

Appendix B Glossary of Terms

A

ACTION

The specialized workspace mode for creating motion on characters and objects.

ACTION OVERLOADING

Using one action to replace the motion or a portion of the motion of a previously existing action.

ALPHA

The bias control that changes the direction a spline enters and exits a control point perpendicular to the gamma.

ALPHA CHANNEL

The fourth channel of a 32-bit image that is typically used to indicate which portions of the RGB channels show and which are hidden.

ANIMATIC

A rough indication of the timing in an animation, created by stringing storyboard images together.

ANIMATION

The processes of creating motion by a series of images that change slightly. Shown one after the other.

ANISOTROPIC

Any surface attribute that is different, depending on the angle at which it is viewed.

ANTIALIAS

The process of averaging the pixels of an edge with the pixels around it to reduce the jagged edge that aliased pixels exhibit.

ANTICIPATION

Indicating a motion before it happens by adding a slight motion in the opposite direction.

AVERAGE NORMALS

An advanced property that smoothes creases and lumps in a mesh by averaging the normals at render time. (This property is replaced by the porcelain material in v10.0 and up.)

AXIS

One of the three planes used to plot coordinates in 3D space in the Cartesian coordinate system.

B

BIAS

The controls for how a spline enters and exits a control point, specifically magnitude, gamma, and alpha.

BLOOM

A lens artifact exhibited in film production where the brightest areas of an image are blown out making them appear softened. Most prominent in bright specular highlights.

BONE

A control used to manipulate numbers of control points at the same time during animation. Also used to create animation control rigs via constraints

BOOLEAN

In modeling a shape that is used to cut away the surface of another shape. A property of a bone. (SEE ALSO HIERARCHICAL BOOLEAN)

C

CHANNEL

A graphical indication of the interpolation of motion between keyframes, displayed in the time-line, also called function curves, or channel graphs.

CHARACTER ANIMATION

Animation specifically geared toward the movement, and performance of characters.

CHOREOGRAPHY

The virtual set in which components are assembled to produce final rendered animation.

CONSTRAINT

A way to control various aspects of a bone by targeting it to similar aspects on other bones.

CONTROL POINT

The points along a spline or patch surface that allow for direct manipulation. The smallest unit of a model.

CREASING

An artifact found in modeling from a variety of causes including incorrect patch techniques and bad spline continuity.

D

DECAL

A bit-map image applied to the surface of a model used to alter various surface aspects.

DOPE SHEET

Tool used to automate the process of lip synch.

E

EASE

Term used to indicate the slow acceleration and deceleration of object. In path constraints or actions applied in a choreography it is an animateable property used to indicate a percentage along the path or through the action.

EXPRESSION

A formula used to drive the value of a given property, which can include mathematical components and other model properties.

F

FIVE-POINT PATCH

Specialized modeling tool used to close holes of 5 control points, common in shoulder and hip joints.

FK

Forward kinematics, an indication of how bones in a chain are manipulated, specifically indicating that the position of a bone at the end of the chain has no effect on its parents and that any manipulation of the parent bones will be carried down the entire chain. A preferable way to animate hands and arms.

FLOCKING

A system where models are placed into a group governed by behavior, specifically: crowd, swarm, and birds.

FOUR-PONT PATCH

The most optimum layout for single patch, where there are 4 points describing its perimeter comprised of two or more splines.

FUNCTION CURVE

See Channel

G

GAMMA

The bias control that changes the direction a spline enters and exits a control point based on a reference to the points further along the spline.

H

HIERARCHICAL BOOLEAN

A function of the hierarchy of bones where any control points that are assigned to a bone that is a hierarchical child of a bone that is designated as a Boolean cutter will remain unaffected by the Boolean operation.

HOOK

A tool used to ease areas of higher density into areas of lower density in a model. Rather than connecting a spline to a control point it is hooked along a spline.

I

IK

Inverse kinematics, an indication of how bones in a chain are manipulated, specifically indicating that the position of the chain is determined by a target at the end of the chain. Moving the target causes all bones up the length of the chain to move to accommodate reaching the target. A preferable system of control for legs or hands that must contact a surface.

INTERPOLATION

How the value of a property moves from one keyframe to another.

K

KEY DRIFT

A motion artifact caused by too few keyframes and spline interpolation.

KEYFRAME

A specific point in time, where the value of a property, or properties, are recorded.

Animation is based on moving from one keyframe to the next

L

LECIA REEL

See Animatic

M

MAGNITUDE

The bias control that changes the shape of a spline as it enters and exits a control point, specifically indicating how sharply the spline passes through the point.

MANIPULATOR

One of the tools used to control points or bones in a specific manner, either translation, scale, or rotation.

MAP

See Decal.

MASS

A point that is given weight, used in soft body dynamic simulations with spring systems.

