

VRMesh 3.0 – Overview

Welcome! VRMesh is an advanced free-form 3d mesh modeling software for arbitrary triangle mesh creating and processing. It is especially suitable for digital geometry processing, reverse engineering, free-form modeling, and rapid prototyping.

Flexible Workflows

- Rapidly and accurately convert multi-million point clouds to meshes, repair mesh, restore sharp edge, create high quality polygonal model, and export cross-section curves and feature curves.
- Rapidly create free-form 3D models from 2D curves, reshape existing objects, articulate complex elements on the surface, and export affordable 3D models for use in downstream applications.
- Provide a user-friendly solution to analyze all common and uncommon rapid prototyping problems.

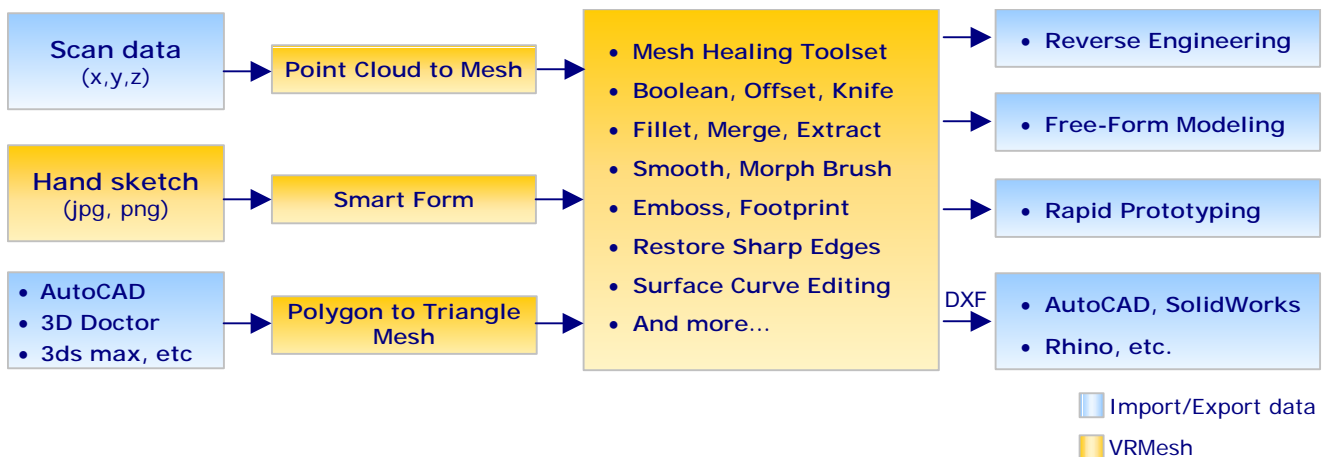
Benefits

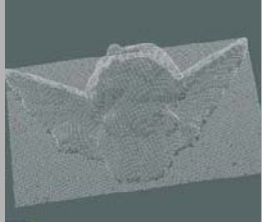

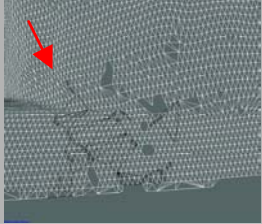

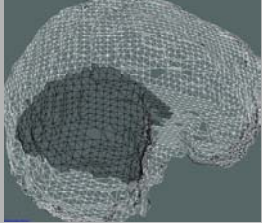
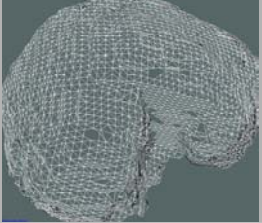
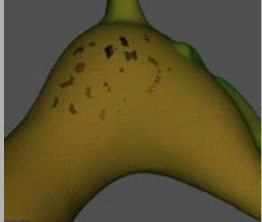
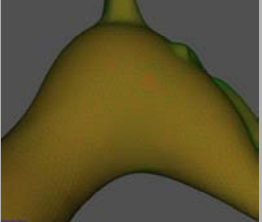
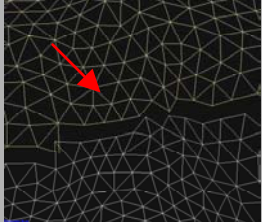
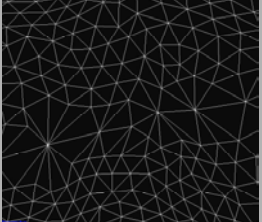
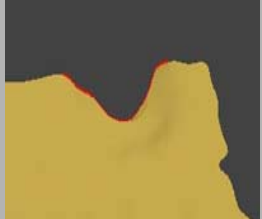

- Convert real world data from 3D scanning devices into high quality, accurate and useful data for a variety of applications.
- A powerful and comprehensive toolset for mesh healing and editing.
- Speed up the transition from sketches to model.
- Complete organic details and solids.
- Flexible control from fully automated to precise, interactive refinement.
- A high-level and affordable application tool.


