CINEMA 4D
A New Dimension in 3D Graphics

CINEMA 4D is a 3D modelling, raytracing and animation program that combines unrivalled performance and features with a truly cost-effective price tag.

CINEMA 4D is a multi-platform development that conforms to the native style guides on every supported operating system.

Complete binary compatibility allows the exchange of data between the different platforms.

CINEMA 4D is extremely easy to handle and to learn and is therefore ideal for beginners, while its enormous feature list will satisfy the most demanding graphics professional.

Reflecting Reality

This is Scanline (simple transparency, environment mirroring only but with soft shadows)

This is Raytracing (transparency with light refraction, environment and object mirroring)

Photographic quality raytracing

CINEMA 4D supports both Scanline (for quick previews) and Raytracing (for utmost realism) modes of rendering.

With its highly optimised 32 bit architecture, CINEMA 4D slashes both scanline and raytracing render speeds while allowing you to work, designing and testing, in real time.

The standard version of CINEMA 4D is packed with powerful raytracing features; there is no need to buy additional, expensive modules; everything you need for professional quality pictures is built in.

Raytracing makes it possible to use real mirror effects (such as the reflection of a bottle in a mirror or a balloon in a lake).

Even optically-exact Fresnel transparencies (that depend on the angle of view) become a reality; look at the bottle, above right.

Raytraced by CINEMA 4D

Seeing is **Believing**
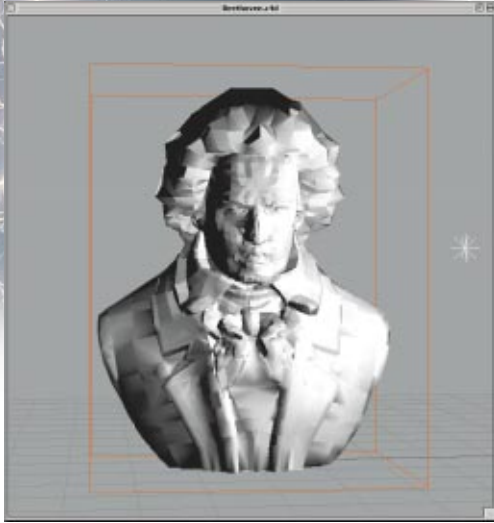
With CINEMA 4D you can work with Gouraud-shaded objects. Using this method, all changes to individual objects, or to the whole scene, will be shown immediately, in real time.
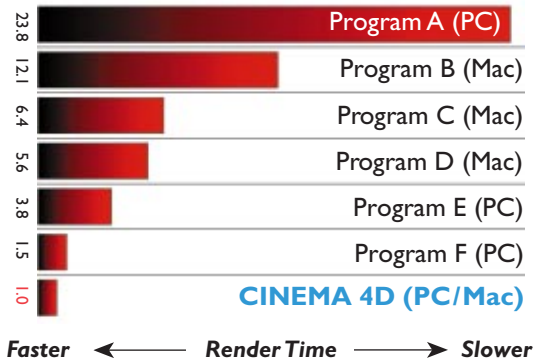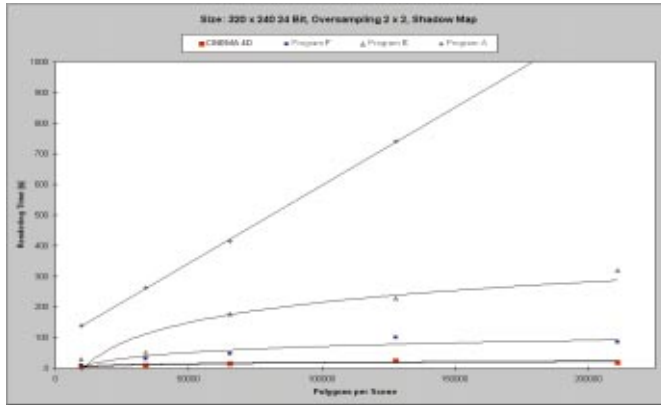
This type of view is ideal when you are trying to control the precise collision of the various objects in a scene.

There's nothing more difficult, or frustrating, than finding the right points and lines in a wire frame model.

Real Time by CINEMA 4D

Time is of the Essence

Size: 320 x 240 24 Bit, Oversampling 2 x 2, Shadow Map

CINEMA 4D · Program F · Program E · Program A

Rendering Time [s]

Polygons per Scene

23.8	Program A (PC)
12.1	Program B (Mac)
6.4	Program C (Mac)
5.6	Program D (Mac)
3.8	Program E (PC)
1.5	Program F (PC)
1.0	**CINEMA 4D (PC/Mac)**

Faster ⟵ *Render Time* ⟶ *Slower*

CINEMA 4D's behaviour, both in terms of memory usage and render time, is linear with the required quality of your image. This means development and production time can be predicted accurately.

CINEMA 4D is probably the fastest raytracing engine running on the Power Mac or PC platform.

Assuming the same quality image, CINEMA 4D outperforms all other competitors in a similar or higher price level. Even if the complexity of the scene increases, CINEMA 4D remains at the top, in fact it

pulls away since CINEMA 4D loves a challenge. With CINEMA 4D, animations that took weeks to render will be ready in days, those that took days will complete in hours and the hours will become minutes.

While some other programs are still rendering your first job, you have already finished the next one.

