

LAVA  
WIND  
MOOD LIGHTING  
PLASMA  
BEASTS  
FIREWORKS  
TORNADOES  
HAIR  
HELICOPTERS  
LANDSCAPES  
EXPLOSIONS  
FLYING CARPETS  
SNOW  
FLARES  
KUNG-FU  
FACES  
CITYSCAPES  
SMOKE  
SKIN  
HALLUCINATIONS  
FLAMES  
SHRAPNEL  
PUTTY  
GHOSTS  
WATER  
FLOODS  
LASERS  
STUNTS  
F/STOP  
DROIDS  
TURBULENCE  
INFERNOS  
JELLYFISH  
BUBBLES  
PHASERS  
TORPEDOES  
SWEAT  
TENTACLES  
FOG  
SPOTLIGHTS  
SUNSETS

# POWER ANIMATOR V7

MAKE  
BELIEVE

Alias | **wavefront**

A  Silicon Graphics Company





## CREATE NEW LIFE FORMS

CharacterBuilder™ lets you create and animate life forms that could keep Darwinian types guessing forever.

Make cheek muscles move under taut skin. Specify finger webbing, joints and wrinkles. Exercise minute control over how skin tucks between joints. Work with graphical representations interactively or develop mathematical expressions to manipulate the geometry procedurally.

CompuHair™ lets you grow hair and fur that looks and moves like real hair. Not plasticene or shiny metal. Style it, color it, curl it, or let it all hang out and blow in the breeze.

When you've got your character looking just right, make him talk. In fact, make his whole face talk. Scrub the audio track back and forth to fine-tune 3D facial expressions and poses. View multiple channels of animation — lip movements, eye bulges, forehead wrinkles, or tail wagging — from any point in 3-space.

Plug human actors into MotionSampler 3™ and watch them drive 3D characters in real-time. With hardware-supported textures. Calibrate your actors on the fly while they dance or kick-box onscreen. Use our powerful dataflow interface to apply filters to each motion sensor to exaggerate or modify any movement. Direct your human actor as he fights with your digital beast in real time. Sample the action with capture hardware based on magnetic or optical technology.



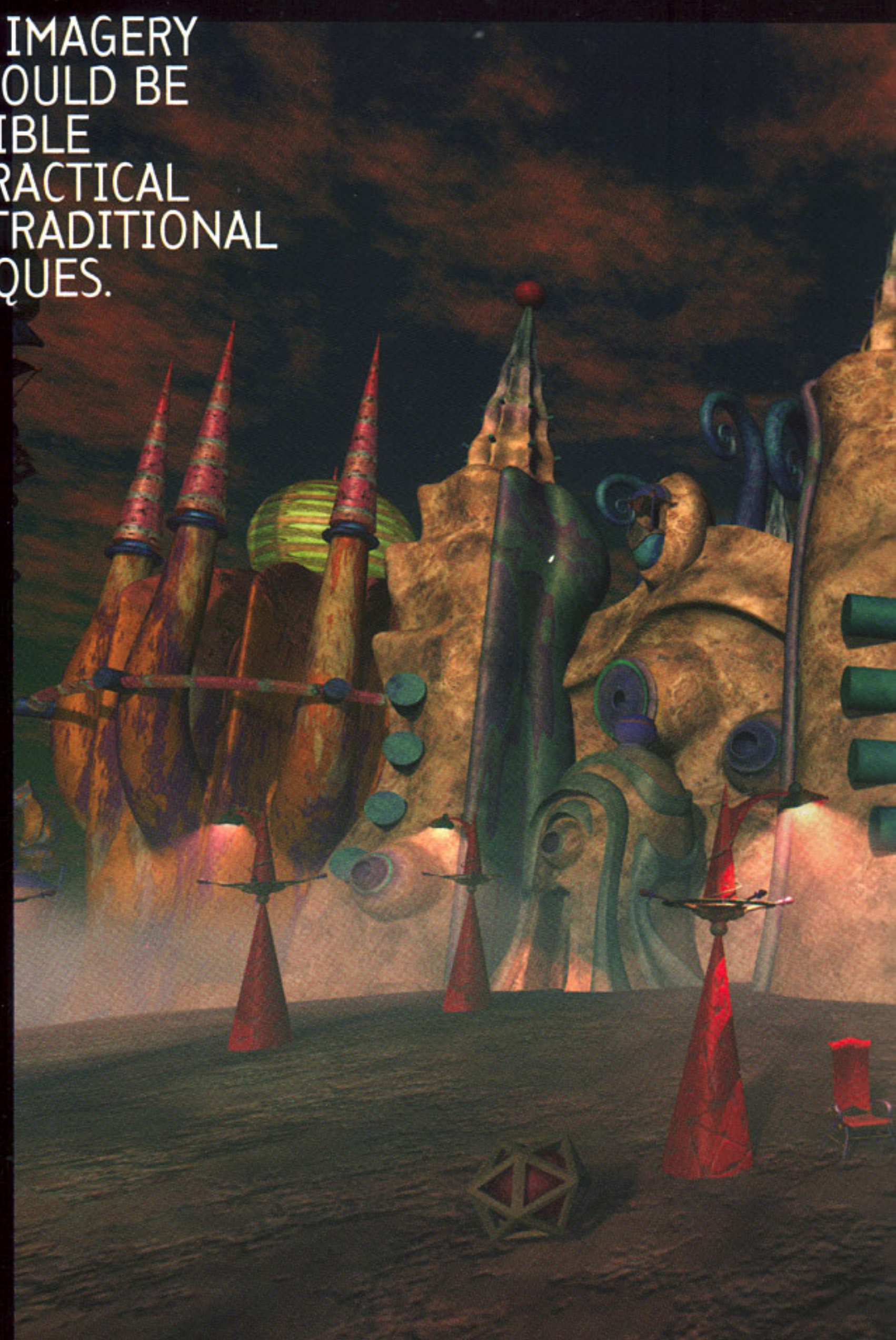
Then 3D morph your creation with ShapeShifter™. Pick a 3D model and blend it with other models, using clusters to control all the subtleties. Customize the interpolation by modifying expressions. Turn a sweet angelic face into a diabolical visage with horns growing out of its chin.

