**STURMUNDDRANG FINAL POST-MORTEM**

**Chengfu Chen**

**Sherry Chow**

**Matt Costa**

**Michael Tsai**

*with* **Pei Hong Tan**

**Advisors: Brenda Harger and Ralph Vituccio**

**Original Goals:**

1. Complete a short film compositing live-action with CG and motion capture elements.

2. Develop and document the Organic Motion System to facilitate its use by future ETC students.

**Changed Goals after Softs:**

1. Visual Effects Reel displaying with a few shots the quality SuD aimed for in its short film, and

 showing the process of how each shot was constructed, keyed, and composited.

2. Develop and document the Organic Motion System to facilitate its use by future ETC students.

**What went well:**

1. Our pre-production and production went incredibly smoothly due to careful planning, which

 facilitated post-production:

a. Worked with Steve to set up Modon, prepare the render farm, & purchase all the software we

 needed for post-production: Houdini, Cubase, RV

b. Cut the story down and reduced the number of main characters

c. Created 2 iterations of storyboards

d. Held casting auditions

e. Scheduled green screen shoot at Pgh Filmmakers

f. Hired cinematographer Brad Grimm

g. Thorough preparations for shoot:

 i. Bought and painted green wood floorboards

 ii. Ordered costumes from CMU Drama

 iii. Prepared props: desk, chair, futon, bed dressing, voodoo doll

 iv. Made shot list and shooting schedule

v. Prepared overhead camera and lighting schematic

h. Recorded camera aperture, height and distance from the actors for easier matchmoving in

 post-production

g. Decided upon file-naming conventions to facilitate accessing files on Modon

2. The team got along and communicated well with each other.

3. We got an unexpected perk of having many volunteers during the green screen shoot, including first-

 year ETC students

4. We were able to create depth in our scenes through camera work and advanced compositing

 techniques, so our actors do not look like they are standing in front of a 2D plane.

5. On the Organic Motion System (OMS):

a. We were able to learn what the advantages and limitations of the motion capture system are,

 and document them in a Wiki page for future ETC students to reference.

 i. Great for short interactions such as in BVW

 ii. Not as suitable for more realistic, fluid movements

b. We were able to integrate the motion capture system as a tool for this fall’s BVW class,

teaching and assisting more than 10 BVW teams in how to use the motion capture system

properly and warning them of some of the pitfalls we came across.

c. In our Wiki page we have included feedback from those first-years who had used OMS for

 their BVW worlds this fall.

6. We set up a good post-production pipeline:

a. Michael and Matt key the green screen shots

b. Michael matchmoves the camera in 3D software (Maya) and passes it onto Chengfu for

 lighting and rendering.

c. Chengfu sets up the shots while Pei and Matt unwrap 3D assets & work on textures.

d. In the meantime, Michael and Matt do rough green screen keying then upon receiving

 background renders from Chengfu, they composite everything together in Nuke. The

 important thing is to keep the backgrounds looking consistent from shot to shot.

 e. Because Modon would become very slow during render, Chengfu wrote some 100 lines of

 code in Maya to facilitate the transfer of project files.

 f. For Maya projects files, we used a reference file so more than one person could work on it

 simultaneously.

g. We discovered that for rendering, adding suffixes to output folder names helped us organize

 which files were to be rendered through Maya and which through Muster.

7. We have a visual effects reel that clearly shows the quality of work SuD was aiming towards for the

 short film as well as the process of how each featured shot was created and composited.

**What could have gone better:**

1. Our ambition got in the way of our scope and pushed us off schedule.  We had so much good footage

 to work with that we got away from our original goal of a 5 minute film and at first cut we had a 13-

 minute film. We definitely started post-production way later than expected and by changing

 direction with the edits, many already keyed shots were no longer used.

2. We should have built time into our schedule for contingencies, such as technical difficulties with the

 motion capture system and delays due to software crashing or Modon being slow.

a. When we got our motion capture data into post-production we found that cleaning the

animation jitter was much more time-consuming than originally anticipated.  After a week of

troubleshooting, Chengfu was able to write a script that cleans the mo-cap animation by

allowing the user to choose which frames he/she wants which will be a big help to future

students

 b. Another technical issue is the skating feet problem; sadly no software can yet solve this issue

 automatically so Chengfu had to manually key frame the Somnambulist’s feet animation

3. We would have liked to have had more time to have been able to make the short film we originally

 planned to make, implementing even more advanced techniques to lighting, texturing, modeling, and

 compositing to make *The Somnambulist* really stand-out.

**Lessons Learned:**

1. Keep a much more careful eye on scope.

2. Always give time for unforeseen issues and contingencies that may occur, especially when working

 with a new platform.

3. We learned a lot about the entire vfx pipeline from beginning to end.

4. We furthered our knowledge of how to set up our shoot to prepare for post-production.

5. We learned a lot about the Organic Motion System and when it is the right tool for the job.  We also

 learned just how in-depth the process is of using the system and cleaning the animation data.

6. Whenever compositing a humanoid CG character with live actors, take into account the uncanny

 valley.

**Conclusion:**

Besides not allotting enough time for such an ambitious project as ours and pitching it as a two-semester project, our biggest lesson was in realizing that any CG that is composited with live-action cannot be anything short of professional quality, since all the CG elements must be as believable and real as the live actors they are juxtaposed with.  A larger team would have helped enormously too, especially during post-production.

This project was also a stress test for the Organic Motion System.  When used in BVW worlds, the animation looked great since the dynamic motion in the worlds was quite simple; however, when put up against the fluid movements of a real human being, the animation looked very stiff and awkward. In hindsight, if the Somnambulist creature were less humanoid in appearance, the stiff animation might have mattered less.

Despite the team’s obvious disappointment at not being able to complete a short film, the semester was nevertheless an extremely productive one. The documentation for the OMS will be valuable reference to future ETC students and may the lessons learned in making *The Somnambulist* inform ETC film projects in the future.