Summer Internship Project at
CREST Animation Studios

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Content

1. Abstract

My summer internship project was at Crest Animation Studios Ltd, Mumbai.
Here I gained a better understanding of the process followed in the Animation industry for producing the 3D Animation content for film and television.

I modeled a character and then textured and rigged it as part of the learning process in Maya.

Also, I got an opportunity to work on a Clay animation workshop.
The short film in clay was ‘Little Moments’, for which I made the clay models and also animated them.

Through such an internship I tried to widen my horizons and learn the various nuances in the domain of 3D animation.

2. About Crest Animation

Crest Animation Studios Ltd. is a CGI production house. The studio has been producing animated content for film and television.

The creative team is based in LA which is Crest Animation Productions (CAP), where all the Pre-production activities are carried out.
All the production activities are carried out in Crest Animation Studios (CAS), Mumbai.

Crest has tied up with Lions Gate Family Entertainment to co-produce three movies. Recently they completed their first full length feature film,
and currently working on a 3D stereoscopic Feature Film.

The studio has a streamlined production pipeline in place, which helps in smooth functioning between the various departments viz. Modeling, Texturing, Rigging, Animation, Lighting, Fur, Compositing, Background, Rendering, Color correction.

Crest has produced television series for the mainstream entertainment industry

3. A Clay animation Short film: Little Moments

3.1 The Story:

This story is about a little boy looking out of the window at the beautiful house God had created.

The colorful butterflies are hopping from one flower to another. The ducks are paddling away in the quietness of the lake, while the birds are answering to the music of the fountains with their songs. The boy so amazed starts clapping to appreciate the little moments of happiness nature brings to him.

The day slowly begins to end, the sun sets into the horizon, the birds fly back to their nests, the lake is serene and everything around is quiet.

The boy sees the watchman carrying a lantern taking guard. An emptiness sets into the boy's heart. He closes the windows and falls asleep with his only companion, a wheelchair, placed in the corner of the room looking onto him.

3.2 My involvement:

I got an opportunity to take a session on the making of Clay models. Also, I animated those characters for the film.

I assisted in building the exterior of the house with a big banyan tree and the pond.
The miniature set for interior of the house was separately made, along with all its miniature props.

During this process I also gained an understanding of lighting the set, the way different moods of the day are achieved using limited exposure time in camera for different colored lights.

Set Design & Character Design(In Process images):

Skeleton underneth the clay model

4. Learning the tool: Autodesk Maya

Initially at Crest animation, I tried to find where I could fit in the workflow and contribute to their projects. Through my mentors & other colleagues within Crest I was able to quickly understand how to go about the learning process, and to what extent this was achievable.

As I was a beginner in Maya, I was asked to work on my own character. So I began with sketching the character.
The character was designed to be very simple, with simple but interesting details on the face and clothing so that it could be easily modeled and taken further for Texturing and rigging.
For Character modeling purpose, only the front profile and the side profile were necessary.

Mainly I worked in 3 departments:

4.1 Character Modeling:

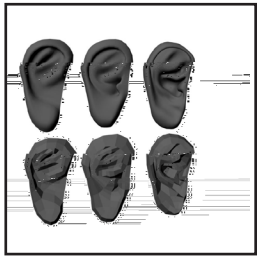
The approach I took here was of patch modeling. I modeled each part separately using Box modeling technique and then used patch modeling method (extruding the edges) to combine the objects.

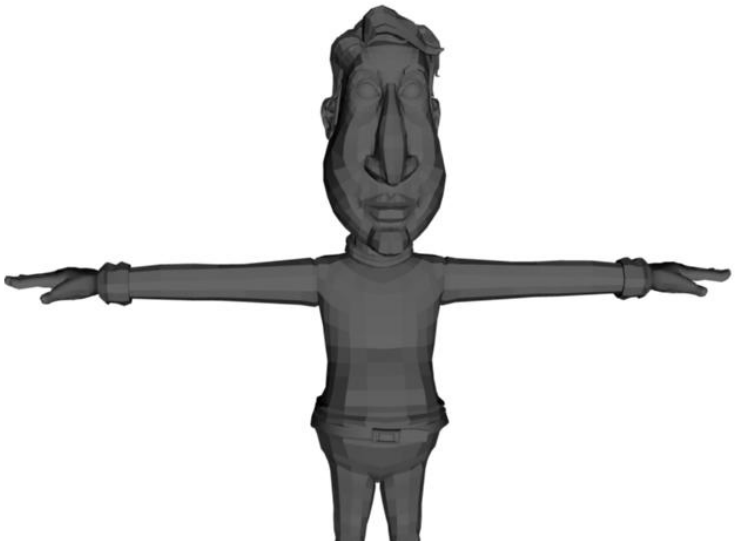
Mainly I had to work on half of the head and the body as the other half could be duplicated and the two pieces could be connected together.