## MODEL ORGANIC STRUCTURES AND INORGANIC COMPOUNDS

Dream it up. PowerAnimator V7.0 tools let you build life forms, objects and environments that couldn't possibly exist — except in your head — as well as imagery that would take weeks to create using traditional techniques.

Model in super-smooth NURBS or lightning-quick polygons.

## CREATE IMAGERY THAT WOULD BE IMPOSSIBLE OR IMPRACTICAL USING TRADITIONAL TECHNIQUES.







Access an incredible range of tools to generate any shape, from futuristic weapons to sexy spaceships to castles made of sand that slip into the sea. With construction history, you alter an underlying curve or surface, and the system automatically re-applies everything you've done to all linked surfaces. So that you can fine-tune the geometry to match your ever-evolving vision — rather than the other way around.



YOUR  
ARSENAL  
IS  
MASSIVE —  
LENS  
FLARE,  
MOTION  
BLUR, FOG,  
GLOWS,  
VOLUME  
LIGHTS,  
EMBERS,  
LAVA,  
PLASMA  
BLASTERS

## INTEGRATE THE ACTION — AND REACTION — WITH SPECIAL F/X AND RENDERING

Integration is a powerful reason why Alias|Wavefront is the leading force in computer animation.

Our integrated particle system gives you particles that act like real particles. They cast shadows. They dance with each other and with animated geometry. They can be lit. Make killer fire, sparks, smoke and fireworks. Plus water, bubbles, grass, trees, seaweed, clouds, jellyfish, snow, hail and anything else you care to subject your digital characters to.

