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Lockers

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'Lockers' Thesis Report
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Abstract: Thesis film 'Lockers' by Ander Bergstrom

The production of the thesis film 'Lockers' was not an easy birth.   The first proposed story that was accepted by the Thesis committee was discarded as being too technically ambitious. There was then a protracted effort to develop a new, producible thesis Story proposal that met the committee's requirements. Once an acceptable thesis proposal was developed, the writer then attempted to refine the story; writing over forty drafts in order to reduce the elements of the story into something that made the artistic and narrative statements as well as being technically viable. Working in the professional world of animation while simultaneously working on the production of the thesis helped as methodologies and techniques used by colleagues provided solutions to technical issues as they came up.   The issues that did present themselves were not centered around the animation itself but of rigging and modeling problems and challenges getting the animation from one software package to another. Also as lighting and rendering of shots is relatively 'uncharted territory', developing desired 'processor-cheap' but effective illumination solutions was especially challenging.   The total production time pushed on for four to five years, and throughout the process, the story's theme of confronting one's fears and overcoming them was the intended message. However, as the production came to a close, another theme became as equally clear to me. The film was indeed about fear and confronting it but it also was about living in the present moment, avoiding getting caught up in the past and realizing that forward movement is the only clear way to redemption.   As the film screened in Grad screenings, the struggles and challenges that made up a large part of this film's production process became entwined, for me at least, in the film's final meaning.

Thesis Report

I wrote this paper in order to lay out the process that I used in creating my thesis film in order to satisfy in part the requirements in obtaining an MFA in Film and Animation. Actually, if someone has asked me 5 years ago how I was going to get the film made, I would have said that a 'process' is all it takes and that all I needed to do was follow that process and eventually a film would emerge. I couldn't have described what it takes any more wrong. You see, in Grad school, I found myself living and working in kind of a bubble where 'the next film' was always on the horizon and so it was a case of satisfying the requirements and making the 'stuff' for it, and after applying the pressures of time, frustration, lack of sleep and limited technical know-how, a film of sorts would appear on a DVDCAM and then that would go to grad screenings. And if it wasn't a complete disaster, you got to make the next one. I thought that my thesis would be made in this manner. This did not happen. Life intruded and the end result was more that just 'the next' film, it was a project that taught me about how my creative process works, how life influences art and how an idea starts and how it changes over time to become something else...and that this is how films happen.

More than I could chew:

The story that I proposed originally was about a boy exploring an old abandoned theatre and witnessing the ghost of an old actor reliving moments on stage. The actor would speak the works (Shakespeare) and the words would become actual sets and props. The idea being that words are power storytellers in the hands of the talented, and that the kids of 'today' don't know the power of great writing for theatre. And I wanted to show them. I wanted to write a story that reflected my experiences in theatre. My 1st film was just that a 'first film' I had no idea about film language and 3D production and this was reflected acutely in the final product. The 2nd film was, in my opinion, a great idea executed poorly. I wanted to do something funny and 'slap-sticky' but the story had too many elements and I had too

little time. Also my first child was born during the production and so I was not able to totally focus my efforts. Again the result was less that I had hoped for. My confidence in the toilet, I resolved myself to making a film about a subject that I felt very comfortable with and very passionate about. This was acting and the theatre.

I had proposed this idea, I believe I had called it 'Ghostlight' and had gotten it approved in short order.   I was excited and elated that my project was going to get produced and it wasn't until the next day that I realized that I had made huge mistake.   I had year to make the film and I had no idea as to how to make as it was proposed. I remember staring into the mirror in the bathroom that morning and realizing that I had bitten off more than I could chew again.   I was still struggling with the visual language of film and although I had written a good script (I thought), I did not have a clear idea as to how it would flow shot to shot.   I also did not have any grasp on how I was going to technically produce the effect of the ghost character's words into props, scenery etc... I went to my closest comrade's in the program and ran the thesis past them and they confirmed what I had feared. This was a huge undertaking technically.   Very reluctantly, I went back to the drawing board. I had to make a film that I could indeed make, given the time that I had at hand. So I decided to re-propose a different idea, an idea that was stripped down technically (read: using techniques that I knew how to do already) but effective as a story as 'Story' has always been the focus.

Time and time again…

The 'Big Plan' was to propose the new idea, get it approved right away and then off to the races I would toddle. This was not to be, as the guidelines for thesis approval required the entire faculty of the school of film and animation to be present in order to evaluate my proposal. I had proposed the initial idea 'Ghostlight', in the beginning of the Fall Quarter and I was informed that had to wait until the beginning of the Winter Quarter to present my new proposal as the faculty would not be meeting as a group until that time. This news was a huge blow to my plans as it meant losing 3 months of production time just waiting to get the new idea approved. But wait I did, and although the committee felt that the original ideas was better, and they told me as much, they approved the new idea but I had lost precious time.