Time is of the essence and the essence of CINEMA 4D is speed.
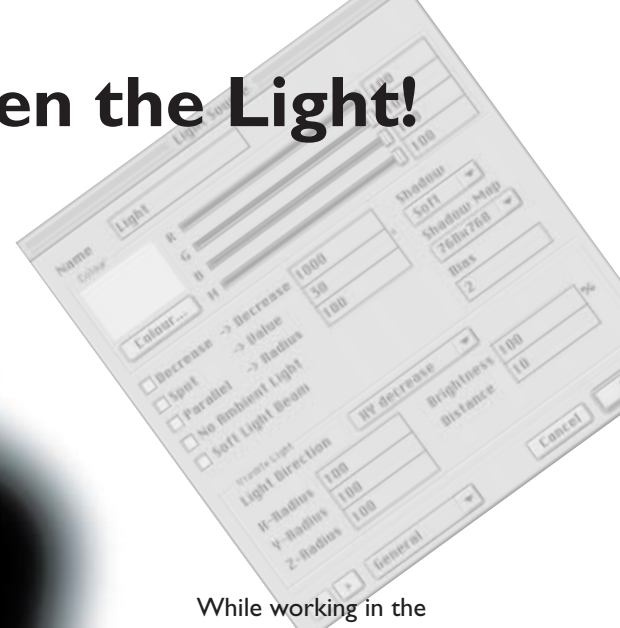
Powered by CINEMA 4D

I've seen the Light!
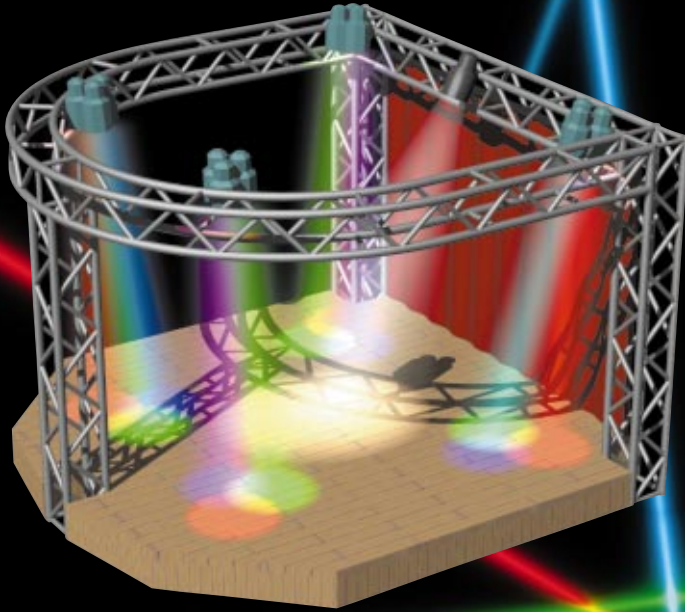
Now there's no need for those endless test renderings that result only in an *approximation* of the scenes lighting.

CINEMA 4D uses real-world parameters for the mixing and creation of light rays. This feature is normally only available in much more expensive software but with CINEMA 4D it's included as standard and is faster.

While working in the Gouraud-shaded mode, lighting effects are shown in realtime so that you can see the result of your carefully-placed spotlights, beams etc.

Every change in the lighting (e.g. if you move an object or add another light) will be shown on the shaded objects.

Lighting by CINEMA 4D

The Magic of Light

Effects

You know it was CINEMA 4D that rendered the scene when…

The only light to be seen in the vault is the uneven flickering of torches on the walls…

The space ship races through the universe emitting sun-hot plasma beams…

The spotlight struggles to break through the smoky air in the club.
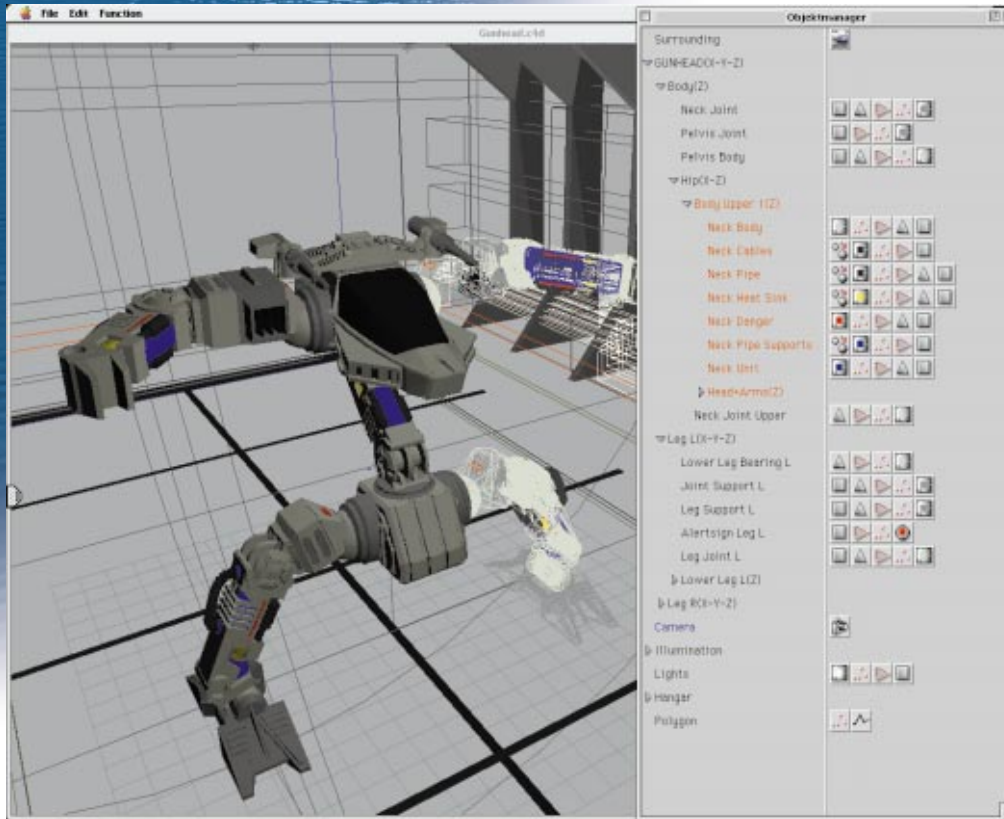
All this is possible using CINEMA 4D's lens flares and glows. Much more (e.g. hard or soft shadows) can be realised with the many and diverse lighting effects of CINEMA 4D.

