Drunken Moon

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ABSTRACT

DRUNKEN MOON is a story inspired by the poet Libai (Li Bo).
It is about a lonely poet who finds an abstract and surreal world when he gets drunk. In this Drunken world, everything comes alive.

Suddenly he finds himself surrounded by the animated elements of nature, he finds joy and serenity as he dances and plays with them.

This story attempts, to blend Chinese style of storytelling with the Surrealist art movement, in that things do not have to make sense, but inspire people to ponder about dreams and reality.

My work is to help make this dream a reality.
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I would like to express my greatest appreciation to my Final Year Project supervisors, Asst. Prof. Hannes Rall, who had been patient and understanding, guiding me through the progress of the project, and also Asst. Prof Mark Chavez who has come to our aid helping us in every way with buying of required software licenses to helping us create server space, his gesture has aided us tremendously in the organizing of this project.

I would also like to thank Asst. Prof Melanie Beisswenger, who has given me valuable advice and comments about my animation, constantly giving me inspiration and resources to aid me. Without her help, my animation would not be able to reach any standard worth screening

Also to my Rigging Lecturer Roxy Liao, who imparted me all the skills I needed for Rigging and further helping me source for proper guidance for my cloth simulation. In my desperation for solutions, she helped us tremendously by giving me solutions and avenues to learn from the right sources. In that, I am truly grateful.
Furthermore, I would like to thank my group mates, Raymond Teo, Malcolm Qwah and the rest of the ADM student and peers especially Cheng Yuchao and Wang Xun.

Their continuous support and relentless strive for excellence helped bring out the best in me. I would also like to thank Cheng Lim, our I.T. coordinator, who helped us set up a render farm and any technical problems we had.

Last but not least, my family, who has been very supportive of me. Although they did not help in the project, they helped in every other way to keep me in health and provided me care when I was sick. I do love and appreciate them truly.
1. INTRODUCTION

1.1 Production Involvement

In this project, my main roles include, Character Animation, Rigging, cloth simulation and overseeing the whole 3D-Technical workflow.

To facilitate the working environment I have to make sure that people can get a clear idea of where my shots are, my naming conventions and where all other backups are. Just in case problems happen at least we can have something to fall back on.

Furthermore, I play the role of troubleshooting problems technical problems. Although they are faced by me most of the time, I am mostly the one who tells the director what is possible and what is not possible, within our means.

However, the most important thing is to co-ordinate with the director on his vision. The challenges in this project are tough, there are problems in which most professional 3D animation have not even seen yet. An example would be the cloth simulation in our project. Although we have seen cloth various times in many productions, but
the one we are attempting faced many constraints and almost no proper references even till now.

The bulk of my work therefore lies in my research and experimentation into how to make the art and the dream come into one.
1.2 Objective

There are many objectives I am trying to achieve in this project. Firstly, I want to establish myself as a professional animator. I feel that this field has been my pride and joy throughout these 4 years studying animation. When I see things coming alive in my hands it becomes a sensation only the creator will feel.

But besides that I also want to gain knowledge of myself in this work. When I learn animation, I feel that I am learning more and more about myself. When I act, when I put myself into the situation, this craft becomes something very personal, almost like a self study. This is why nothing even comes close when I start thinking of my future career.

It has also been my dream to bring a new Indie-style Chinese animation into the world today. In the world of animation, we have seen a lot of Western style, Hollywood production with multi-million budgets or various small creative Independent productions, both with awesome talents. But however, Chinese animation has often been plagued with budget constraints lack of talents and mostly lack creative vision.
I want to be part of the driving force to bring Chinese style animation back into the world map with a special twist. This project is the perfect one I am looking for. Being Chinese in Singapore, I feel that our group has a nice blend of knowledge of western and eastern influence and therefore, I hope that our work will spin a new wave of animation style starting from Singapore.
1.3 Research Overview

My research is mainly broken down into 3 parts which I will explain in detail later in the report. Firstly, is Involving the Rigging of the characters. Characters in the film are not your conventional Biped or quadruped characters. The Characters and their characteristics are as follows:

<table>
<thead>
<tr>
<th>Characters</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Libai</td>
<td>Lonely and sad poet</td>
</tr>
<tr>
<td>The Wine Cup</td>
<td>A 3-Legged, playful and raging horse</td>
</tr>
<tr>
<td>The Wine Bottle</td>
<td>A Bunny Rabbit hopping around carelessly</td>
</tr>
<tr>
<td>The Bridge</td>
<td>A Sea-lion doing a caterpillar break dance</td>
</tr>
<tr>
<td>The Pavilion</td>
<td>An Octopus \ Jellyfish doing a dolphin</td>
</tr>
</tbody>
</table>