I worked furiously to get together a viable proposal and I ended up with a story named '*Stuffed*' about a Sixth grader named Monty who, at the

beginning of the film is grabbed by three bullies and unceremoniously stuffed into a locker.

> 'A 6th grader Monty, walks down the hall of his Middle School humming a tune. He is an ungainly looking fellow with a skinny body matched with big hands and big feet. He is carrying his books for Math class and his protractors and calculator. Three bigger boys grab him (Two of them have to shave) and Monty struggles to escape…He protests but his efforts are fruitless. A locker door is opened and Monty is unceremoniously dumped in. The bullies throw his protractors and calculator at him in the locker and slam the door on Monty and he is left alone in the dark.'

The character on Monty is clearly a nerd archetype, with his nerd uniform (protractors and calculators) and his ridiculous body type; 'skinny body matched with big hands and big feet…' Monty finds himself inside the locker and in frustration bangs on the door that causes a book to fall from the shelf above him, which subsequently knocks him out cold.   Monty then experiences a dream where he finds himself in a coliseum of sorts where he is confronted with all manner of tormentors from Bullies to teachers that don't like him.

> 'An announcer makes an introduction. The announcer tells the crowd and Monty that he is there to do battle with the world Champion Locker stuffer 'The Gootch' the cheering from the crowd is overwhelming. Monty looks on, horrified as the gates across from him grind open and The Gootch steps out. He is huge and ugly… Monty's attention is dragged away from the advancing Gootch to the multiple Jumbo-Trons dotted about the arena. There, in huge awful Technicolor is Mrs. Crumb, his 4th grade Geography teacher. She is ranting at him as she always did'

> > "Monty Brewer, you are without doubt the stupidest little boy I have ever met..."

The announcer makes it clear that Monty is to play a game versus the Gootch where the player that shoves the other into a locker the most times wins. All the while teachers like Mrs. Crumb and his old Gym coach, rant about his shortcomings from the sidelines. Monty predictably gets stuffed time and time again.

The clear idea was that Monty starts a victim and then finds a way out of his situation by tapping into a quality or qualities that he already has that will allow him to change his situation. My biggest sticking point in writing this script was 'how does Monty snap out of this cycle of losing and losing? What event is the catalyst that will force Monty to realize his self worth?' For this version, the catalyst comes from a gym teacher that taunts Monty about the ridiculous size of his feet. This inspires Monty to use his big feet and math skills in order to defeat the monster and get out of the Coliseum. It would seem from this description, that this was an adequate story and that proceeding to the storyboard phase and onward through production would be the natural steps ahead. I did not do this. For reasons that were hard to justify at the time, I was driven to re-write the script not once or twice or even three times. In time, I re-wrote the story total of forty-five times.

I loved the idea of the boy stuck a rut and having to dig deep in order to get himself out of it. However I wanted to make this a simple story and the original story that I had proposed had six characters, two locations one of which was a huge roman coliseum, and props and frankly more elements that I could reasonably produce. This caused the re-writing, the reducing of the number of characters, the changing of the setting, and tweaking infinitum. The details of the story changed many times. Monty's name changed to Hero. Mrs. Crumb and the gym teacher character were ultimately pared away as being unnecessary to the story. The character of the announcer/MC was lost somewhere around draft number twenty-four. Hero was inspired to fight back by comic book heroes and emails from his father. The conflicts between Hero and the Gootch/Monster went from simple locker stuffing competitions to championship Jenga then epic Foosball games and tricycle races. As went the details of the story, so went the titles. Starting with *'Stuffed'* it was changed to *'Loser'* to *'Labels'* to *'Hero'* finally *'Lockers'*. All of these changes happened over a period of about three and a years and all that time I knew that I was struggling to get the story to a place that I was comfortable with.

So what did I decide…?