You can adjust all lighting parameters individually – and then animate them, quickly and simply.

Illuminated by CINEMA 4D
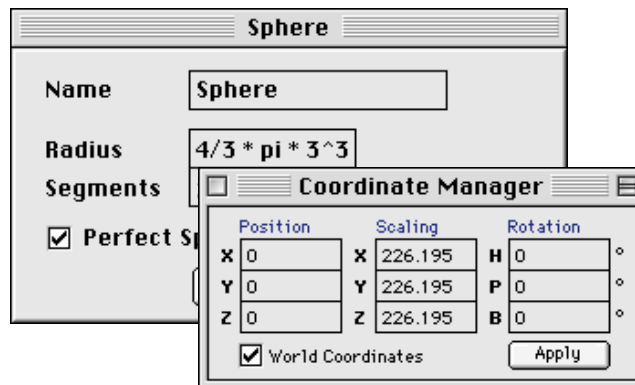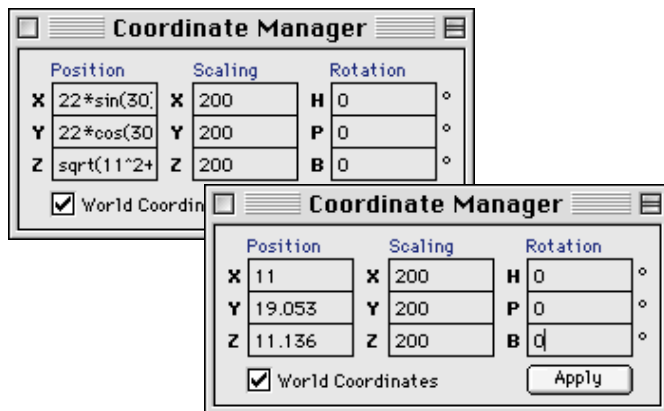
Clear Object **Hierarchies**

Complex scenes become so much clearer when you combine several objects into a hierarchical group. With CINEMA 4D, using simple drag and drop operations, you can easily order objects within a scene. It is also possible to transfer the characteristics of the main group (e.g. visibility, materials) to all of its child objects.

Hierarchical groups simplify the creative process and ease the production of animations; animate the grouped object and all child objects will move along with it.

Naturally, child objects can rotate and animate independently of the parent object.

Structured by CINEMA 4D

Mathematical Formulae

Coordinate Manager

Position	Scaling	Rotation	
X	22*sin(30	X	200	H	0	°
Y	22*cos(30	Y	200	P	0	°
Z	sqrt(11^2+	Z	200	B	0	°

☑ World Coordin

Coordinate Manager

Position		Scaling		Rotation	
X	11	X	200	H	0	°
Y	19.053	Y	200	P	0	°
Z	11.136	Z	200	B	0	°

☑ World Coordinates   Apply

Sphere

Name   Sphere

Radius   4/3 * pi * 3^3

Segments

☑ Perfect S

Coordinate Manager

Position		Scaling		Rotation	
X	0	X	226.195	H	0	°
Y	0	Y	226.195	P	0	°
Z	0	Z	226.195	B	0	°

☑ World Coordinates   Apply

It may be that you know the volume of a sphere — but for the creation of the basic object you need to know the radius. Or maybe your object needs to be placed exactly at the point:

```
22mm * SIN ( PI / 2 )
```

With CINEMA 4D, and its built-in co-ordinate manager, you are in charge of every aspect of such calculations.

CINEMA 4D supports the use of complex mathematical formulae in all value input fields - no more reaching for the calculator.

As well as the basic types of calculation such as trigonometric functions, square roots, logarithms and exponential calculations, you can use constants like π or Euler's number.

Calculated by CINEMA 4D

Creative Material Processing

If you are good at drawing you will be able to create some excellent objects but, to achieve true realism you will want to finish your masterpiece by using the right materials. By doing this you will bring your models to life.

With CINEMA 4D you can create your own woods, metals, clothes, clouds, mirrors, glasses, leathers etc. by adjusting material characteristics such as colour, transparency, reflectivity, shine, relief, and luminance.

You can add texture to virtually all of an object's characteristics.

The ability to work with a variety of materials and textures saves an enormous amount of time when designing a scene… and of course everything can be animated.
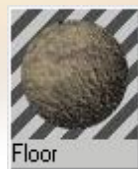
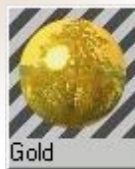The realtime preview in the material manager gives an immediate impression of the look of the material.
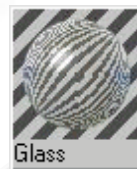

Stars   Leather   Floor   Gold   Glass

The Material World of CINEMA 4D
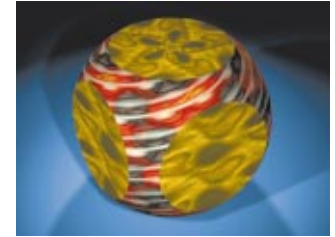
Boolean operations

Boolean operations are a vital part of any 3D application. CINEMA 4D provides full boolean functionality.

Powerfully, CINEMA 4D lets you perform boolean operations on textures.