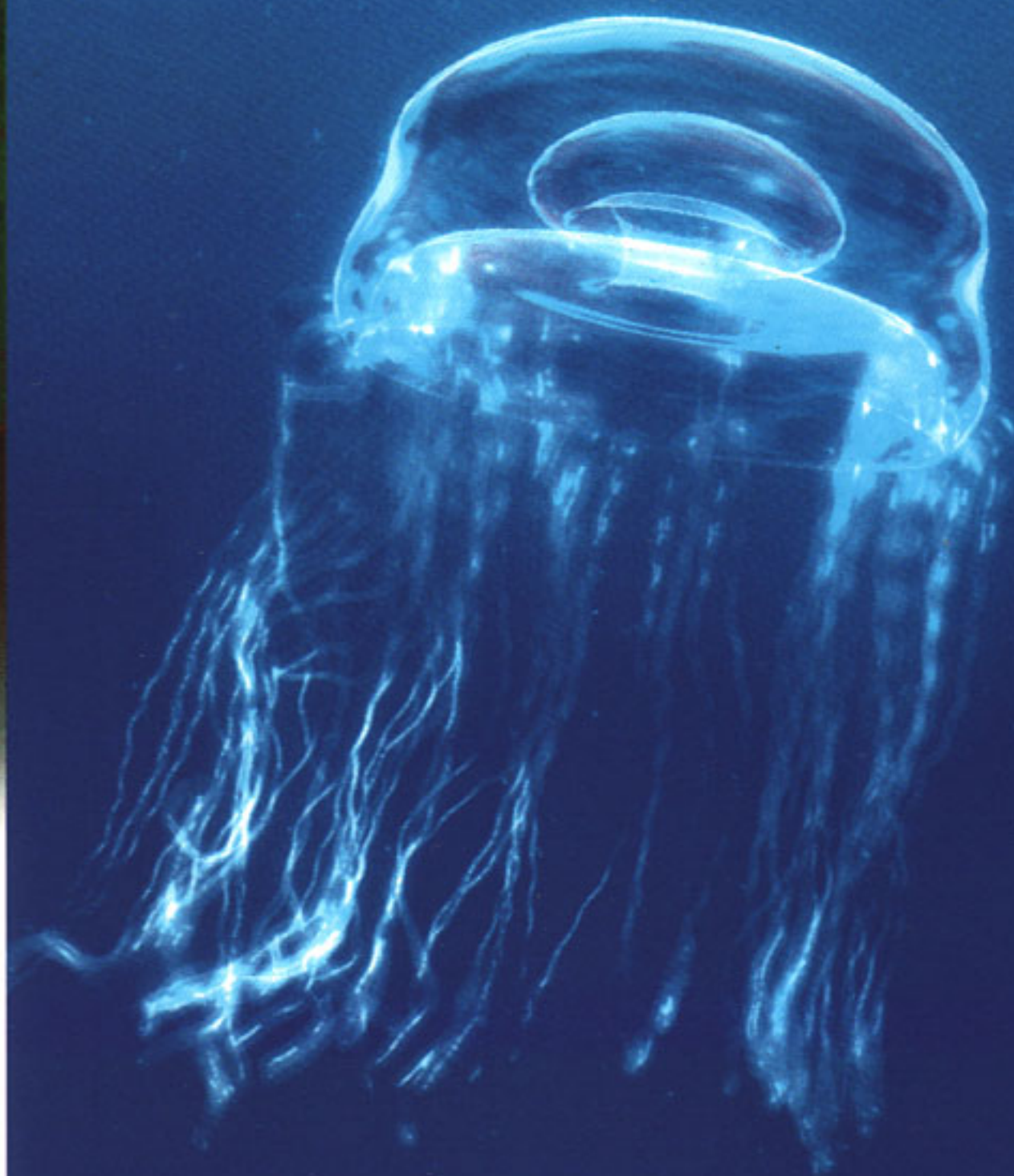
Bang it hard — advanced dynamics provide digital simulations of physical phenomena such as wind, gravity, torque, collisions, turbulence, friction, and angular momentum.

Add mood and magic with Digital OptiF/X™. Your arsenal is massive — lens flare, motion blur, fog, glows, volume lights, embers, lava, plasma blasters. Render complex effects via a distributed rendering system that harvests CPU cycles from your network farm of Silicon Graphics workstations, or harness the power of high-end Silicon Graphics multi-processor servers.

And when you're ready to blow up the whole damn set, blow it up good. Our optical effects work with our integrated particle and dynamics systems to give you ultra-realistic digital pyrotechnics that breathe true life into your explosive urges.

With the Real-World Camera Lens™ feature, you control your digital lens with real-world parameters like focal length, f/stop, lens focus, field-of-view and film format. Plus, PowerAnimator's Image Planes feature allows you to import and roto-scope imagery from live-action background plates — to blend the real world and the digital world.