My struggle ended abruptly in the spring of 2007 when my lovely wife Jennie, sat me down and in gentle but firm tones, let me know that I needed to find a way to settle on a script or she was going to feed me to a wood chipper. In short order I ended up with a script that I felt ok with; three characters; Hero (protagonist), Bully (antagonist) and Monster (extension of the bully antagonist in the dream sequence). I had already

begun modeling these characters before I was finished with the script, as I knew that they would be needed and I knew that they would take some time. There were four acts to the story. Act one was the introduction of the main character name Hero and his situation with the Bully character. In an attempt to pattern after Bruce Campbell's hero's journey, I wanted to use the first act to establish the situation of the hero and then establish his desire to change that situation. Hero is shown to have a problem with Bully threatening him and it is clear that this is not the first time that this has happened to him. Something that Malcolm Spaull mentioned in the earliest conversations about this story was how important it was to not allow Hero to seem pathetic, as it would be hard for the audience to identify with and therefore care about his fate. I wanted to make is seem that Hero had found himself in a victim-like role but that he had not entirely given into it. I hope that this is clear in the final film. Act one is also where Hero gets hit on the head by a book that falls from the locker shelf above and is knocked out cold. Hero falls unconscious and wakes to find himself in a nightmare like dream world…here we enter Act Two.

Act Two is the introduction of the locker maze and the character of Monster. Hero falls from the sky and gets up to find himself in a room of huge purple lockers with one exit open into a corridor and the other locked behind a large bank vault door. Hero walks up to the vault door and finds that it is indeed locked and after hearing a menacing growl finds himself face to face with the Monster. Monster was intended have a twofold identity; one was simply the nightmare representation of the Bully but the deeper identity was that of the fear of confrontation and his inability to conquer that. Monster takes a swipe at Hero and he dives out of the way and makes a run for it into the maze. Monster turns and pursues him. Cue montage! Actually I struggled with this from a story perspective. I wanted to show Hero being chased throughout the maze as he tries to run away from Monster (fear) but I wasn't sure how to show this effectively. I initially felt that the montage as a cinematic device was kind of tired but then I realized I was actually shying away from it because I really didn't know how to do it well. In the end I figured that I'd give it a go, trust my instincts and treat it as a learning experience. Hero runs though the maze only to find himself at a cross roads where he is confronted with two choices. One choice is a very well lit and inviting corridor that seems to lead to the exit from the maze. The other is a very foreboding corridor with little light and no big sign telling him where it leads. With the roar of Monster urging him to make a choice, Hero chooses the more appealing corridor and runs for his life. He then finds himself in a corridor with a door at the end of it and a huge 'Exit'

sign at the end of it. Hero runs towards it and suddenly the corridor twists and contorts into a deep shaft.   Hero falls into blackness. Metaphorically, Hero is reenacting the patterns that have gotten him into trouble in his waking life. The Monster (bully) chases him or torments him, and in fear he runs away hoping that if he just runs far enough, he can get away or avoid the problem. This pattern repeats itself in multiple ways for Hero in the next act; Act Three. Hero repeatedly runs from the pursuing Monster and repeatedly chooses the familiar seeming corridor with the appealing 'Exit' sign in the hope that 'maybe this time, things will be different'. They are of course not and although the drama plays out slightly different each time, the result is always the same. Hero is always sent back the beginning of the maze to be chased by the monster. Does he learn his lesson?   I wanted the cross roads with the well-lit corridor and the dark scary corridor to play a large role as it forces Hero to actively make a choice. At some time between the repeated falls and chases, a tired and weary Hero finds himself at those crossroads and instead of taking the easy path…Hero stops and thinks. The emotion that I wanted to get across is that at this point Hero realizes that the easy path is not working and that although the alternate option is scary the alternative has become too much. Hero has now reached an emotional crossroads and after much trials and tribulations, chooses the hard, scary path. Hero walks into the dark.

Enter Act Four where Hero walks out of the dark and finds himself back at the beginning of the Maze with the huge bank vault door that he found locked when he first fell into the maze. Predictably, Monster falls from the sky, but Hero has come to the end of himself and says "no!" Much to the surprise of Hero and Monster, Monster shrinks a little bit. Monster recovers and tries to take a swing at Hero but Hero has learned something here and once again, but with more gusto, tells Monster "No!" Monster shrinks again and Hero grows a smile on his face.   Hero bombards Monster with more and more "No's!" and Monster ends up impotent in the palm of Hero's hand. Suddenly the Vault door opens in front of him and triumphant and changed, Hero walks through.   Hero learns to confront his fears and finds that these fears are only as powerful as he allows them to be. The assumption is that when Hero wakes up, he will be able to apply what he has learned in the maze to his 'awake' life and get himself out of the bullying loop that he was in before he fell unconscious.

Storyboards, Layout and Life:

It is confession time here as the last time that I went into production on a grad film (Winter film) I was so strapped for time and lacking in sense, I totally neglected to storyboard out the script.   I did draw some preliminary sketches but in the end decided to wing it. Anyone present at the winter grad screenings that year could see the negative effects of my winging it particularly in the areas of shot flow and editing.   I had been working professionally in the cg field for roughly three years at this point and I had learned that a well-storyboarded script would be a strong and essential foundation for my production. I knew that I would be phenomenally short sighted in thinking that I could do without that step.