To mix these Ideas together I often have to research with movement patterns and looking a step or 2 ahead in the production. These I will elaborate in detail about how I devise my research workflow and putting it down in the Rig. My difficulties and how I overcome it
Next, is the problem of the cloth simulation I will introduce to a proper workflow for readers of my report if in the future you wish to do similar styled cloth simulation. I will tell you how I work with my project, my problems and what not to do if you are attempting a project such as mine.
2. RESEARCH DETAILS

2.1 Rigging

To make the Rigs work well in the story, I spend a decent amount of time studying animals and their movements. There was a lot of re-work involved as sometimes the Rigs did not turn out as versatile as I thought. Then I also had to coordinate with the modeler, Malcolm, with details as some parts of the model has difficult geometry is very hard to get a good deformation.

2.1.1 Inanimate Objects and their Characters

Pavilion Rig:

![Fig 1: Research Example](image-url)
Fig 2. Working Rig

Fig 3. Movement Cycle Test
The pavilion possesses a character of a Jellyfish \ Octopus who is doing a dolphin performance with Libai.

For the tentacles I basically went with a full FK (Forward Kinematic) for simplicity. It has additional twist and lengthening and shortening functions at the tip for added ease as selecting all controllers are a lengthy affair.

The pillars allow squash additional squash and stretch control. The roof of the pavilion has also a bloat and un-bloat function, paired with an IK (Inverse Kinematic) tip for direction control, it is able to mimic a look similar to that of a Jellyfish propelling itself.

**Wine Cup Rig :**

Fig 4. Horse Run cycle
Research
The Wine Cup is a challenging Rig as references are limited. I rigged him like a human with a main controller at the hips and also an additional IK hip for swinging isolated hip movements. I have to make sure all that his legs and body has various squash and stretch
actions as he is a more of a Bugs Bunny like character who moves fast and has a character of a fast horse.

Additional things include that his “ears” can move as a secondary animation movement and his “nose” also bends up and down easily for realistic head movements.

**Wine Bottle Rig:**

Fig 6. Wine Bottle Jump test
The Wine Bottle is one which emphasizes more on its jumping action. Its spine stretches all the way to the top with its cap having independent, follow through action. It has a base that allows squash and stretch actions and its handle as well as mouth are capable of secondary action as if mimicking the action of ears from a rabbit.

The Wine Bottle is generally a more jovial character, so having more follow through can make it look cuter to audiences.

**The Bridge Rig :**

Fig. 7. Bridge jump test
This was the only Rig that did not work as we intended it to. We wanted the Bridge to have the characteristic of a Sea lion, doing the caterpillar break dance performance. But however, as the movement needed for parts to hold its position, I tried partial IK for its spine and full IK for its spine, but they both did not work as planned as this movement is a very dynamic one that involves various parts of the body to hold its position simultaneously. Eventually we gave up the idea and just went with a jumping and slightly clumsy sea lion.
Fig. 8. All Rigs that I made
2.1.2 Libai and his Rig

Fig. 9. Libai's facial Rig

The most challenging rig of all was Libai's rig. First was the whole body's movement. We decided for him to be slightly clumsy a little like Po the Panda from Kung Fu Panda. I collaborated with the modeler and director a lot with deciding on the eventual look of Libai and the restrictions the model would give us. The legs went through a few changes where he went from taller to shorter and in so made his walk clumsier.
Next came the problem of the neck and armpits. We had to make sure the head was always versatile and does not interfere with the cloth at the neck and also the same for the armpits. I devised a Rig where Libai has no neck bone. His head was able to roam freely and follow his body. This was especially important in the beginning stages of our project when various constraints were used at the collar for the cloth.

At the armpits, we saw problems of inner penetration when his arm got too near to his body. I devised a way of extending his bone at his shoulder so that when his arm came near, I would extend his shoulder width. With this method, the inner penetration would be solved and under the cloth, we could play with the placement of his shoulder so it looked perfectly normal.

His facial rig wise, I thought that a conventional blendshape slider control would be difficult and not so versatile to animate, I therefore went to research on a “Stop Staring” facial rig based on the book by Jason Osipa. [2]
Basically animators just have to adjust one slider for 4 different kinds of blendshapes. This speeds up the workflow and paves the way for useful facial acting.

2.2 Cloth Simulation

Cloth simulation for this project was a huge bet for us. None of us started out knowing anything about dynamics and simulation. But this is according to the director, the simplest way for this animation to look like he envisioned.