Have you you ever wanted to drill, sculpt, carve, weld, mill, solder, saw, glue, plane – in other words, create complex forms?
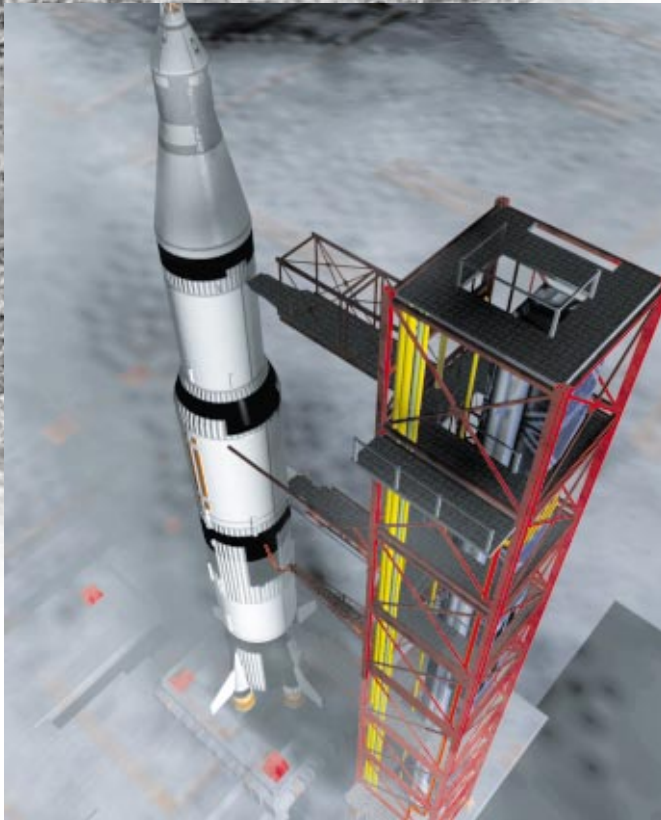
With the surgery tools of Boolean algebra and CINEMA 4D your dreams become true. After just a few mouse clicks, you can tunnel a worm hole into an apple.

After rendering, objects used for the carving of other objects can instantly be re-used for more work.

Sculpted by CINEMA 4D

Digital Camera Lenses

**Wide angle
25 mm**

**Telephoto
200 mm**

**Normal
50 mm**

CINEMA 4D's perspective window represents the exact view you would see through a camera lens.

Whether you want to take macro or micro shots, CINEMA 4D won't disappoint. Its flexible choice of zoom allows you to adjust, precisely, every focal length from a super-tele lens to a fish-eye wide angle lens.

One of the key features of CINEMA 4D's camera is the ability to have its focal length altered as it approaches objects during animation.

And, in case you'd forgotten, every parameter within a CINEMA 4D scene can be animated.

Directed by CINEMA 4D

Realistic Blur Effects

Background blurred

Foreground blurred

Centre in-focus

Have you noticed that many rendered pictures have the same sharpness at every depth within a scene? In reality, this does not happen.
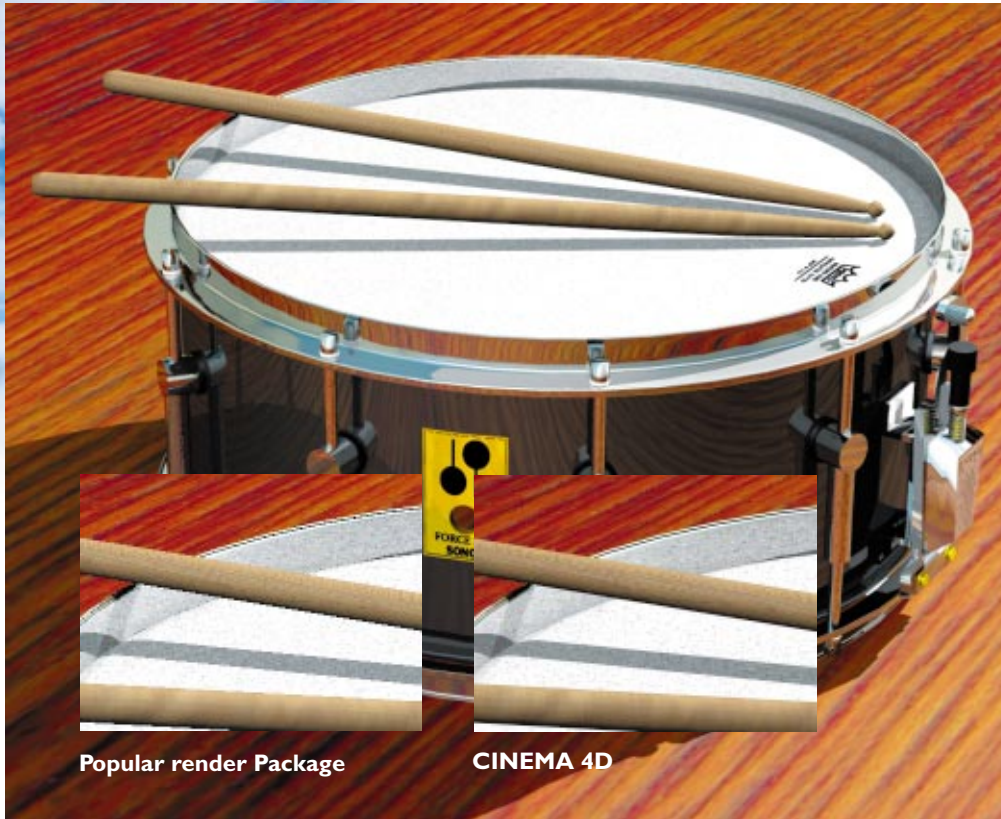
With CINEMA 4D you can set the region of the picture that is to be shown in-focus. Options available are for an in-focus foreground, background or centre.

... and still, of course, everything can be animated.

