… Our experience with Maya …

ANIMATION OF SKELETON JOINTS WITH IK HANDLES

BASIC CHARACTER ANIMATION

VIEWPOINT ANIMATION AND SCENE RENDERING

Multimedia Authoring I - Free University, Amsterdam

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1. Introduction

For this assignment we're going to create a figure called Redhead ©. Before we started this project we had all time to explore Maya in all rest. You will find our experience of this project (and what we did on beforehand) under "Experience".

We think this document is built structured due our preparations on beforehand so it will not give you only an overview of our experience with Maya, but we hope this document will learn you the basics of Maya!

Therefore we hope this document might help you in exploring the (wide) world of Maya.

Regards,

Hugo Huurdeman
Wouter Vermeulen

2. Creating the skeleton

In this chapter we are going to create the skeleton of the character. Every character that's going to move needs to have a skeleton. Just like Human beings. And just like human beings we the bones are connected to each other and can move in different positions (elbow is different from the knee for example)

There are two types of kinetics in Maya available: Forward and Inverse Kinetics. For our skeleton we used the last type only. Controlling the motion of an object is done with an IK handle. This is an inverse kinematics tool. The type of IK solver that you use determines the effect that the IK

In the *Animation* menu set select *Joint Tool*. You can use the skeleton menu for more options.

To create an IK Handle, draw the IK chain by selecting *IK Handle Tool* and clicking the two joints that form the start and the end of the movement (IK) chain.

You can rename the joints by selecting them in the *Hypergraph view* panel and changing their names in the Channel Box.

If an object may not bend beyond a certain angle, rotate the joint into the maximum angle you want it to be able to move in, then select *Set Preferred Angle*.

These are the basics of how we created the skeleton. For more information we refer to our third reference.

3. Rendering the skeleton

You probably expected the rendering later on in the project. We experienced that rendering (even with a powerful computer!) can take lots of time. Therefore, every time we added or changed something to our figure we tested it by rendering the character. Logically, rendering with less detail goes faster than rendering with much detail. You should repeat these steps time after time (at least each time after finishing the next paragragraphs).

How does it work?

Choose your settings via *Window* > *Rendering editors* > *Render Globals*. Select *Frame animation* if you want to render more than 1 frame. If you chose the right settings click the render icon (on the main bar). Eventually you can choose to select a camera or another perspective. Choose render, and wait patiently!

4. Clothing the skeleton

So far we haven't seen any thing more than just a skeleton. In this paragraph, we are going to give our character clothing so that it can become a real Redhead ©.

Drawing figures around the skeleton with *surfaces tool* (you can select the tab) and then modify it with the *sculpt surfaces tool*. Once we were happy we used the *bind skin* option to connect the surface to the skeleton.

You can choose to give you surfaces a certain color or use fur (select the fur tab). You can also choose to decorate you surface with an image using the *assign* > *Lambert* > *file function.*

5. Inserting Different viewpoints

One of the requirements of this exercise was to insert different viewpoint, so the viewer is able to see the character from different sides and must confess that it is real 3D.

How do you insert different viewpoints?

We are going to use camera's to look at Redhead © from various points. We do this by *Create camera* > *Camera*. Then choose your settings. The Camera, Aim and Up can all be positioned with the Show Manipulator tool. Move the camera just like the surfaces with the 5 knobs bar on you left. You can view the camera's perspective by selecting *view* > *perspective* > *camera1*.

If you view is what you want press s (to save as key frame) and go to the next frame where you want to set up another (camera) viewpoint.

6. Experience

When beginning experimenting with Maya we felt like wandering in a Jungle. So many options and menu's to explore!! Because you can see the final results made by others (and the professional movie industry) we were willing to walk on through this jungle.

We started with watching different demo dvd's launched by the Maya press and practicing with different tutorials on the web. In the beginning it didn't work out that well, but after a little while we could understand Maya a little bit better.

We considered that it was smart to work step by step (the steps are the paragraphs in this document) for this project.

Because we had worked with so many examples before really starting with the Redhead © project, we could really work focused and meet the requirements of this assignment.

Terrible was fining a computer room. We were kicked out of the Multimedia Room and the other machines on the VU have too less CPU power to work easily and rendering takes much time (consequence: many coffee brakes!).

Finally we may be very content with our character Redhead ©. It was a nice walk through the (wide) world of Maya!

7. Literature

In addition to a lot of online Maya tutorials found in the Maya community (www.alias.com/community/) and via Google (www.google.com) we used the following resources:

Books

1. Learning Maya 5 Foundation, ISBN 1-894893-34-4
2. Dariush Derakhshani, Introducing Maya 6 “3D for beginners”, ISBN 0-7821-4353-9
3. Clara Coepijn, Raoul Franker, Beginners Guide Maya (To be used next to “Learning Maya 5 Foundation”), Juni 2005

Maya Training DVDS

1. Learning Maya Beginners Guide, Bob Gundu
2. Maya – Modeling the Human Head