I undertook the role to experiment with Cloth Simulation and tried to make it work in the film.

I basically split my research into various parts.

1) I tried to understand how to create cloth and how it works.
2) I have to try applying it on Libai and testing if it works.
3) Troubleshooting the problem led me to belief that changing the model for the cloth will definitely solve problems and I proceeded to work with the modeler. We mainly dealt with the armpit region that gave penetration, the collar region and the length of the cloth which would work best.
4) The cloth worked fine if not doing drastic movements. But however I soon realized the cloth could not hold its position with drastic movements. I proceeded with Working with constraints.

5) I tried all the constraints available for Maya ncloth engine and even tried painting in constraints for parts of his body. But eventually went with just collar constraints for the whole body.

This process took so long partially because of the lack of reference. Most animation do not attempt a one-piece clothing as it is hard to constraint it and look normal at the same time. When doing things like running or jumping, constraints make it feel like they are wearing an imaginary belt on. If a one-piece clothing is ever used, it is made to constraint heavily on the body and made less dynamic in its physics. An example would be Boo in the Pixar movie, Monsters Inc.

Another problem came with the armpits, problems like inner penetration for cloth was common. To counter this, I had to ask the modeler to create a cloth model that had bigger sleeves. The challenge came at making bigger openings that looked normal at the same time.
To further enhance the control we had over the armpit penetration problem, I made the rig’s shoulder extendable, which I mentioned previously.

Fig. 10. The un-scaled shoulder causes problems of penetration
Fig. 11. Scaled shoulder, no more penetration problem and shoulder width looks better and more natural.

But however, with this solved we still had constrains problems when he is doing a slouching pose, the cloth at his collar drops low leaving a lot of him exposed which look really ugly. I tried adjusting dynamics and different models until I finally stumbled upon, to me, the best workflow for cloth generation of our caliber of work.
Fig 12. Cloth falls too low on chest, while in slouching position.

Fig. 13  Final look of cloth
2.3 Art and Workflow explanation

1) First create a cloth model that very much matches roughly the length, of what the final cloth would be. (we can still edit it later)

2) Make it an ncloth object and make it fall on the selected character in its T-pose. You will realize that the area around the collar looks just right or almost right, but when you start posing the character in slouching poses the character will reveal more of his body than intended.

3) If this happens, duplicate the cloth and delete the original leaving the duplicate. Now rename the transform node and shape node so both coincides as when you duplicate the cloth, your shape node will still be named as “Output_Cloth” which will cause complications.

4) Now this duplicate will not simulate as it is only a model which just so happen to fall down nicely on your model in T-pose. You can now re-model regions that need more constraints like the neck region. Making it tighter or closer to what you want it to be. If the length of the ncloth after falling on the character seems longer, you can also re-model it to suit your needs. As usually, these things are difficult to predict.
5) Now that you finish with the modeling, you can finally make it an ncloth in Maya. Most of the constraint problems would be solved and now, you do not even need to use constraints unless an extreme situation calls for it. When working this way, you will also realize that the drapery folds need not be modeled in the first place as the simulation takes care of it and you will see the beautiful folds in the duplicate.

6) For the lower parts of Libai, a simple transform constraint would take care of things if his cloth went haywire at the bottom.

The above mentioned workflow would be for the modeling and creation of a cloth but however incorporating it into a proper effective 3D workflow faces a different set of problems.

After finishing with the first part of the film, I realized that the best way to work with cloth is to leave the cloth and Rig in separate reference files. When working. With cloth, you should actually stop at step 4 as mentioned above and export the cloth model only as a separate file.

You can then continue experimenting with various settings and dynamics and different poses and movements that your character has to do and save the cloth dynamics settings as a preset.
So now every time you start on a scene, reference the rig and the model for the cloth as 2 separate files and then create your cloth in this working scene and replace your dynamic presets on it.

This saves memory, Maya confusion in caches and saves you a lot of problems when you come into rendering stage. You can also choose to reference in the cloth after all the animation is done and create the cloth then.

Professional practitioners probably have their own way of dealing with this, but my method works too if you just want to work with what you have in Maya or other cloth simulators.
3. ANIMATION

3.1 Inspiration

Inspiration for animation came in many ways for me. I first tried looking at all my old Chinese movies and animation for reference. For movies it is quite tough to find the right reference and they mostly last only a short period of time. Animation like the old version made by Shanghai Animation studios, of “The Monkey King” and “Calabash Brothers” gave me less than what I expected as their 2D performance are really great in 2D but when transferred to 3D, it makes the characters look a little uneasy.