I realized the key to good modeling is through a good undestanding of human anatomy.d

Final Character

Modeling an ear using Box Modeling approach:





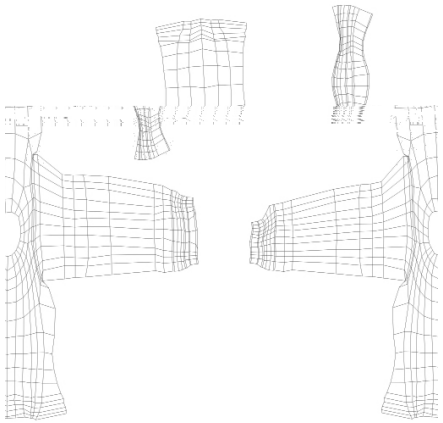
4.2 Texturing:

It involved a series of steps:
UV mapping: is a process of making a 2D image representation of a 3D model.
For each vertex in the mesh (in modeling space), there is a UV coordinate in texture map.
This process of UV Mapping transforms the texture map onto the 3D object.

Checker Mapping:
The goal was to get the checker pattern to spread as evenly as possible on the mesh.
This required additional UV sewing and splitting.

Color Mapping: This involved digitally painting the character. I used Photoshop for the same. Whereas in the studio, they also used BodyPaint 3D software which is more flexible and allows painting the surface evenly even if checker mapping step is omitted.

Bump Mapping: Bump mapping makes the surface appear more rough or bumpy by altering surface normals according to the intensity of the pixels in the bump map texture. Hence a bump map does not actually alter the surface. I used this mapping on the face to give some wrinkles around the eyes and also to give the face more skin like texture.
This was also used in the trousers & the shirt for giving a woolen texture/ bumpy effect.



UV Mapping for the shirt

Color Mapping for the shirt

Bump Mapping for the shirt

Final rendered image

4.3 Rigging:

Creating the joints:
This is nothing but building the basic skeleton. One needs to switch to the profile view from perspective view and create the joints.

Skin Binding or Skinning:
“Skinning” is the process of binding a skeleton to a single mesh object. Suppose a shirt has to undergo deformation as and when the joints of Spine and shoulder, arm, forearm are moved, then the shirt has to be skinned to all those joints.

Painting Skin Weights: It determines how much influence each joint has on the attached skin. These skin weights are applied on one side of the body and they are mirrored for the other side. While painting the skin weights, skeleton is moved for various actions it is supposed to perform. It is then weight painted in that posture. And then finally brought back to its bind pose.
“Bind pose” is the pose of the mesh object, the skeleton and their relative offsets at the moment the skeleton is bound to the mesh object, before any deformations begin to occur.

Skinning deformation: It is the process of deforming the mesh as the skeleton is animated or moved. As the skeleton of bones is moved/ animated, a matrix association with the vertices of the mesh causes them to deform in a weighted manner.

Working on FK IK:
This involves creating the constraints on joints. Here, the controllers are created so that the character can be animated without manipulating the joints.
Only controllers need to be manipulated to animate a character.

4.4 Working on Blend Shapes:
It is incorporating the various expressions onto the character's face using Blend shapes.
Each of the facial expression is separately made and then added onto the base face.

A rendered base face:

Final Rendered Images:

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Conclusion

My original interests were entirely directed in working with the traditional medium for animation. Be it classical cell animation, clay animation or stop motion animation, which does not directly require software expertise. Currently this has changed since I have begun to realize the numerous possibilities one can explore taking help of the computer software.

Through this internship I have not only been introduced to the software, but also I could comprehend the importance of having a streamlined process in place.