
who could offer tech support, which was so very important!

My reader, Gail Hoffman, must also be thanked for fantastic insight
and constant enthusiasm. Being the professor of experimental animation,
Gail always had a unique outlook on the project that has certainly worked its way into the final piece. Not only that, but she was a never ending source of encouragement who could always bolster my spirits. Thank you Gail!

I would like to thank Justin Gurevitch for being there in the clutch as our sound man. He is extremely talented at what he does and used that to help give a voice to our mute animation. Not only that, but he could always get me back on track when I had lost anything resembling self confidence. Justin, you are the best!

More thanks goes out to Andy Fedak and Annina Ruest, both new professors to the program, for their thoughtful critiques throughout the process. On top of that, many thanks go to the computer art class of 2010 – Judy, Tracy, Chad, Jamie, Kim, Emily, Amanda, Craig, Dan, Cory, and Ryan, the 2011 graduate – for their continued support throughout this project and this year. They were always there for critiques, suggestions, and encouragement for not only Capstone, but also the many other projects I had to work on my senior year. It has been a pleasure getting to know them all these four years.

Brianna Collins, my fake roommate, and Amory Hillengas, my actual roommate, deserve countless thanks for an amazing outsiders’ perspective and always having a listening ear, even if it was just for me.
venting. They both worked hard on their own Capstones as well, and I am incredibly proud of them!

I would like to thank the Honors department for giving me this opportunity and the computer art department of the School of Visual and Performing Arts for all of the facilities that made this project possible.

Last, but certainly not least, I would like to thank Mom, Dad, and my brother Alex. I would not even be at this school if not for them, and I could have asked for better pep talks, words of comfort, or awesome baked goods in the mail. Thanks for loving the art kid in the family.
Works Consulted


Appendix I: Storyboards
Capstone Summary

Beginning in the 1970s, computer animation has come a long way to the powerhouse it is today. Studios like Pixar and Dreamworks regularly produce fully computer animated feature films, not to mention the myriad of other studios that create astounding effects to enhance current cinema. These features are made by a large team of artists working together with a single goal in mind. These artists need to start somewhere, however, and many of them begin by making a short animation. This is what Kelsey Adams and I have set out to do for our Capstone Project: create a short, computer animated film.

A animation, entitled “Gary’s Sneakers,” is a two-minute piece that introduces Gary, a lazy young man who perceivably does nothing more than play video games. Due to his sedentary lifestyle, his unused pair of sneakers are quite bored. When one sneaker is inspired by an ad in magazine, the two work together to get Gary up and running.

The process of computer animation is multi-tiered, labor intensive, and, in the professional world, almost always completed by more than one artist. When first deciding what I planned on doing for my Capstone, I consulted fellow computer art major and honors student Kelsey Adams. Upon realizing that we both enjoyed different elements of the production pipeline, we decided to complete the project together. This way, we could use our separate strengths to not only replicate the way computer
animation is completed in a professional setting, but to also have a more cohesive, impressive final piece. Kelsey would be responsible for modeling, texturing, and lighting, while I would tackle the storyboards, rigging, and animation.

The production pipeline for created a computer animated short begins with story. Flashy computer graphics will only carry a work so far – a good story will connect with an audience regardless of the medium used. After pitching several story ideas, Kelsey and I eventually decided on the brief, humorous story of a couch potato and his bored pair of sneakers. To enhance this, I made a storyboard, or a series of pictures that tell the story, similar to a comic book. A storyboard is essential in order to work out any kinks in the story, staging, camera, or timing of the piece. This saves a lot of time later on during the animation process.

Next, Kelsey developed the models. These ranged from the main characters down to the bowls and forks that decorated the set. The models are all created on the computer – almost like digital clay. They consist of a polygon mesh, which is basically a grid structure that defines the body of the character or object in 3D space. Once these were completed, Kelsey moved on to texturing (adding color, images, reflection, etc to the models) while I began to rig the main characters. Rigging is adding “bones” to a model in order to define how it moves. It basically behaves like a skeleton, with joints that rotate just like they
would in the human body. Even the shoes have bones, which are
designed specifically to move in the way I intended to animate them.

After everything was rigged, I began my favorite, albeit the most
tedious, part of production – animation. This is, essentially, making the
characters move. Here, I worked with a timeline that ran at 30 frames per
second. This means that for each second of animation on screen, there
are 30 frames of movement. So, if I wanted the character to move his arm
up, I would set a key frame – defining a point in transition – with the arm
down, and another key frame, say, 8 frames later, with his arm up. The
computer interpolates the inbetweens (the frames of movement in
between the keyframes) so that the arm move smoothly up. However, this
movement is all at a consistent speed, giving it a rather robotic look.
Since most people do not move like robots, animation becomes a game of
timing, where I adjust speeds and movements to give a realistic feel. This
was done in every scene of the finished animation.

Once a scene was animated and the camera was set, Kelsey would
light the scene with digital lights that would cast shadows and give depth
to the scene. After the scene was lit, it could be rendered, which is where
the computer generates an image for each frame of the animation. This
could take several hours, depending on the length of the scene. With the
scenes rendered, Kelsey and I were able to make video files of the scenes
and we are left with the finished product.
While describing the process may make it seem as though “Gary’s Sneakers” is an entirely technical entry (it is computer-generated, after all), I can certainly attest to the fact that this has been, by far, the most creative and artistic experience of my life. Animation is an art: it is all about acting, timing, and spacing. I have to breathe life into a character that is nothing but coordinates in a computer. Every little detail, down to a flick of a shoelace, must be tightly controlled. When it is all done, there is nothing like the sheer joy and adrenaline of seeing a character brought to life.

Not to say that is has not been frustrating at times, either. It has required my constant focus for a year. Hours of work could lead to numerous dead ends. Every decision I make must further the story without stumping me technically. As was often the case, 50 frames of animation – about one and a half seconds of screen time – would take 54 hours or more of work. In the end, however, I love animation.

This project is significant on many levels. For me, it is one step closer to my dream of working in feature film animation. At ten-years-old, having been obsessed with animated films since my earliest memories, I finally found out that people actually made those movies as their job. Since then, it has been my goal to have a part in creating those movies at a studio such as Pixar or Walt Disney Animation. It is a very difficult field to break into, but hopefully this animation will help me to get recognized. Another element of the project’s significance is that, from an artistic
standpoint, it is an opportunity for me to tell a story. I love to simply communicate a character driven tale to another person. The audience can take away whatever meaning they want – Kelsey and I are not pushing a meaning on anyone one way or the other. The characters are who they are, and whoever views it can interpret it as they wish. For me, a project is worthwhile as long as someone has enjoyed a small, strange moment or, at the very least, has taken something away from it. If they can make it their own in some way, then I have done my job – I have told my story.