I proceeded with my own acting and then cross-referencing with reference and stock footage online to get the best performance and acting I can. Acting wise, I took references from miming to enhance the feel of realism in holding objects. I also took an approach unlike modern day Method Acting, I try to stage the acting to make it similar to a subtle version of Chinese (Teochew) Opera. I like this blend as audience can understand the story well with the acting and I am getting closer to my objective of accentuating Chinese art form.
3.2 Perspiration

Lots of time also went into the reviewing of my shots. Opening up the shots to be critiqued by project mates and lecturers. Time also spent in acting the same action time and time again for reference.

Through this process and an acting workshop about miming in the semester, it opened up my senses to acting and performances. To know and study different kinds of acting is a challenge to me.
4. FINDINGS AND ANALYSIS

4.1 Workflow problems

For our project, the main problem came at the end when the rendering came. I committed an error with blending the Rig with the cloth simulation. The problem arose when in rendering when we have to split one shot into multiple layers, and each layer, the animation had to go through a separate treatment of color and texture. Multiple problems came up that made Maya unable to render properly.

Some involved heavy texture maps, which could be solved by rendering in the render farm or reducing map sizes, but however during the process, something could not be solved with is the sudden change of the movement of the cloth. This arose mostly because I arranged the cloth and the rig together as just one file and every time I replaced a new reference in the scene, the caching of a simulation would have been slightly altered. The caches also confuses me as one scene file has about 20 different caches folder with about 80 different caches, so it is confusing to figure out which one is right.
These problems are mostly invisible to the eye, but for one scene, unfortunately, turned out some unsolvable problems.

Apparently, during the process of editing the layers, we mistakenly unlinked a part of the cache for the cloth. This happens also partially because the render farm needed my project file to be located in its designated drive. During the transport, we have caused the cache linking the cloth simulation to be somehow broken. I am still studying this problem but with the workflow that I mentioned above, this should happen less probably as we could start caching the cloth when after it has been transported.

4.2 Merging art and technical knowledge

For me, I feel that it has been more difficult to use my craft to its fullest. As to reach the stage of animation, lots of stages of testing, coordinating and experimentation had to be done for a little bit of animation to come, seemingly at almost the end. As team dynamics goes, I am the only one dealing with 3D and I had to mostly solve my own problems. I realized that I could turn to no
one in my group if I had a problem. And instead I find myself as more of a troubleshooting or technical worker.

But however, I guess there is a give and take for every situation. At least I had all the control for the acting I wanted. This project made me refuel my energy and passion for animation and educated me more on acting than ever. Now I am confident of accomplishing all the kinds of acting I want in my animations and most importantly, see myself growing in this newly learnt process of looking at acting and animation.
5. SUMMARY AND CONCLUSION

In conclusion being in the production team of Drunken Moon has been an invaluable experience, learning so much is so little time. It also fueled my idea generation as an artist as now I have so little time to think, I realize that Ideas and solutions come to me faster, than if I had ample time.

Furthermore, I have realized my other joy which is in rigging. Working in this project made me realize more about myself and my joy with animation. I hope audiences can see this joy as I have seen mine.

In conclusion, I wish audiences have a good time watching the film and that Singapore will be making more and better animated films in the years ahead. To audiences, I hope Drunken Moon stays in your heart and that one day you might be able to question your dream and reality.
6. PROJECT RECOMMENDATIONS

Just one thing that I wished could happen is that we could actually render in the render farm without transporting my files here and there in the server. It would have lead to less caching problems for the cloth as the simulation would have known better where to read the cache.
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Books

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[9] Shanghai Animation Film Studios – Calabash Brothers (葫芦兄弟)
[10] Shanghai Animation Film Studios – The Monkey God (大闹天宫)
[11] Shanghai Animation Film Studio - Xiao ke dou zhao ma ma (小蝌蚪找妈妈)

Video Reference
[12] www.bbcmotiongallery.com
SAMPLE IMAGES FROM PROJECT

Fig. 14 : Test constraint map with temporary model
Fig 15. Constraint map with temporary model and rig.
Fig. 16. Bridge design, for my rigging reference

Fig 17. Bottle design
Fig 18. Postcard Design
Fig 18. Jump and cloth animation test.

Fig 19. Shot from film (1)
Fig 20. Shot from film (2)

Fig 21. Shot from film (3)
Fig. 22. Shot from film (4)

Fig. 23. Shot from film (5)
Fig. 24 Shot from film (6)
End of Report