

Introduction to 3D Computer Animation
Fall 2009
Character Animation

Date	What should be done	Handin name	Files to handin
Nov 16 10am	progress	char_progress	<ul style="list-style-type: none">○ <login>_char.[mov,avi]○ <login>_char.mb○ <login>_pose1.mb○ <login>_pose2.mb○ <login>_pose1.tif○ <login>_pose2.tif○ REPORT.txt
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Goals and introduction

In this assignment you will learn some basics of character rigging and character animation. Because rigging is extremely technical and complex, you will be given a rigged character to pose and to animate doing an action.

Read

The reading selections can be found in the Lectures section of the CS125 website.

Read George Maestri, *Character Animation 3*, pp. 126-162.

Read George Maestri, *Character Animation 2*, Vol 2, Chapter 5.

Character Set Up

You are not required to do any character set up, also known as rigging, for this assignment. That is usually covered in CS128. If you want to learn about it anyway, we do *not* recommend the Getting Started tutorials. Their character set up tutorials are old and there are better ways to set up characters. The Maya Press book, *Modeling and Animation Handbook 200[789]*, offers better info about rigging (former cs128 students would have copies of this book; although the characters change year to year, the book hardly changes at all. Used copies of 2007 are < \$2 at Amazon). Very detailed human rigging is covered in *Maya Character Creation* by Chris Maraffi. *Introducing Maya 2009* offers some very basic concepts, but nothing about creating controllers and manipulators, which you need to actually animate a rig.

Poses and Animation

In this part, you will pose a character in two poses and animate him performing an action. You will be using Package Man (PM) which is provided in </course/cs125/asgn/packagegeman/PackageMan.mb>. See the Google website for a very basic introduction to PackageMan's controls.

Poses

Poses are a warm up for doing animation. You should *choose two* of the following poses and create a Maya scene with Package Man in the pose.

- Carrying or lifting a heavy weight box (the box should be no bigger than two forearm lengths)
- Pushing a large heavy box (the box can be as big as the character)
- Pulling a heavy weight (with a handle or rope)
- Balancing on one leg with the other leg in front of the character

Be sure to concentrate on the technical aspects of the pose: line of action, weight, mass, center of gravity, before you add any facial expressions. Try the pose yourself to get an idea of how it works. You can add a floor, wall, and a box to the scene, but stick with neutral shaders and simple lighting. Choose a camera position that shows the line of action of the pose well. Make a 1024x768 rendered image of each pose. Render PM with his Geometry set to mid and Smooth set to 2 under the PM_Controllers node.

Design Criteria for Poses

- Pose has clear line of action.
- Naturalness - the body parts must follow anatomical limitations
- Silhouette. The action is clear in silhouette.
- Balance and weight. PM's center of gravity is positioned correctly.

Action

Create a short animation of Package Man doing a physical action. Some possible actions might be getting up from a chair, kicking a ball, swinging a bat, jumping, or juggling. The action must be something that PM is doing, not something that is done to him. It is better to choose a less challenging action and really nail it, than to half-finish a complex one. Choose an action that involves the whole body. One of the most difficult parts of character animation is getting the balance of the character correct, especially as he shifts weight. Your character should not look like he is falling over or like he is being yanked

around by some unseen force. Unless you have extra time, it is recommended that you *not* do a walk/run/skip/etc cycle.

Choose a good camera angle for the action. Try to incorporate some of the camera and staging concepts we discussed recently to help tell the story of your character. *PM should take up most of the frame, but we should see his whole body.*

Make sure your character engages in all the phases of the action: anticipation, action, and reaction or follow through. The action may be realistic or cartoony, but it must be believable within its context and the motion must be humanly possible (some exaggeration is okay, but you can't make PM fly, e.g.)

Do not worry if the surface skin intersects itself at the joints. Solving that problem is beyond the scope of this assignment. Do not intersect body parts on purpose however. For example, you may not animate PM reaching into his head and pulling out his brain. Even if you know how to do it from personal experience.

Design criteria for actions

- Most important: The technical aspects and body mechanics of the animation should be correct. PM should be posed so that his weight is over his bearing leg(s). His movements should demonstrate the weight and mass of a skinny man with a big head.
- The action should be easily recognizable.
- You must include anticipation, action, and reaction. Try to show what the character wants.
- The staging, camera, and lighting should show off the movement and contribute to the story.
- The action should be reasonably clear in silhouette and pantomime. The actions should be big enough to read from some distance. Your character should fill much of the frame.

Tips

- If the character is interacting with a prop, make sure he/she looks at it if appropriate.
- Get the primary animation, that is, the large gestures, down before you attempt secondary animation such as facial expressions. Think about line of action.
- Use simple shaders to help your animation read better and to cut down on render time since you will be rendering at full video resolution.

- Give your character a very simple set – at least something to stand on – to make the action more believable. Use better lighting than the default lighting. It doesn't have to be dramatic, but we need to see the action.
- Keep the action short in length so that you are not bogged down in long renders and extra animation.
- Do not animate any joints directly. All of PM's animation is done through his manipulators – the bits of geometry (circles, arrows, etc.) that you can select easily. See the Google site tutorial for help.

Technical Requirements

Create a 640x480 rendered movie of your animation. When you render Package Man, under his node PM Controllers, set his Geometry to mid and Smooth to 2. This will give you the highest quality render. In Render Globals, use Production Quality to get smooth antialiasing and filtering. Do not turn in a playblast!!