## USER INTERFACELIFT

We've taken a whole new look at the user interface. We started with PowerAnimator's integrated environment — a single, unified environment that lets you move from modeling to animation to rendering and back again in any order as you continuously refine your imagery.

Then we added handy customizable toolshelves where you can keep all your favorite tools, reducing the number of mouse clicks required for power operations.

Plus, PowerAnimator V7.0 includes marking menus. Nobody else has this, and it's very cool.

With marking menus, you can make a menu selection from anywhere on the screen simply by holding down your mouse or stylus. Up pops a radial menu — fully customizable — with all the commands you need. Then a quick gesture left, right, up, or down selects the command you want.

Once you become familiar with marking menus, you don't even have to wait for the radial menu to pop up. Just zip zip. Very cool. And very fast.

## FUN AND GAMES

We also give you a complete set of tools specifically developed for games and interactive media developers. This makes PowerAnimator the software of choice for today's 2D game platforms, next generation 3D games, CD ROMs, Web pages, and other interactive media. Fine-tune NURBS or polygonal models, preview animated sprites, and quantize away pixels for optimal color reduction. Export to major platforms, including Nintendo Ultra 64™.

## PLUG-IN ARCHITECTURE

Keep your coders happy producing hand-crafted procedural effects while your artists create to their heart's content.

The OpenAlias plug-in API means you can directly access the gamut of PowerAnimator data structures from custom programs — including 3D models, textures, animations, lights, and cameras — using C or C++. Add custom commands to menus, and define your own option boxes. We also offer the OpenRender interface for programmable shaders,

textures and lights, and the Scene Description Language (SDL™) for controlling the rendering system.

We know that you like to mix-and-match the tools in your shop. Our Open Digital Studio™ environment supports a metric tonne of data interchange standards including OBJ, Inventor™, Avid Open Media Framework™, QuickTime™, RIB, Cineon, TIFF, MPEG, DXF, IGES and more.



**CONTROL YOUR DIGITAL LENS  
WITH REAL-WORLD PARAMETERS  
LIKE FOCAL LENGTH, F/STOP, FOCUS,  
FIELD-OF-VIEW AND FILM FORMAT**

### IMAGE CREDITS

COVER: The End, C. Landreth • INSIDE FLAP: (from top) Johnny Mnemonic, PCA Inc., in conjunction with Braid Media, TriStar Pictures • Crimson Tide, ©1995 Hollywood Pictures. Image courtesy of Dream Quest Images • Batman Forever, ©Warner Bros. Image courtesy of Metrolight Studios • INSIDE SPREAD: (top row, left to right) Casper, ©1995 Amblin. All rights reserved. Photo courtesy of Industrial Light & Magic • Congo ©1995 Paramount. All rights reserved. Photo courtesy of Industrial Light & Magic • Dragon, J. Beard ©Sony Interactive Studios of America. Created with StudioPaint 3D • Jellyfish, D. Brinsmead • Species, Courtesy of MGM Pictures/ Boss Film Studios • (far left) Jago, Killer Instinct, ©1995 Courtesy of NINTENDO/RARE LTD. • (left) Red Chair, Gil Bruvel • (above) Helicopter, Mid-West Sports Channel. Image courtesy of Tele Edit.





# THE DIRECTOR'S PLAYGROUND

**A**JUST THE LIGHTS. LENGTHEN THE SHADOWS. ADD FOG. SOFTEN THE FOCUS. REDUCE DEPTH OF FIELD. NOW JUMP. TWICE AS HIGH. NO. LOWER. TURN ON THE WIND. MORE TURBULENCE. PERFECT.

POWERANIMATOR V7.0 LETS ARTISTS CREATE. AND DIRECTORS DIRECT.

WITH POWERANIMATOR'S ADVANCED SUITE OF DIGITAL TOOLS FOR CREATING RICH CINEMATIC IMAGERY, DIRECTORS CAN NOW CONCEIVE AND DIRECT ALL THE ACTION WHILE CONCENTRATING ON THEIR VISION. WITH THE FEEDBACK AND TURNAROUND TIME OF TRADITIONAL APPROACHES FOR INSTANT CREATIVE GRATIFICATION. AND WITHOUT GETTING BOGGED DOWN IN THE TECHNOLOGY.