Off to the storyboard races I went.   At the time I was living away from home in Santa Monica working for a small animation studio that was attempting to produce an animated feature film.   My wife was living in San Diego as she worked there and my son was going to school close to where she worked.   It was not a situation that we would have chosen but it was the situation that was available at the time. From a personal standpoint it was hard on the family BUT from and thesis production standpoint, it had it's merits.   I was in LA for the week and went home on the weekends. This meant that I had my mornings to myself and so I was able to get up at 6:00am and work on the storyboard until 9:00am every morning.   I was living in the spare bedroom of a friend of mine and so every morning I would sit up in bed, grab my lap desk, pencils and 8x5 cards and get to work.   I was able to draw 6-9 cards every day and as I got them finished, I would lay them out on the comforter in front of me and check that the shots had clear visual flow.   It took me about two months to finish drawing the boards and then I scanned in the cards into my computer so that I could begin dropping them into Premiere Pro and start to work on the timing. Getting the storyboards flowing with sound FX and took about another three months as I had a lot of trouble with the third act and the repetition montage was going to look. I decided that I couldn't fully solve it in the storyboard stage and that the Previz stage, where I worked out the camera angles, would be where I might develop it further.   I must note that at this time, I did not have much confidence in my cinematic camera skills and I was very nervous about where to place the cameras and the kind of lenses I should use etc… It was an act of providence that I found myself looking for a job at the time and I had found that my friend Kurt Nellis was working at Lucasfilm Animaton Studios as a Layout Artist. He was quitting and the studio was looking for someone to replace him and he had contacted me to see if I was interested.   I told him that I was not too strong in the camera area as my concentration was character animation. Kurt then proceeded to give me a

two-day clinic on camera moves, lens kits and things to avoid.   I worked with him on a demo using the schooling that he gave me and although I did not get the position, I gained a greater confidence in the use of cameras and I was able to apply this newly earned knowledge in the production my previz/camera edit. My intention was to develop the timing in the storyboard edit and then as I developed the CG previz edit, I could take the updated shots and simply drop them in a replace the storyboards as went. This way I always had an edit that was constantly evolving and consistent. Then as the fully animated shots were finished they would take the previz shot's place.   I wanted this kind of structure because my mind would always cast back to the last film where I didn't develop a storyboard and I was stuck making things up as I went…a total nightmare.   I wanted use the edit as my map in production as I could look at it and always know what was finished and what was left work on.   It was very helpful because as it developed, each stage was finished and I was able to focus on only the next stage as opposed to trying to focus on everything at once.   At the time I was working for a very badly run production, and I began to realize how incredible important it was to go through each stage of production as skipping steps could lead to disaster.   At my current job, the Director/Writer/Producer had decided, in his infinite wisdom, to forgo producing a complete storyboard as he stated that he had it all in his head and if there were any questions, all we had to do was simply ask him.   This lead to unending confusion as his version of the film changed from day to day. Without a complete story-board, we had no idea as to the intended flow of the story from scene to scene, we had no complete list of assets required per shot and production would routinely come to a screeching halt every time 'His Highness' decided to take a vacation, which turned out to be once a month.   Using this experience as what NOT to do and what could happen if I let things get slack, gave me the impetus to stick to the system that I described earlier.

It must be said that I did take something away from this terrible production; Motionbuilder.   This is an animation software package that they were using to animate in and all of the Animators there had to learn it. It has a very powerful capacity to handle motion capture data as well as keyframe animation and in working with it for six months; I could tell that it would be a powerful tool in the previz and subsequent animation production of my film.   The doomed film production was using a lot of mocap data for the majority of the animation and when done well, it was a faster production method. You could develop a library of different walks and runs using mocap and keyframe animation and drop them onto any characters you

chose.   This meant that I could take a look at the storyboards and figure out what motions I needed and then develop them ahead of time. I knew that in my film there was going to be a lot of running and walking animation. With Motionbuilder's animation tools, I was able to develop a series of running and walking loops that I could drop onto any character that needed it. This cut down on having to custom animate runs and walks for each individual character in each shot.   Huge time saver!   Also Motionbuilder has complete camera tools and so I used it to do the camera layout/previz as I would be able to ultimately export those cameras to Maya when it came to render time.   This allowed me to figure out and set the camera angles and moves only once. Another huge time saver! Only there was a problem…ok a big problem. No matter how efficient I thought I was being on the production, time was running out to finish and screen the film. I still had to finish the camera work and then I needed to get the animation final and THEN I had to light and then render the whole thing.   At this point I had about 5 months left until Grad screening and after doing the math in my head. I had no idea where I was going to get the time to get it all done.   I was at the time driving to LA from northern San Diego every day and then back. For those not familiar with the distances involved, it meant a 2-hour drive to work everyday and then back. I was spending 4 hours each day just driving.   I needed to get those hours back. One day I was on the 5 interstate going north through Camp Pendleton and I heard a horn off in the distance and then a whoosh of blue and silver. I looked off to my left and I saw the thundering shape of the Amtrak train heading up to LA from San Diego as it does everyday. I did a little research and found that each seat has a power outlet and I knew then that I was saved.   In taking the Amtrak, I was able to get those 4 hours back and maybe I could make the deadline. For the next 5 months I spent each morning and evening hashing out the previz and then the character animation and as it was usually just me and a couple people on the early and late trains, I had little distraction to throw me off my production pace.

