3D NURBS modeling and real-time rendering for Mac OS X and Windows
solidThinking is the breakthrough 3D modeling and rendering environment for Mac OS X and Windows that empowers designers to visualize, explore and fully evaluate more ideas in less time.

With solidThinking you have all the tools for the creation of high-quality, professional 3D models and the power to render them with unsurpassed photorealism, in one package.

Everytime I start solidThinking, I access a 3D world that makes product design a dynamic and flexible process disclosing new horizons. The results are gratifying for both the designer and the customer.

Piero Pifferi, Designer - CAS and Rendering
Pininfarina Extra s.r.l.

A 3D environment designed by designers

The solidThinking user interface is a carefully designed environment where you can work with intuitive ease. Icons are self-explanatory and the interface prompts you throughout the creation process. Workspace colors and themes can be easily customized.

A wizard helps you choose the ideal modeling units and tolerances based on the size of the model.

Advanced grids, snaps, selection filters, construction planes, layers and an informative scene browser provide access to all of the technical and organizational tools needed for complex and precise modeling. The three-axis, interactive snapping in the 3D views makes designing in perspective a reality.

High quality visualization and environment mapping let you work interactively as you design models, assign materials, and position lights to get superior results more quickly than ever.

main benefits

find pathways to winning designs sooner

• Eliminate design reinterpretation between designers and engineers, passing 3D data to and from CAD/CAM/CAE systems.
• Reduce the number of physical prototypes and the time required to build them by using photorealistic images or color prints and plots to visualize designs virtually.
• Do away with manually developing physical prototypes by generating rapid prototype concept models (stereolithography) directly from program data.
• Improve the speed and quality of decision-making through increased collaboration between marketing, research, product development and manufacturing teams.

reduce product development costs

• Minimize design errors earlier in the product development process by creating realistic, accurate 3D models using design evaluation tools.
• Leverage market research prior to making capital-intensive investments. Use realistic models in focus groups and photorealistic prints in end-user surveys.
• Avoid unnecessary prototype development costs. Narrow the field of viable concepts virtually with photorealistic product renderings.

boost designer productivity and creativity

• Facilitate the rapid creation of design alternatives. Instantly apply design changes to form or surface qualities.
• Extend and build upon previous designs with a library of shared reusable 3D models, textures, shaders and colors.
• Visualize product concepts in realistic environments and lighting setups.
matchless NURBS power

State-of-the-art NURBS (Non Uniform Rational B-Splines) modeling and an embedded construction history make solidThinking an unrivaled tool for designers and graphics professionals.

The NURBS curve and surface-definition method offers the greatest flexibility and precision. NURBS are capable of representing any desired shape, analytic or free-form.

The ConstructionTree, one of the most advanced construction history features available today, is a fundamental structure of solidThinking. It allows you to adjust parameters at any time during the modeling process.

When a parameter changes, all the actions down the tree are notified and re-evaluated, propagating the change along the tree without limiting the number of actions or objects involved.

solidThinking's ConstructionTree gives you real-time updates when you modify parameters, curves or surfaces. You can freely manipulate your models, experiment with new shapes and easily evaluate design alternatives.

Using the ConstructionTree, you can switch freely between parameter editing and local control points editing without having to cut the construction history of the model.

solidThinking never forgets the steps involved in construction - the entire tree is saved inside the file and is accessible at any time. You can browse a graphic representation of the ConstructionTree to identify and select source objects and actions.

Once you experience the ConstructionTree, you won’t want to part with it.

the ConstructionTree™
change your design as you change your mind

solidThinking offers a complete set of surface- and solid-creation tools, including sophisticated tools like curves network, n-side, blending, fillet, surface intersections, automatic Boolean operations, interactive trimming of surfaces, rebuild of curves and surfaces and many others. The Round command allows you to create constant or variable radius fillets with construction history to handle even the most complex designs.

solidThinking also features an advanced polygonal modeler with support of n-side polygons, interactive Subdivision Surfaces with construction history provide great power for refining and smoothing polygonal meshes.

solidThinking allows you to replace source objects within the ConstructionTree with immediate reconstruction.

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In solidThinking I can quickly and effortlessly turn my initial pencil sketches into a real 3D model that can be developed on the fly. The ConstructionTree feature of solidThinking is huge! An amazing tool that keeps the process moving quickly.

Ron Mendell, Concept Artist
exclusive
design tools

comprehensive curve creation and editing

solidThinking offers the most complete NURBS curve toolset with parametric controls for all curves, including seamless support for high order (2-7) curves, weighting, analytic circles and arcs and interactive ‘comb plot’ curve analysis. Build curves from points using freeform NURBS, continuity controlled MetaCurves, and multi-entity curve objects.

With solidThinking’s advanced curve editing, you can specify position, tangent direction, curve magnitude and curvature radius at any point on a curve, interactively or by numeric input.

The seamless integration of solid modeling tools into an advanced surfacing suite further distinguishes solidThinking. Combining the best of both modeling worlds allows designers to create complex, multi-surface shapes in new and innovative ways, while engineers can extend their surfacing capabilities without losing any solid-modeling precision and tolerance control. Creating and manipulating solids in solidThinking is as natural as working with all other NURBS surfaces and curves, with the added advantage of point-level editing and constant construction history maintenance.

solidThinking offers an advanced analysis tool to interactively control tangency and curvature continuity.