Focussed by CINEMA 4D

Oversampling

Popular render Package   **CINEMA 4D**
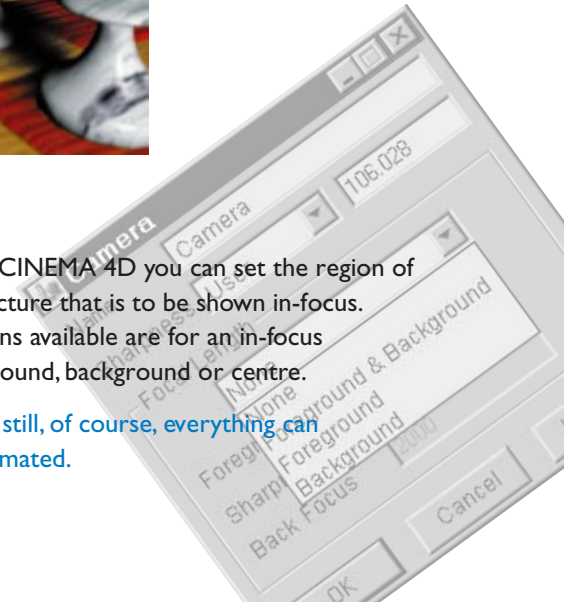
CINEMA 4D includes a user-defined anti-aliasing option that allows you to use up to 64 times oversampling to satisfy even the most professional user and the most demanding task.

CINEMA 4D also allows you to choose how to anti-alias a scene: edges only, colour changes only or both edges and colour changes.

Since anti-aliasing eliminates sharp edges and smoothes colour transitions, high levels of oversampling can be used to improve the picture quality.

Smoothed by CINEMA 4D

QuickTime VR, QuickDraw 3D

A CINEMA 4D object in a QuickDraw 3D window (Macintosh)

QuickDraw 3D is the new 3D standard, allowing the easy exchange of 3D object data and playback on 3D-accelerated graphic cards.
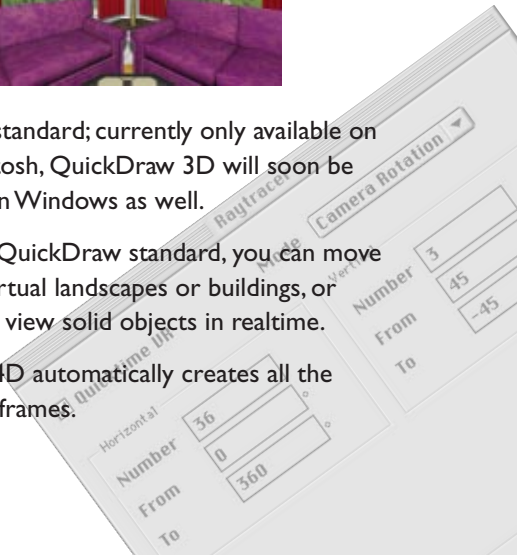
CINEMA 4D supports this emerging standard; currently only available on the Macintosh, QuickDraw 3D will soon be available on Windows as well.

Using the QuickDraw standard, you can move through virtual landscapes or buildings, or rotate and view solid objects in realtime.
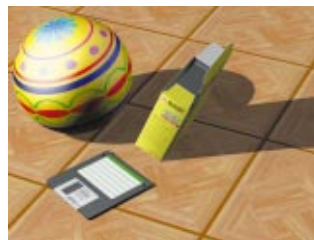
CINEMA 4D automatically creates all the necessary frames.

Visualised by CINEMA 4D

Let's get a move on...

So everything is finished; objects have been built, the scene is set - now you want to get things moving…

CINEMA 4D makes light work of animating objects. With control options similar to those found on a video recorder, you simply record the key steps involving the movement and rotation of each object.

Once you have decided on the style of movement between the key steps, CINEMA 4D will automatically calculate the intermediate steps for you.
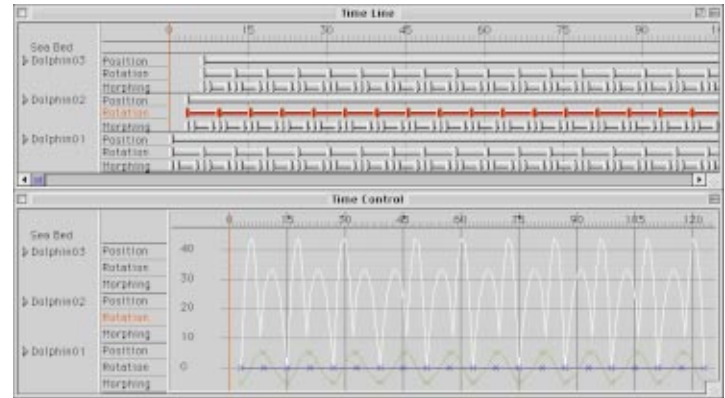
Recorded by CINEMA 4D
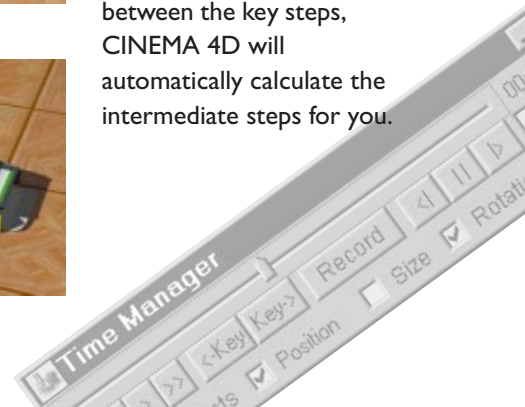
Time line, Time control

At any stage you can see a realtime view of the finished sequence from within the editor. You can jump backwards and forwards through the keysteps to obtain a static view of the sequence at any time.

This makes perfecting the finished sequence quick and easy.

The time line and the time control tools put you in total charge of animations.

Using these tools you can adjust every aspect of the animation such as light sources, materials or object acceleration.

You can fade-in a logo smoothly or make the camera pan across a moving racing car, automatically. Or simply let your object pursue the course of a constructed spline, accelerating faster and faster. With a few simple mouse clicks your sequence will be finished.

Animated by CINEMA 4D

Inverse Kinematics

Kinematics is a special function that allows realistic hierarchical animations.

For example, if you were to drag the foot of a human figure using inverse kinematics, the lower leg would move forward, followed by the thigh, the hip and eventually the body. Importantly, none of the limbs break apart during movement!