LINGER ON THE BEAST. CARESS ITS SKIN. TRACK ITS VEINS. UP TO THE HEAD. HOLD ON THE EYES. CATCH THE REFLECTION. SHOW ANGER. MADNESS. FEAR. NOW MAKE SPARKS LEAP OUT OF ITS EYES.

NO MORE LONG SHOTS OF ACTORS IN BODY SUITS. THE AUDIENCE CAUGHT ON TO THAT TRICK LONG AGO. THE ILLUSION HAS TO BE SEAMLESS. WITH POWERANIMATOR V7.0, IT IS.

BEYOND ALLOWING FILMMAKERS TO RECREATE TRADITIONAL METHODS BETTER, FASTER, AND CHEAPER, POWERANIMATOR V7.0 ALLOWS THEM TO CREATE IMAGERY THAT WOULD BE IMPOSSIBLE OR IMPRACTICAL TO CREATE ANY OTHER WAY. IMAGERY WE COULD ONLY DREAM ABOUT BEFORE. WHILE DISSOLVING THE BARRIERS BETWEEN EFFECTS AND NON-EFFECTS PRODUCTIONS.

CLOSE-UP ON SURFER. RIDE THE WAVE. TRANSFORM IT INTO A DRAGON. A SERPENT. A MERMAID. CHOOSE HAIR COLOR. CURLY. WAVY. GORGEOUS. NOW PULL IN ON THE FACE. SPEAK. CATCH THE EXPRESSION. MORE EMOTION IN THE MOUTH AND EYES. YES.



POWERANIMATOR'S UNIQUE INTEGRATED APPROACH STREAMLINES THE CREATIVE PROCESS FOR POWER USERS WHILE ACCELERATING THE LEARNING PROCESS FOR NEW USERS. AND WITH THE INDUSTRY'S BEST TOOLS FOR 3D MODELING, CHARACTER ANIMATION AND SPECIAL EFFECTS, POWERANIMATOR V7.0 LETS YOU PRODUCE ENTERTAINMENT THAT'S AS REALISTIC, SURREALISTIC, OR OTHER-WORLDFLY AS YOU WANT IT TO BE.

A DIRECTOR'S DREAM.



# POWERANIMATOR

## Modeling

Both NURBS-based and polygonal modeling.

- **Basic Modeling** - Generate and edit surfaces by: revolving, extruding, skinning, defining boundary curves and faces, trimming, filleting, and defining bevels.
- **Surface Blending** - Automatically connect textured surfaces together with a seamless patch.
- **QuickShade™** - Model and animate shaded objects in real-time.
- **Curve on Surface** - Draw and edit curves directly on a 3D surface.
- **Construction History** - "Remembers" how models have been constructed and automatically rebuilds surfaces during editing.
- **Polygonal Converter** - Convert a NURBS object to a user-specified number of triangles or quads.
- **Polygon Tools (Base)** - Create/import models; split/merge vertices; extract/combine polygons; flip/unify normals; add polygons.
- **Polygon Tools (Advanced)** - Extrude polygon/edge; transform polygon/edge; insert vertex/edge; split/merge polygon; collapse edge/polygon; delete vertex/edge; explode/reduce polygons; highlight non-planar quads; make 1-sided; clean.
- **Stages** - Switch between different characters, "sets," or "lighting stages."
- **Animation Sweep** - Create objects from user-defined animated curves or surfaces.

## Animation

Tools to animate objects, lights, cameras, surface characteristics, and shading parameters.

- **Basic Animation** - Define animations using keyframes, motion paths and CV's.
- **Action Editor** - Set and adjust actions using an interactive graphical display of parameter curves.
- **Cut, Copy & Paste** - Point & click editing of animations of hierarchical objects.
- **Animation Preview** - Play back animations in wireframe or rendered flipbooks with sound.
- **Sprite Previewer** - Play back one or more sprite animations and fine tune their interaction with each other and with the background.
- **Set Motion** - Set and adjust an object's or camera's orientation along a motion path.
- **Randomizer** - Randomly animate multiple objects such as bubbles or flocks of birds.