This program examines selected adjacent edges relative to the continuity of affiliate surfaces. It checks point-to-point possible openings and differences of curvatures. Edges where continuity is respected (G0, G1 or G2 depending on the check type you set) are displayed in green.

Analysis tools are useful for calculating area, volume, length and curvature; but they can also be used to evaluate and improve the quality of your design. Surface curvature display, reflection lines and environment mapping allow you to visually analyze smoothness, curvature and other important properties of your models as you edit them.

surfaces and solids

Make Manifold deletes excess faces, edges, and vertices to produce a manifold solid or cellular topology from a non-manifold topology, which maintains the construction history, giving the designer the power to evaluate multiple design alternatives.

Variable radius fillet allowing curvature continuous surface blending.

The Draft Angle analysis shader allows a quick review of a model to see if all surfaces are drafted. solidThinking provides crack-free tessellation for maximum levels of precision when rapid prototyping.

Finally, a true software for industrial design that allows us to explore our way from the first rough sketch to the final result. I chose solidThinking because it offers powerful, but intuitive, modeling; and, through its construction history, I can keep the project workflow under control.

Paolo Capesi, Head of Design,
Korg Italy s.p.a.
render in real-time

industry-leading rendering techniques

Once you’ve created your models, you can take advantage of solidThinking's truly comprehensive rendering system. It integrates the industry-leading rendering techniques, including scanline, ray-tracing and hybrid rendering, for adding radiosity to ray-tracing.

Efficient memory management, unlimited output resolution and multi-threaded/multi-processor rendering guarantee the highest productivity.

Progressive rendering gives immediate feedback on the final image with a fast preview of the lighting and materials in the scene. Subsequent rendering passes continue to fill in detail, until the final high-quality image is complete.

Sketch rendering allows you to make compelling stylized presentations. It can be used for artistic representations or, for example, in product illustrations used for printed catalogues. Available sketch rendering styles include cartoon, color wash, pencil, ink, paint effects and many more.

FFAA (Feature-Following Anti-Aliasing) brilliantly performs extra anti-aliasing around features in the image. Adding image post-processing effects such as lens flares and depth of field is effortless.

global illumination

Global illumination combines the final gather technique with hybrid radiosity for calculating indirect illumination, enabling accurate lighting simulation and increased realism at maximum speed.

HDRI (High Dynamic Range Image) can be used for image-based lighting to create more realistic images.

You can position and control an unlimited number of light sources (including area, volumetric and goniometric lights) just as you would in a photographer’s set. The ready-to-render lights and interior sets help you to achieve outstanding results in a few clicks. solidThinking’s ability to produce shadows with softened edges is extremely useful for producing realistic images.

advanced materials

In solidThinking, the appearance of an object is derived from the combination of independent components called shaders, defining color, reflectance, transparency, displacement and other material properties. This model provides a highly flexible and versatile environment for representing even the most complex properties.

The rich and extensible materials library makes browsing and previewing of materials, environment maps and scene sets a fast and easy operation.
communicate your design

read, write and exchange 3D geometry

Effortlessly exchange digital data throughout the design process using fast and high-quality translators.

Direct Import capabilities include: Catia V4, Catia V5, DXF, DWG, IGES, Lightwave, Maya, Parasolid (x_t and x_b), Pro/ENGINEER, Rhinoceros, RIB, SAT (ACIS), SolidWorks, STEP, STL, UGS NX, VDA/FS, VET, VRML, 3DS.

Export: DXF, DWG, IGES, Lightwave, Maya, Parasolid (x_t and x_b), Rhinoceros, RIB, STEP, STL, VDA/FS, VET, VRML, 3DS.

associative dimensioning and plotting

solidThinking offers 2D and 3D automated dimensioning of linear dimensions, arcs and circle radii, curvature radii, diameters, edges and angular dimensions. A Leader command enables the rapid creation of text annotations for efficient collaboration. When a revision to a drawing is required or a design changes, thanks to the Dynamic Associative Dimensioning, you can edit your entities and have the dimensioning change as well.

Multiple drawings and pictures can be composed on a virtual sheet of paper and configure plot scale, paper size, plot area and paper orientation.

animation

Designers can build and render animations directly within solidThinking. An easy-to-use yet powerful keyframing animation technique is available to create animated presentations of products or show how a product can be assembled. A QuickTime VR output can be used to present panoramic movies and object movies.

support of third-party renderers

solidThinking’s open architecture supports third-party commercial rendering systems providing seamless integration to deployed or preferred rendering applications.

development tools

solidThinking’s PDK (Plug-Ins Development Kit) contains documentation for developers and users that want to create their own modeling tools and rendering plug-ins. Included in PDK are code samples that serve as a reference guide for your programming.

solidThinking helped us to compress the product-development cycle by several times. We are pleased to see the continuous enhancement of this product.

Aristide Barone, Designer Manager, Mares s.p.a.