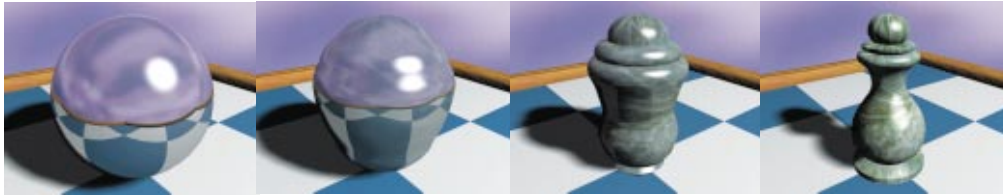CINEMA 4D fully supports inverse kinematics.

The angles through which a limb can be moved, as well as its mobility, can also be defined. This prevents unimaginable contortions from occurring such as limbs being rotated through 360°.
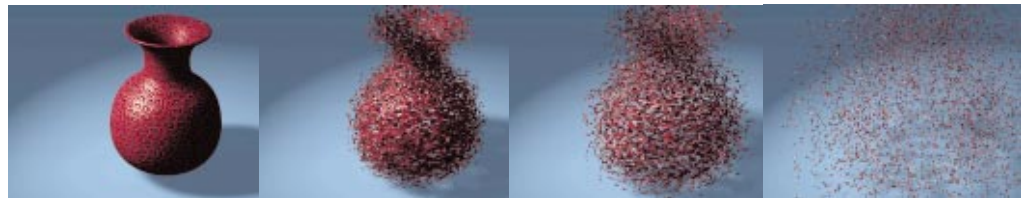
Moved by CINEMA 4D
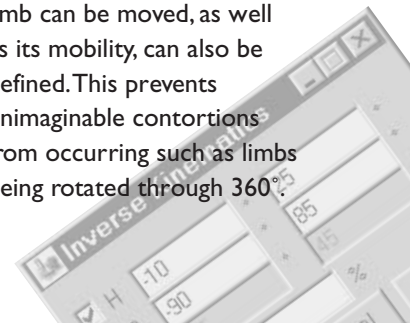
Morphing, Melting, Exploding

CINEMA 4D is packed with special effects to make spectacular animations.

Objects melt under intense heat, flags flutter in the wind, the camera shakes during an earthquake, the terminator rises from an inconspicuous stain on the floor, letters wobble and pulsate through the scene, the space ship explodes in a shower of sparks, the cheap plastic cupboard turns into an expensive oak wine press.
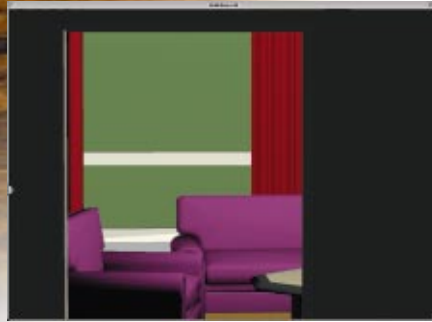
All these movie-like effects can be found in CINEMA 4D, without the need to purchase expensive additional modules – these effects are included as *standard*. You can combine all effects in any way.

*Exploded by CINEMA 4D*

Virtual Walkthrough

Look at your scene from every conceivable angle. Don't spend time switching between different views. Simply select CINEMA 4D's Virtual Walkthrough feature and fly freely through the editor's world. Navigate your flight using the mouse or the keyboard.
If you need to take stock of the scene you can stand on the brake at any time.

Navigated by CINEMA 4D

Recursive Animations
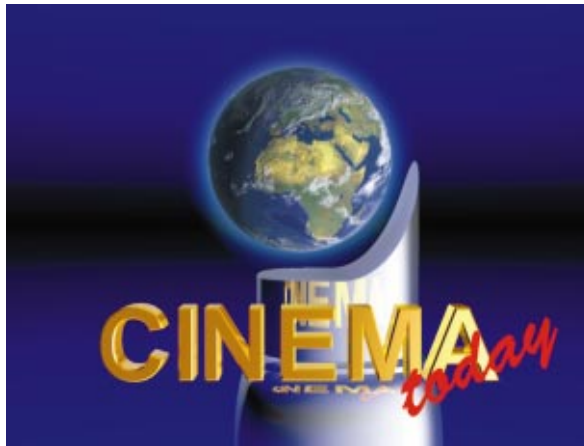
The facility to include finished animations within other CINEMA 4D animations gives you a whole new range of exciting possibilities.

Movies can be shown not only on objects but also on foreground and background layers.

It makes no difference if the recursive animation requires rendering or is already a pre-rendered movie file. CINEMA 4D will either render the projected animation or will use the individual frames from AVI or QuickTime movies.

Animation by CINEMA 4D

Cross-Platform Compatibility

With its diverse import and export facilities, CINEMA 4D can be used with nearly every 3D, graphics, video or multimedia application.

The following formats can be imported or used by CINEMA 4D:

C4D, TIFF, IFF, JPEG, Targa, Adobe Illustrator paths, 2D and 3D DXF, QuickDraw 3DMF, BMP (Windows only), PICT (Macintosh only), AVI movies, QuickTime movies and LightWave scenes (with support for all objects, textures and animations).

Imported by CINEMA 4D

A Multi Platform Application

Buy the software which runs on your computer and not the computer that runs your software!

CINEMA 4D supports and implements the concept of full multi-platform compatibility.

You choose the version of CINEMA 4D to run, rather than having to choose the computer on which to run CINEMA 4D.

With full future file format compatibility you will be able to use CINEMA 4D files regardless of your operating system, computer or CINEMA 4D version.

– Works with multi processor computers.
– Intelligent network rendering.
– Support for multiple operating systems.
– Bones animation.
– Particle systems and animation.