Not so much the 'What' but the 'How':

I realize that it's all very well to go on and on about how the story developed but then I seem to flash forward to animating without mention of the technical/creative hurdles I had to solve to get the characters modeled, rigged and textured.   Let me back up a bit.

My Winter Film featured a little boy character named Monty.   I had immense problems animating his face as I had simply modeled him with

little thought to the connection between well planned out modeling/rigging and strong facial animation. I simply launched into modeling the character in Maya as fast as I could so that I could check that chore off of the list of things to do. As a result I was left with a good-looking character with very poor facial controls.   Having not learnt that lesson, I did the same thing with the characters for this project.   Having finished two of the characters; Hero and Monster, I stopped and took a long hard look at the work I had done.   I was not impressed. I knew that I wanted to develop further as an animator and that the key to a strong story was going to be the ability of the characters to perform in a way that the audience could relate to. This, in my mind, meant that they needed to have the kind of facial rigs that would give me the ability to show believable human emotions. Looking at my first attempts, I knew that they were too simple in construction and lacked the correct details needed to create strong, effective emotions.   I also knew that I had no idea as to how to proceed so I went looking for help. And found it in a facial rigging book named 'Stop Staring: Facial modeling and Animation Done Right" by a rigger and modeler named Jason Osipa. I found him on cgtalk.com as a showcased artist and he had posted some avi's on the site showing some examples of his work.   I was very impressed and hoped that his book would teach me how to get the level of expression I wanted out of my characters. I learned almost immediately that I had been operating under an incorrect assumption.   I had in the past modeled the character and then tried to rig that model with the hopes that I could get a solid facial performance out of it.   Jason points out in his book that an understanding of how the muscles in the face work together to create the facial expressions is fundamental to constructing a facial rig that would give an animator all the tools that he/she needs to create a strong performance.   I learned how to model the mouth and eye areas in such a way as to create things called control loops. Control loops are a series of vertices on a polygonal model that loop around the mouth and eye in such a way as to mimic the muscles in the face of a person.   If these are places in the correct areas, the modeler (Me) could then go on to create strong blend-shapes. For Example, creating a believable smile blend-shape is hard to do without understanding that the shape of the mouth does not just go up at the edges but also widens and goes back into the mouth and deepening the crease that runs from the outside of the nostril to the corners of the mouth.   The correctly placed control loops would run around the mouth area and give the modeler the topology needed to get that level of detail.   I also learned that facial expressions are made up of a number of compound shapes. Back to the smile as an example, the mouth does a lot of the heavy lifting however, for the smile to seem sincere,

the bottom lid of the eyes need to come up and bow slightly. Also the nostrils of the nose need to flare slightly to reflect the tension of the muscles that pull the mouth up, wide and back into the face.   Without all these elements put together, the expression looks plastic or fake.

But how would I put all of these expressions together using Maya's default blend-shape editor? In the default editor, I can affect one shape at a time and I have to turn one shape off to be able to affect another.   This does not work if a smile requires four of five different expressions added together.

I learned in Jason's book how to use Maya's Expression editor in creating controls that allowed me to mix and match each shape in an additive way to create the compound expression needed.   I must say that I had trouble getting the different blend-shapes to work together at first.   I would have a big smile for my Monster character but I wanted to also add the flare-shape of the nostrils. Both of these shapes would start off as a duplicate of the original face in a neutral pose and then modeled into the shapes that I needed.   (Note: I could only change the position of the vertices of the face, not change the polygonal count. If the polygonal count changed, Maya would not allow that shape to be added as a blend-shape of the original; it would consider it a completely different model) If I modeled the smile and added a little flare on the nostrils for one shape, and then modeled a separate nostril-flare shape and then tried to blend them together, the additive effect would send the nostrils out into deep space.   It was not until I had started working on the Hero character that felt comfortable with modeling all the shapes correctly. The process took a very long time and since I was learning about the shapes needed to create strong facial expressions as well as how to model them, I felt very overwhelmed.   This process was so hard for me that I actually failed to go through it for the Bully character. I was so burned out trying to get the Hero and Monster characters done well, that I decided to leave the Bully character for 'later' reasoning that he appeared the least in the film and I could afford to take a break and come back to him later.   I never did. In fact you can watch the film and see that the only thing that moves on Bully's face are his eyes.   I am happy however with the work that I did on modeling and rigging the other two characters.   I think that I could get more an even better performance out of them now that I understand the controls better. Maybe I'll do a "Lockers 2" just so that I can see what I can REALLY do with them.

