The making of „Julie“

a short Video Demostration for Breakpoint 2009
by Ollie „Cosmic“ Borgardts

Hello everybody. My Name is Ollie Borgardts aka Cosmic and i am a proud member of the „nuance-family“ a loose non profit organisation in the computer demoscene.
I am doing graphics for a living and wanted to create something that everyone of us sees every day at the movies. but with a smaller budget. I am a photographer and i am painting a lot for finalizing my work.
The main criteria of creating such a thing were:

-the use of the already bought software licenses: maya, afx, photoshop
-the use of a already owned slr eos 400d camera.
-an affordable 3d motion tracker
-a budget of 300 euro (the sushi i owe my team for their great work not included ;)

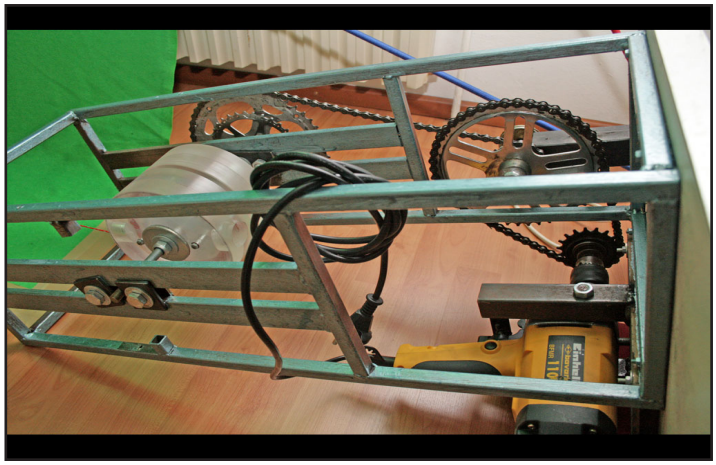
And so the idea came up to do something but a little different.
a photoshooting in 3D. Yes something like the famous bullet time effect used in the matrix movies. these guys use a lot of slr cameras and shoot at the same time to get that amazing time freeze effect. ok i am an artist and money is the major problem. i cant afford 200 slr cameras. this idea died in the very beginning. ok the plan was to do this with a normal video camera. but mine (a canon xm1) wouldn ´t give me the needed resolution i wanted to do a movie in full hd and this cam is a little bit outdated. the second reason was that this cam stores its pictures in a compressed format and the keying process with the greenscreen would have produced ugly artefacts so the plan to use that cam died at the very beginning of this all.ok then the plan was to rent a hd cam. hmm that would have cost extra money and if you get one for one day you dont really know that one and how to handle it correct. ok so the idea came up to do the whole thing with my eos 400d. i own it already and a stop motion effect could be very interesting. ok how to move that thing ? the first plan was to move it on a dolly based rails system. but the time when the project started it was winter and my appartment didn ´t offer that much space to do all the installation.

and the money for a rails system u know. Ok and if you put your model on the outside in winter (at this point i didnt knew what she would wear) that would be the last time she would be working with you ;) Ok plans changed.
A friend of mine built a turntable from plain wood and placed it on rolls.
the drive was planned to be turned by hand and then start shooting.
but the problem was that no one can turn that one that steady that you can get a smooth move out of it. ok and the turntable also didnt turn that smooth although the model was really slim. ok so we disassembled my rollerblades and put the wheels with the high tech bearings beneath the disk. and that friend of mine also built a drive out of a drilling machine and a transmission. 10 meters of chord wrapped around the disk and we where ready for now. The second main problem was the greenscreen. You have to know that even the most perfect lit screen on productions like starwars has to be corrected in the post production. And i had normal lights 5 euros a piece from the building supplies store. i had no good expectations at that moment. and imagine a candle. it is near. you are near. and the shadows are super smooth. ok as every filmmaker you want to make it look. HUGE !

ok the sun is very very far away from earth. and it produces hard shadows. And if you take a spotlight that would give you nearly that kind of light that is placed 1 meter in front of your model because of the shortage of space in my appartment then well i think that was again the last time that model worked for you. the main key and the biggest bug in the whole production: have you seen it ? i guess not ;) the question is:

is the camera moving around your model or is the whole model turning in the final scene ? if the camera (like in julie) is moving. then the light of the whole scene (and the light for the original footage) has to move with the model. otherwise it wouldnt look correct. imagine a volcano in the back of your actor. imagine the volcano isnt real and put into the scene in the post. then you have to plan the lighting carefully and set up the same light in your shooting of your real world footage with the same color temperature and intensity.