The Future by CINEMA 4D

Architecture with **CINEMA 4D**
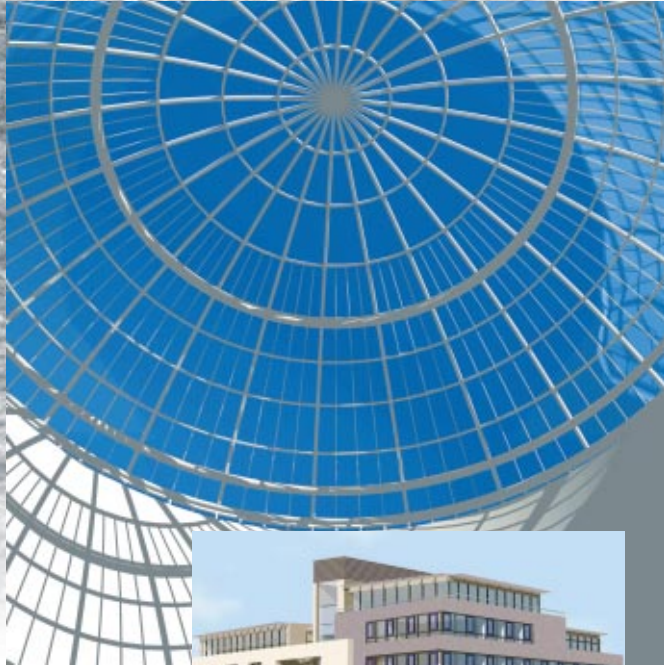
Visualisation using computer graphics is extremely important. This is particularly the case for architects, who can use CINEMA 4D to help clients see their houses in the planning stage, before any walls have been built or any floors laid.

To enhance the realism, CINEMA 4D includes an accurate sun simulator. This can help provide views of a building at any time during the day. To add further to the realism, foreground and background landscape pictures may be included to help in the visualisation of the finished building.

CINEMA 4D excels when used for interior design. Whether controlling the lighting for work areas, showing furniture variants or changing between different wallpapers, CINEMA 4D makes it all possible with a few simple mouse clicks.

Created by CINEMA 4D

Technical Drawings with CINEMA 4D

Design by VB
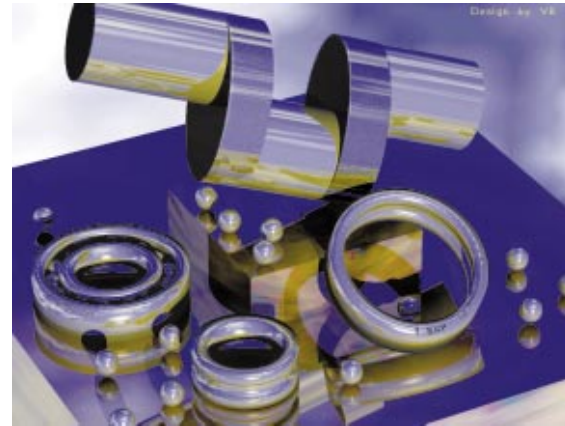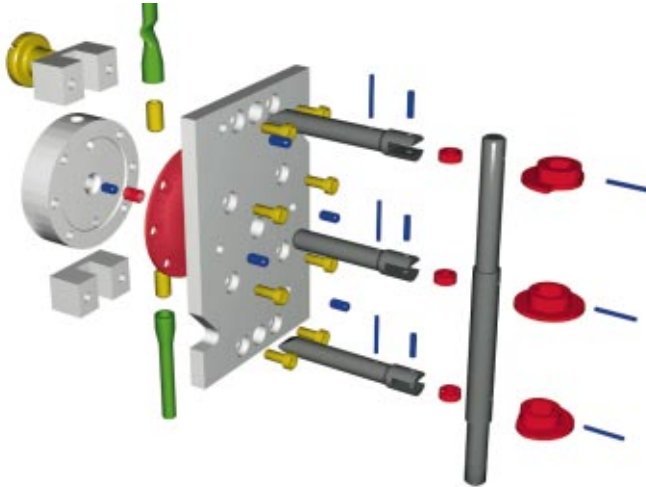
For technical drawings, the visualisation of 3D objects becomes more and more important. Build up complex manufacturing plants, show the internal combustion processes in an engine, or design modern machinery.

With CINEMA 4D you can design objects to scale. Alternatively, you can import your CAD data then apply realistic materials and textures. With the extensive animation facilities, you can then bring your designs to life.

To aid in the production of precision objects, CINEMA 4D has a comprehensive co-ordinates manager that allows you to ensure the accurate positioning of points and objects.

Constructed by CINEMA 4D

Product Design with CINEMA 4D

CINEMA 4D provides an extensive range of tools to help with the design, form and look of objects.

Using your computer, the time taken for product design can be dramatically reduced - thus increasing the profitability of the finished product.

Once an object has been built within CINEMA 4D you can use it in numerous applications such as presentations, promotional pictures in brochures and advertisments, or as the star of a promotional film.

It makes sound financial sense to use CINEMA 4D for product design.

Designed by CINEMA 4D

Movie and Television with CINEMA 4D

Computer animations and special effects dominate today's professional TV and movie productions. Whether we're talking science fiction/fantasy films, product adverts or trailers, all are possible applications for CINEMA 4D.

CINEMA 4D offers you a high level of precision with

professional oversampling (anti-aliasing) to allow the production of broadcast-quality images.