I had decided to do all of the previz for the film in Motionbuilder because I could use stock mocap to drive the characters and the cameras were easy to use; I felt very comfortable using the software.   I had planned, however, to animate, light and render the final film in Maya.   The facial

animation was also going to be done in May as I had spent a substantial amount of time working on the facial shapes and rigs.   I figured that I could take the previz animation and work it into final body animation in Motionbuilder. Then I could transfer it Maya and then add the facial work there. I also wanted to do the same with the Motionbuilder cameras. I knew that Maya and Motionbuilder shared a common file format called FBX. This file format allows for the import and export of animation curves, cameras and textures for characters.   BUT, and it's a big 'but', the files have to be prepared just-so and if there are any mistakes, then the file will not transfer cleanly from one SW package to the other.   To my dismay, the provided documentation for importing and exporting FBX from Motionbuilder to Maya does not lay out the process with any specifics and so it was up to me to figure out how to prepare each Motionbuilder file so that it transferred correctly into Maya.   The documentation says that after the work is finished in Motionbuilder, all I had to do was to save the file, then after downloading the most recent FBX exporter plug-in for Maya, simply import the file into a new Maya scene.   This patently did not work.   I tried over and over again and all that happened was the skeletons of the characters would end up stage left and the geometry would end up being scaled up to a huge size and over on stage right. The cameras would not come over at all.   I tried a different method where you took the Maya with the original Maya characters and go through a process called an 'exclusive merge'. This means opening the original scene file which contains the smooth bound skeleton and mesh of your character, and confirming that the names of all the joints are the same in Motionbuilder as in the Maya file, you exclusively merge the Motionbuilder file into the Maya one.   The 'exclusive' part means that the importer looks for all the matching names in both files and transfers all the animation curves from one to the other and if there are any non-matches, it simply throws them out.   This also, does not work; or rather it's not quite that simple.   What Autodesk (who currently owns both Motionbuilder and Maya) don't document is that with an exclusive merge, it is imperative to delete all of the geometry of the character that is being exported form Motionbuilder and being imported into Maya.   If you don't do this, the merge will not work and I can't explain why. I think that it's something to do with geometry coming in from Motionbuilder and clashing with the same-named geometry in Maya and then Maya has a fit and then erases both pieces of Geometry and you are left with a very nicely animated skeleton. Working this bit out literally took me 2 months to figure out. There is nothing that I could find about it on the Internet forums and only by trial and error and suggestions from Maya rigger friends of mine was I able to

develop a system whereby I could reliably get my finished body animation from Motionbuilder into Maya.   But this is not where the trials and tribulations ended.   The cameras also gave me trouble in the export as well. When you create a camera in Motionbuilder, it creates a camera node and an interest node. When you create a camera with an interest node in Maya, Maya creates both of the camera node and the interest node. Again, the idea of the FBX import is that if everything matches, the animation should transfer correctly from Motionbuilder to Maya.   So I made sure that all the camera node names all matched and that all the interest node names matched but the data would not come over into Maya.   All that happened was that the interest node received the data but the actual camera remained at 0,0,0. It wasn't until I began hunting around in Maya's hypergraph panel that I realized that every time Maya created a camera node and an interest node, it also places a parent above them both and names it by default 'camera group'.   The sneaky thing is that sometimes this group does not show up in the hypergraph so unless you start hunting around for it, you might not know that Maya created it. This was the reason why the cameras refused to come over correctly as the hierarchies of the cameras did not match. It did not solve the problem to delete the 'camera group' node in Maya before the import but for some reason it did solve it if you added an extra node in Motionbuilder named it 'camera group', parented the camera and interest nodes to it and then imported it into Maya.   I really couldn't tell you why. I looked in every resource I could find, books, Internet Motionbuilder forums etc… nothing. I still cannot tell you why but this is the only way I could get the cameras from the one software package to the other.