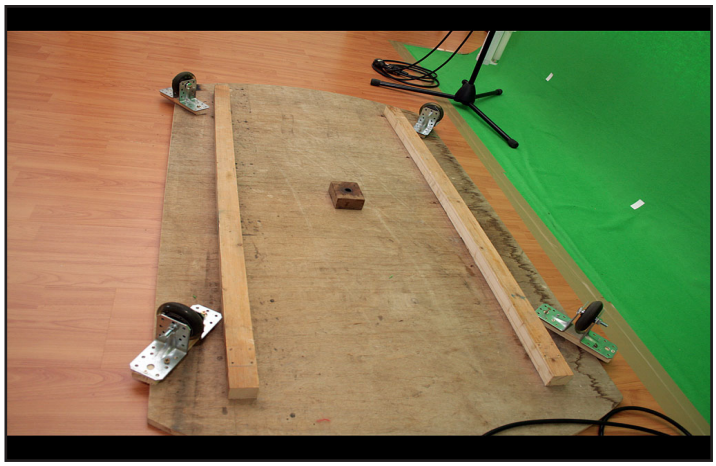
ok the turntable is 1,50 meters in diameter. where to place the light moving with her without burning her to ashes ?
ok at this point we had the idea to place an array of light above her on the ceiling that would „move“ with her movement of the disk.
the syncing of a drilling machine to a dmx signal made us finally kill this idea very soon. it is possible of couse. but we will do this in version 2.0 ;)



ok in my spare time i tried out the free voodoo camera 3d tracker. and the products that are out in the market would have killed my budget. so i came up on the developer page of the voodoo guys again and now they sell a really cool tracker for 99 euros. Its called VooCat. i called them bought a license and boom ! the program is awesome.

for that price it is a must have. and perfect for my project. Tests with a friend of mine worked well and we called Julie the Model, a friend of mine.
3 hours of makeup, clothing, and we were ready to shoot.
we took 4000 photos in different poses. We were really tired after that day.

Ok now there came long days and nights of keying, sorting, cuting, color correction.
And also modeling and the construction of the sourroundings and scenes.
A good friend of mine. Marc Ewald, a composer living in the netherlands was asked if he would be interested in creating a big soundtrack for the movie. We worked at a musical together and in my oppinion he is a genius in what he creates.
And in Julie i think he did an awesome job ! Thank you Marc !
Ok back to the scene creation in maya.
Think about filming yourself before a green or a bluescreen.
ok now you can walk behind yourself or before yourself.
But what if you put one hand behind your second yours and one hand before ?
that would be a lot of rotoscoping and masking work by hand and also in maya.
you need a 3d model working as a mask to cut out the things in the back of your „object“. sadly the great motiontracker voocat doesnt support model reconstruction YET !
but the guys from scenespector are working



on this. but i did a little trick with a centered plane inside of maya that was auto oriented towards the camera like a billboard. and from that camera i projected the animated mask of julie as a image sequence. and now i had a little „fake 3d model“ and this ones cutting out the hidden parts with the use of a optimized surface shader. The last thing i wanted to do were camera movements that were not bound to the pure tracking information i got from the circle movement of the turntable. I wanted to do pans and tilts and zooms also. Ok transformations, rotations or changing the focal length of the camera inside of maya would have produced incorrect results. So i did a little workaround and used the the film offset values and the post scale option that the maya cameras offer. So i could use the original tracking data without any wrong looking perspective distortions to do every camera move i wanted to do. The camera movement around Julies Head in the final scene was easy. I just rotated the footage in the compositing package centerclockwise against the recorded cameramove. simple. now this gives the illusion if the camera is moving around her head while she is standing on the ground. the rest was rendering and comping all together in afx.

I want to thank everyone involved in this project. We all learned a lot from doing it and we are going to do things like this in the future. Every project has its deadline and there are thousands of unfinished things i see in the movie „Julie“ but also you have to bring projects to an end.

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