MATERIAL

A way to describe the surface attributes of a model with procedural algorithms.

MODE

One of the specific ways an object may be manipulated, specifically model, muscle, bones, skeletal, distort, dynamics or choreography.

MODEL

A collection of splines and control points used to describe a 3D object in A:M.

N

NORMAL

When light hits a surface the “normal of that surface indicates what direction the light will bounce. It is used to indicate how a surface is shaded. Also used for particle emissions, dynamic collisions and radiosity calculations.

NON-LINEAR ANIMATION (NLA)

The process of animating motion in small chunks and layering them via action overloading to produce the final performance of a character

O

ORIGIN

The point in a workspace where all three axes cross. The zero point of all the axes.

OVERLAPPING MOTION

Traditional animation term used to indicate that all portions of an object should not start and stop moving at the same time.

P

PARTICLE SYSTEM

A group of 3D points emitted from a surface and under the effects of physics in a choreography. Used to simulate fire, water, and other special effects that would be difficult with normal models

PATCH

A rendering surface, composed of at least three control points (but no more than five) and two splines.

PATH

A spline drawn in the choreography. Typically used to move an object along using a path constraint.

PHONEME

The basic blocks of sounds that make up individual words, not to be confused with single letters.

PIVOT

The center point of any manipulator. Defaults to the center of a selected group of control points or the base of a bone. For control point manipulation the pivot can be defined by the user.

PORCELAIN

A special material that when applied to a model gives control over surface smoothing. This material is normals aware and can cause artifacting if the normals on the model's surface are not aligned properly.

POSE

The basic components of action strung together over time to create animation.

POSE SLIDER

A relationship tied to a slider control used to change properties or drive other relationships in a model.

PROJECT

The container for all aspects of an animation: models, materials, actions, lights, choreographies, etc.

PROXY

A low-resolution version of a model substituted to speed drawing in the interface while animating.

PWS

Project Workspace. The window which displays the project and all the components related to it.

R

RADIOSITY

A rendering algorithm where light energy is transferred from surface to surface.

RAY TRACE

A rendering algorithm used to create realistic reflections and refractions in a scene.

RELATIONSHIP

A way to tie the value of one animateable property to another, creating a link between them.

RENDER

The calculations performed by the computer to create the final image.

RENDER FARM

A network of computers used to distribute frames of animation, allowing more than one frame to be rendered simultaneously

RGB

Red, green, blue: the three colors that are blended to create all colors on a computer monitor also the color channels in a typical bitmap image. The Additive color palette.

RIGID BODY DYNAMICS

The physical simulation of mass and weight on an object as it interacts with other objects.

ROTATION

The method of manipulation where the object is moved in arcs around the pivot point, and measured in degrees.

S

SCALE

The method of manipulation where the object is enlarged or shrunk from the pivot point, and measured in percents.

SECONDARY MOTION

Term used to describe small motions that follow the larger motions of animation, such as hair, clothes, or ears on a dog

SHORTCUT

An instance of an object which refers to, but makes no permanent changes to, the original object, used in choreographies and actions for animation, also used with materials on models.

SMARTSKIN

A relationship driven from the rotation of a bone,

SOFT BODY DYNAMICS

A system of springs and masses used to simulate objects that are not rigid and their reaction to physics.

SPLINE

A mathematical curve between points, used to indicate the surface of a model and to create patches.

SPRING

A spline used to connect masses. When simulated it stretches and shrinks in reaction to the masses and gravity according to physics.

STAGING

How elements of a scene are positioned in relation to one another and the image frame.

Used to compose compelling shots.

STORY REEL

See Animatic

STORYBOARD

A series of drawings used to visualize a story before production begins.

SURFACE NORMAL

See Normal

T

THREE-POINT PATCH

A patch composed of 3 control points and at least 2 splines.

TIMELINE

The window which displays the keyframes generated over the course of an animation.

TOOLBAR

An interface element that presents commonly used tools or functions.

TRANSLATION

The method of manipulation where the object is moved in straight lines along one or more of the three axes.

V

VIEWPORT

The window which displays the current working mode such as modeling or action.

VOLUMETRIC EFFECT

A 3D simulation of airborne particles such a smoke or dust.

VOLUMETRIC LIGHT

A light that exhibits volumetric properties.

W

WIZARD

Tool designed to automate complex or commonly performed tasks.

WORKSPACE

See viewport

WORLD SPACE

The axes used in the choreography window.

X

X-AXIS

One of three cardinal axes. When a view port is viewed from the front view the x-axis runs from left to right.

Y

Y-AXIS

One of three cardinal axes. When a view port is viewed from the front view the y-axis runs from top to bottom.

Z

Z-AXIS

One of three cardinal axes. When a view port is viewed from the left or right side view the z-axis runs left to right.