I am no expert at the art of lighting a scene and in fact I could say that I am guilty of avoiding planning this part of the production until the last possible moment.   I knew that I wanted to use a lighting/rendering technique called Global Illumination.   The Online Wikipedia definition of Global Illumination is:

> *"Global illumination is a general name for a group of algorithms used in 3D computer graphics that are meant to add more realistic lighting to 3D scenes. Such algorithms take into account not only the light which comes directly from a light source (direct illumination), but also subsequent cases in which light rays from the same source are reflected by other surfaces in the scene (indirect illumination). BUT however, such images are computationally more expensive and consequently much slower to generate."*

This technique results in a scene that has great depth and vibrancy and as the majority of the film is supposed to be a dream sequence, I felt that it would suit my needs nicely. However since I did not work this out until pretty late in the production, I was faced with the issue of how slow Global Illumination (or GI) renders.   I did not start to think about lighting and rendering until I had about 2 weeks to go before screening. When I did, and worked out how many shots I had the approx amount of frames that I needed to render, I realized that GI would not be possible. So I searched for a solution that might give me something close to the effect that I wanted but not as expensive in render time as GI. I decided to fake it. Or rather I created a mel script that created automatically a 'fake global illumination rig'. Instead of doing all the calculations of the bounced and reflected light from the main light source, as it is done in real GI, the fake GI rig instead creates a main indirect light source (the source of all the shadows in the scene) and then a dome of weaker spot lights pointed downwards to act as the bouncing light.   This is much faster to render and also I was able to set it up once in a test scene to make sure that the colors and shadows worked and then imported it into every shot.   I then adjusted the interest of the indirect light to make sure that the shadows where in their correct positions and then rendered the scene.   This worked for most of the shots however I was forced to add Key lights on the characters in close up shots as the fake GI tended to create shadows on their faces and the facial animation was lost without the additional lights.   One shot in particular did cause me some trouble. It was the shot where Hero finds himself at the junction of two corridors. One corridor is well lit and inviting and the other is dark and foreboding. The camera pans right to left; from over the shoulder of Hero looking down the well lit corridor to the dark corridor.   Since I was using a global lighting rig, everything was lit up but I needed that dark corridor so I had to select each piece of geometry and turn off it's light link to the fake GI rig. Then I had to create lights with very low intensity and light the dark corridor separately. This was hard to do and took a long time to get it to look right. I kept finding parts of the 'dark corridor' lit up from somewhere and I had to hunt down where the extra illumination was coming from.   I feel that I finally got the effect that I was looking for but I was a lot of work just to get one shot right.   Looking back, I should have put a cut in there somewhere, sparing me the need to have both lighting scenes in once scene at once.

A little help and a thunderbolt:

At this time I must acknowledge the help of a good friend of mine named Greg Emerson. I knew that the production was going to down to the wire and I had no strategy for getting the rendered shots into the edit and then dropping in music and SFX. I reached out to my friend Greg, who is a card-carrying member of the Editor's Union, and he very graciously volunteered to help me out. So in the weekend before screenings in Rochester, I was up in north Hollywood, at Greg's house churning out rendered shots as Greg and his brother Marc (also an editor) dropped them into the cut. Over a period of three and a half days, Greg Marc and I sorted through different music choices and sound effects. I think that overall the SFX worked well as we were able to mix different sounds together to get the desired effect. For example when Hero wakes up in the dream-maze and is confronted by Monster, he takes a dive between Monster's legs and the sound that we created is a mix of a car crash, a pig squealing and a slamming door.   We did this for a number of different effects when we didn't have the exact sound.   The only SFX that I am still unhappy with is the sound of Hero's voice saying 'No!' at the end.   It is too high pitched and silly sounding but we could not find anything in our collection of dialogue and sounds that was better.   I would defiantly go back into the cut and switch out that particular sound so that Hero's voice was more consistent throughout.

As the different shots were dropped into the cut I realized that the dreams sequence needed more of a visual boost to reinforce the idea that Hero was in a dream.   I am not a Final Cut Pro expert but luckily Greg and Marc are so together we came up with a solution; I did all the talking while they tinkered with settings until we came up with something that I was happy with.   There is something in Final Cut Pro call the Noise Generator. We used this to generate large square blocks that covered the screen. Then we added a blur filter to blur out the blocks until they had a 'whispery' quality to them, kind of like a moving Vaseline smear over the lens. We then added an alpha mat to the center of the screen that there was now kind a window so that the center of the shot would be seen but the edges were blurred out.   I didn't want the effect to be overwhelming, but I did want there to be a perceptible difference between the 'real life' look in the locker room and the dream sequence.   I am actually quite happy with this effect.