- **Image Planes** - Rotoscope with multiple planes that can be animated, zoomed, tracked, assigned depth and stenciled.
- **Dynamics** - Simulate physical phenomena such as torque, wind, gravity, friction, air turbulence, and collisions.
- **Expressions** - Animate using mathematical relationships.

## Rendering

Tools to create photorealistic images.

- **Digital OptiF/X™** - Interactively create camera and lighting effects, such as lens flare, translucence, fog, glows, explosive effects, volume shadows and lights.
- **Real-World Camera Lens** - Cinematography interface for adjusting depth of field, f/stop, focal distance, film format. Multiple simultaneous cameras per scene, variable near/far clipping planes, and stereo viewing.
- **Lights** - Ambient, point, spot, directional, linear, area, volume.
- **Quantizer** - Automatically set up optimum color maps for reduced color spaces.
- **QuickRender™** - Quickly render for rapid feedback, including shadows and volume spotlights.
- **Composite Renderer** - Special anti-aliasing routines to smoothly blend sprites into a scene.
- **MotionBlur** - Apply realistic blurring effects to individual objects or an entire scene.
- **Hidden Line Rendering** - Generate smooth outlines for cartoon-like renderings.
- **Quad Rendering** - Assign texture swatches on a polygon-by-polygon basis from a single palette of rectangular textures.
- **Polygon Rendering** - Edit per-polygon game-specific features, such as texture flipping and rotation, and assign game-specific attributes to polygons (color depth, sorting mode, back-face culling).
- **Distributed Render Control** - Manage rendering projects over a network through an intuitive, graphical interface.

## Open Digital Studio

An open environment for integrating digital media solutions from multiple vendors and programming custom effects.

- **OpenAlias™ Plug-In Architecture** - Complete C and C++ access to live data including 3D models, animations, lights, cameras and textures.

- **OpenModel™** - Write your own programs with file-level access to Alias internal data structures.
- **OpenRender™** - Write your own shaders, textures, and lights.
- **SDL™ Renderer** - Write custom scripts to control the renderer.
- **Alias 3DCD™** - A CD-ROM of 3D models, environments, textures, and animations.
- **Input** - IGES, VDA/FS, VDA/IS, OBJ, DXF, StyleGuide, Inventor, PRO/E Render, STL.
- **Output** - IGES, Apple QuickTime™, Avid OMF™, TIFF, Pixar RenderMan® (RIB), DXF, OBJ, Inventor, STL, SLC, SGI MoviePlayer.
- **Video Device Support** - Abekas, Chyron, SGI, Digital 4:2:2.

## OPTIONS

### Advanced Animation

Tools to create advanced character animation and special effects.

- **Muscle & Skin** - High-level system to create animated characters with bulging muscles, wrinkling skin, webbing between fingers. Makes it easy to control folding and tucking of skin around joints.
- **ShapeShifter™** - Blend the shapes of two or more 3D models with precise control over how each one influences the final model.
- **LipSync and Facial Animation** - Create lifelike facial movements through a highly interactive interface. Easily match mouth positions to a soundtrack to create realistic animations of talking characters. Simultaneously and independently animate different parts of the face.
- **MotionSampler 3** - Real-time performance animation with hardware-supported textures. Simple interface for matching the dimensions of the actor to those of the model. Dataflow interface for adding custom filters. Support for Ascension, Motion Analysis, Polhemus, and The Monkey™.
- **Particle Systems** - Produces solid and gaseous particles as well as extremely realistic-looking hair. Fully-shaded preview of 3D particles that interact with forces, geometry and light.
- **Inverse Kinematics** - Position articulated characters in full 3D with point, orientation and aiming constraints that can be animated.
- **PowerCluster™** - Create animated deformations using curves, curve lattices or hierarchical skeletons.
- **Flow** - Deform an object as it moves along a path.
- **Warp** - Interactively apply animated forces to objects (patches, polysets, or faces) to create unique surface deformations.

## PowerModeling

Advanced modeling tools for maximum flexibility and control in creating complex freeform surfaces.