Using field rendering, CINEMA 4D produces the interlace frames required for animation. User and pre-defined frame sizes (e.g. SVHS) and aspect ratio (e.g. 16:9) are all included.
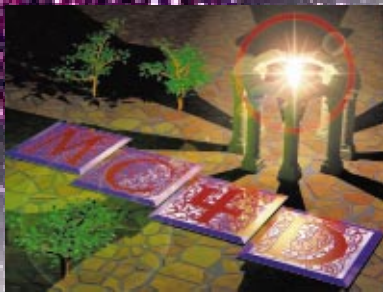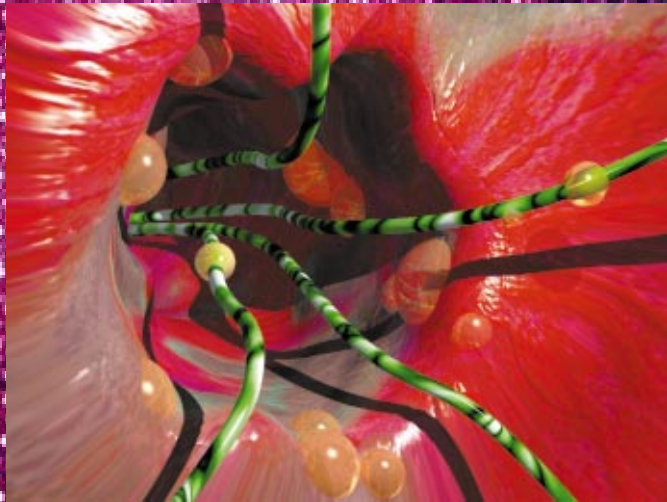
Genlocking and alpha channel options are available to permit the interaction between real and virtual shots.

All this at a fraction of the price of conventional studio equipment.

Broadcasted with CINEMA 4D

Virtual Reality with CINEMA 4D

Your imagination can create a never-ending story world - with CINEMA 4D, bring this fantasy world to life.

The virtual walkthrough feature lets you explore the scenes you have constructed.

CINEMA 4D can also be used in game development. Once you have constructed worlds, objects and figures, you are ready to animate your objects. Simply apply light, space and time to have your characters spring to life before your very eyes.

Reality by CINEMA 4D

Multimedia with CINEMA 4D

CINEMA 4D can be used in the production of static and animated graphics for multimedia applications.

Use CINEMA 4D to create clear, exciting and informative graphics and animations for your internet web pages.

Who knows what the future will bring? Whatever it is, CINEMA 4D will be ready for it!

WWWebbed by CINEMA 4D

CINEMA 4D Features

General
- File compatible multi-platform development.
- True 32 bit application.
- Low memory requirements.
- Extremely fast.
- Multi-tasking with multi-threading.
- The user interface is style guide compliant.

Editor
- Object shading in realtime.
- Precise object construction with numerical and mathematical input of all parameters, even as formulae.
- Choice of measurement system and units (pixel, nanometres up to kilometres, frames, SMPTE code).
- User-defined tool boxes.
- Virtual walk-through.
- Presentation and editing as floor plan, front elevation, side elevation, 3D view or as a combination of all four.
- Make objects or groups invisible.
- Screen redraw may be interrupted at any time.

Objects
- Hierarchical object management with any depth you like.
- Excellent range of basic objects.
- Complex special objects (height reliefs, figure, sun, floor, sky and many others).

- New forms and objects created using the rotation, extrusion, coiling and binding of splines.
- Bevels.

Splines
- Infinite number of 3D polygons and splines.
- Interpolation types: Linear, Akima, B-Spline, Cubic and Hermite.

Functions and Tools
- Interactive object deformation.
- Rotation, moving, scaling, pulling and magnet in realtime.
- Boolean operations.
- Converts TrueType fonts into 3D objects or splines.
- File format is cross-platform compatible.
- Mirror, Wrap, Align to Path, Centre, Distort, Deform, Sub-divide, Transfer to Object, Optimise, Join, Align to Point or Object.

Camera
- Infinite numbers of cameras.
- Choice of lenses ranging from wide angle up to super telephoto lenses.
- User defined frame and pixel sizes.
- Choice of depth of focus (sharp foreground, background or middle).

Light sources
- Infinite number of coloured light sources.
- Automatic lighting.
- Spotlights, fog, environment lighting and fading light.
- Hard and soft shadows.
- Parallel and divergent light.
- Visible light.
- Accurate sun simulation.
- Lens flares, lens glows, lens reflections and light effects.

Materials and Texturing
- Expandable material libraries.
- Real time material preview.
- Attributes for colour, luminosity, transparency, fog, bump mapping, refraction, reflection, highlight, highlight colour, genlocking and environment mapping.
- Flat, cylindrical and spherical material projections.
- Tiling of textures.
- Infinite number of materials and textures per object.

Animation
- Keyframe animation.
- Simple control via record, start, stop, rewind, forward.
- Object, camera, material, texture, light and sun animation.
- Path animation with any splines.
- Full hierarchical animation.
- Skeleton animation.
- Inverse kinematics.
- True acceleration and deceleration.

- Different spatial and temporal interpolation methods.
- Any combination of special effects including explosions, wind, melt, morph, pulse and vibrate.
- Objects can be constrained to paths.
- Time line and Time control.

Rendering and Output
- Real Raytracing.
- Flat, Phong and Gouraud shading.
- Fast high-quality anti-aliasing (oversampling).
- Post image processing functions (smoothen, sharpen).
- Background and Foreground layers.
- Highly optimised adaptive raytracer.
- Predefined formats for video or computer animation.
- Field rendering for video recording.
- Up to one thousand million light sources and objects.
- AVI/QuickTime movies can be used as textures.

Import
- TIFF, IFF, JPEG, Targa, BMP/PICT (depending on OS), AVI/QuickTime movies (depending on OS), QuickDraw 3D, Adobe Illustrator paths, 2D/3D DXF, Lightwave (objects, scenes, animations and textures), Imagine, external point files.

Export
- TIFF, IFF, JPEG, Targa, BMP/PICT (depending on OS), AVI/QuickTime movies (depending on OS), 3D DXF (polyline, solid, 3D face), QuickDraw 3D, image sequences for QuickTime VR, external point files, depth map, alpha channel.

All pictures in this brochure
were rendered by CINEMA 4D.

We would like to thank the
following people for their
creations:

Peter Bauer
H.-O. v. Buschmann
Dirk Beichert
Michael Giebel
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