It was about 12:13am on Sunday morning when I had an epiphany of sorts.   I originally had written this story as an attempt to teach my son about standing up to and overcoming adversity.   But while the rest of the house slumbered, I realized sitting in the kitchen, that the film had become so

much more personal than a lesson for my child.   I realized that Hero was in fact me and it was really about me standing up to and pushing through my tendency to procrastinate, get over my deep lack of confidence in film making and make it anyway. I went round and round in circles with the script, refusing to make a commitment to a story hoping that I would somehow find that special one when in fact I had to take a chance and just pick one.   I then took another two years to simply complete the storyboards as I would get incredibly stressed out over not having any idea as to how each shot would look. Yet I was able to figure things out with some help from Kurt and get all the drawings done and into an edit that flowed. After going round and round in circles for years allowing my fear of failure to stop me, I took the scary path and actually finished it.

I was bound to Rochester on the 11:50pm flight out of LAX on the Monday before screenings and at 8:45pm, Greg handed me two copies of the finished Thesis and with a lot of pride, I drove off to the airport.

Screening thoughts:

It was a very surreal experience going back to Rochester four and a half years after I had left with my family to move to California.   All of the other members of my grad class had already screened and I was the last one to do so.   I had never intended to take this long to finish and I did feel more than a little sheepish screening at such a late date. I remember sitting in a Winter film seminar class with the then Animation Chair Malcolm Spaull, and he told us a cautionary tale about people that took the whole seven years to finish the degree only to fail to screen at the last moment.   I remember looking over at my friend Aharon Charnov and commenting that this would never happened to me.   It almost did.   I think that being this late kind of gave me motivation to finish, as I simply did not want to be 'that guy' that Malcolm might use to scare new grad students about the consequences of taking too long. He still might use my example for surely things should not have taken this long.

Screening where I did not know most of the students there and in a place that I had not been for almost five years was more disconcerting than I had anticipated.   Screening films together with one's class mates offers a kind of 'in this together' feeling that this time around lacked.   I was kind of out there by myself and I felt this sense of isolation rather intensely.   This feeling contrasted strongly however with the feeling that this was my strongest film that I had screen so far.   I tried to take all the lessons that had learned from my past films and apply them in this one.   I also felt that my

experience in the industry helped me understand the importance of the film making process and that there really can't be any short cuts.   I was hoping that the students and the professors would see the work that I had put into it. I spoke with one of my animation professors, Stephanie Maxwell, and we spoke about how the film had changed for me as the production went on.   I explained how the film went from being simply a story that my son could gain inspiration from to being one about the necessity to deal with life as it is right now and that running away from that 'now' moment only delays the development of the self.   I had the experience in the kitchen when I realized this change in my perception of the film but this was the first time I had vocalized this realization to another person.   It underlined something that Skip Bataglia always talked about in his classes; the process of discovery during the creative process.   Skip used to always get on me about the fact that I always made the film that I had set out to make, that I never allowed for the film to change as the production of the film changed me.   In speaking to Stephanie just before my film screened, I realized that no matter how hard I tried to make the film I had set out to make, the underlying theme for me had changed as it reflected struggles/obstacles and evolution I had gone through within myself as I made the film.

I was relieved when the film began to screen as I was concerned that the projector would project the film too light or too dark. I knew that the film looked good on the computer monitor but the projector was the wild card. I had no idea it was calibrated.   When I screened my Fall film, the projector was screening so dark and my film was set at night it was almost impossible to see what was going on and most people couldn't follow the story. Happily this was not the case for this screening but the concern did pop up for me as the lights went down. After the film ended and it was my turn to stand at the podium and take comments, I was gratified to find that my professors liked it, that they appreciated the story and the set design. I knew that if Skip had something to say it would be interesting and he did not disappoint. He compared hero's flight through the locker maze to the ancient Greek myth of Theseus and the Minotaur. Skip lamented that Hero did not use more cunning in escaping the maze or the clutches of the Monster.   He also did not pick up on the end where Hero actually does walk out of the maze and therefore wins the battle within him.   I remember that I felt that I needed to go back and animate Hero walking out of the door and then having it close after him.

It was immensely gratifying to screen this film.   I had written the script, drawn the storyboards, previsualized the shots animated the characters and lit/rendered the final frames.   In the beginning I vowed this

was going to be a great film.   I feel now that great was not realistic or necessary. It is enough for me that this film is a culmination of seven years of grad school, personal and professional work experience and it is simply my next film.   I hope to make many more and each one I hope is a little better, a little more clear in it's execution and a little more personal.
I am grateful for this experience and I am thankful for all the help and support that I received along the way.   One day I hope to be in such a position that I might give the kind of support that I received during my Grad school career.