- **Stitching/Booleans** - Stitch NURBS surfaces together to form shells, and apply subtract, intersect and union operations across multiple NURBS models.
- **Automatic Polygon Reduction** - Reduce the number of polygons in a model while maintaining its shape.
- **Align** - Modify two curves or surfaces to achieve continuity.
- **N-sided** - Create surfaces by blending up to eight bounding curves.
- **Rebuild Surface** - Interactive tool for surface fitting.
- **Curve Networks** - Create surfaces from networks of curves and automatically maintain user-specified continuity relationships with adjacent surfaces, as you edit the curves.
- **Concept Modeling** - Create 3D "sketchy models" by importing 2D conceptual sketches and constructing 3D surfaces from 2D outlines via curve networks, perspective matching, and texture projection tools.
- **Birail** - Create surfaces by sweeping one or more curves along two path curves.
- **Swept** - Create surfaces by sweeping a curve along a path.
- **Square** - Create surfaces from four bounding curves.
- **Curve & Surface Smoothing** - Interactively modify curves or surfaces to achieve a more even curvature distribution.

## PowerTracer™

Raytrace images faster using multiprocessor systems.

## PowerCaster™

Raycast images faster using multiprocessor systems.

## StudioPaint 3D™

Paint and sketch directly on 3D surfaces with real-time brushes and pencils.

## Composer™

Assemble video clips, animation sequences, and stills in layers; sequence them in time; and add special effects, audio, transitions, titles, and annotations.

© 1995 Alias/Wavefront, a division of Silicon Graphics Canada Limited, all rights reserved. Alias/Wavefront, PowerAnimator, CharacterBuilder, CompuHair, Open Digital Studio, MotionSampler 3, Digital OptiF/X, Real-World Camera Lens, QuickShade, StudioPaint, ShapeShifter, QuickRender, OpenModel, OpenRender, OpenAlias, SDL, Alias 3DCD, PowerCluster, PowerTracer, PowerCaster, t Composer are trademarks of Alias/Wavefront, a division of Silicon Graphics Canada Limited. The Monkey is a trademark of Digital Image Design Incorporated. DXF is a registered trademark of Autodesk, Inc. Silicon Graphics and the Silicon Graphics logo are registered trademarks of Silicon Graphics, Inc. All other trademarks mentioned herein belong to their respective owners.

Alias | wavefront

## GLOBAL HEADQUARTERS

110 Richmond Street East  
Toronto Ontario Canada  
M5C1P1

Toll Free: 800.447.2542  
Tel: 416.362.9181  
Fax: 416.362.0630

E-MAIL  
info@aw.sgi.com

WEB  
http://www.aw.sgi.com

## FIELD OFFICES UNITED STATES

ATLANTA  
Tel: 770.393.1881  
Fax: 770.393.2705

CHICAGO  
Tel: 708.574.8200  
Fax: 708.574.8210

DALLAS  
Tel: 214.789.2950  
Fax: 214.789.2951

DETROIT  
Tel: 810.737.3500  
Fax: 810.737.3506

LOS ANGELES  
Tel: 310.914.1566  
Fax: 310.914.1580

MINNEAPOLIS  
Tel: 612.339.5820  
Fax: 612.339.5939

NEW YORK  
Tel: 212.268.4900  
Fax: 212.563.9418

PHILADELPHIA  
Tel: 215.794.2495  
Fax: 215.794.2499

SAN FRANCISCO  
Tel: 415.596.7000  
Fax: 415.596.7002

SEATTLE  
Tel: 206.688.3543  
Fax: 206.646.7399

## FIELD OFFICES INTERNATIONAL

BELGIUM  
Tel: 32.9.225.4555  
Fax: 32.9.223.4456

FRANCE  
Tel: 33.1.44.92.81.60  
Fax: 33.1.44.92.81.61

GERMANY  
Tel: 49.89.356.7031  
Fax: 49.89.356.6299

Tel: 49.6196.483.540  
Fax: 49.6196.483.546

ITALY  
Tel: 39.39.605.8272  
Fax: 39.39.605.8281

JAPAN  
Tel: 81.3.3470.8282  
Fax: 81.3.3470.8288

UNITED KINGDOM  
Tel: 44.1494.441.273  
Fax: 44.1494.449.289