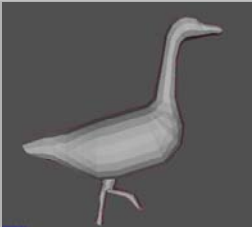


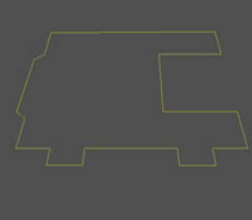
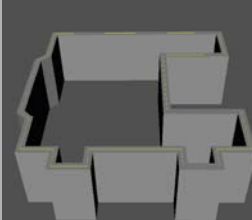
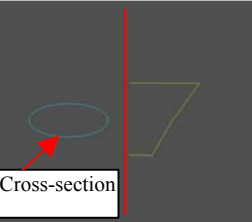
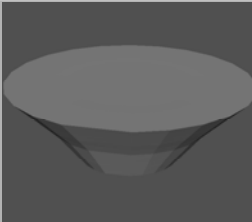
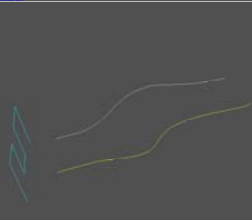
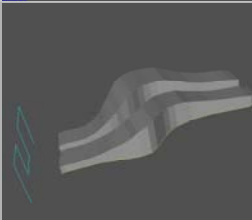

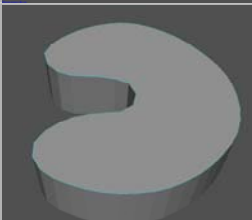
Cutting Edge Technologies



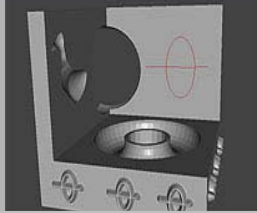
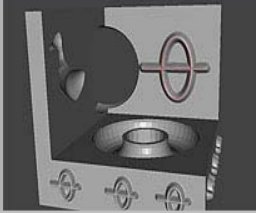




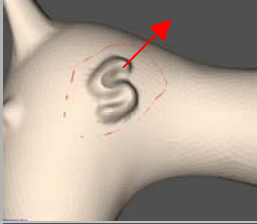



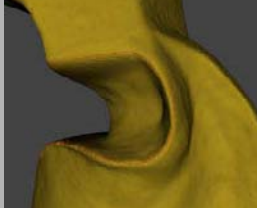
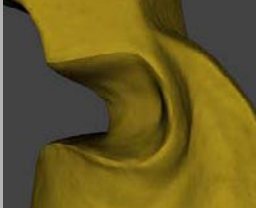
- Triangulate point clouds to mesh optimally and accurately.
- Sketch-based smart form techniques.
- Digital clay working on arbitrary triangle meshes directly.
- Global/local remesh smoothing, and sharp smoothing.
- Feature-preserving decimation.
- Advanced mesh editing techniques.
- Advanced Boolean techniques.
- Regional cut-and-paste.

Process Overview

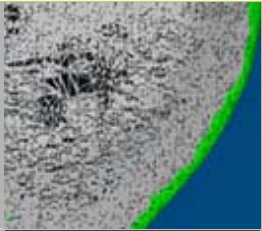
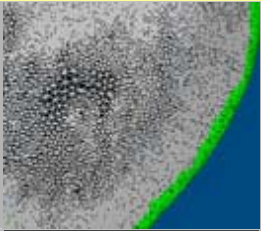
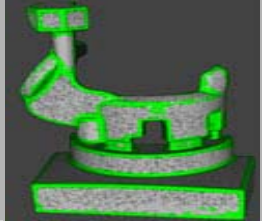



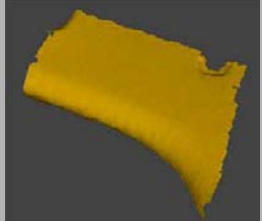
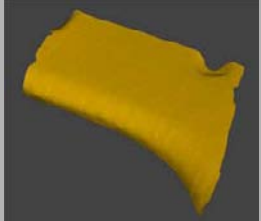

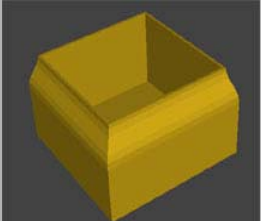
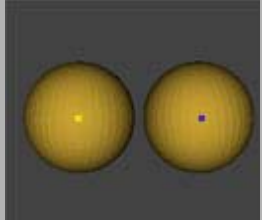
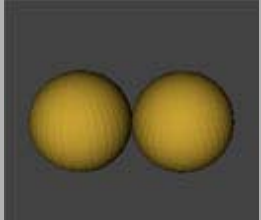

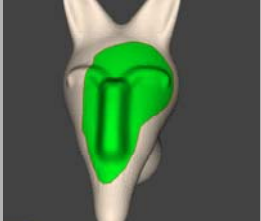




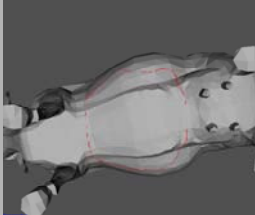
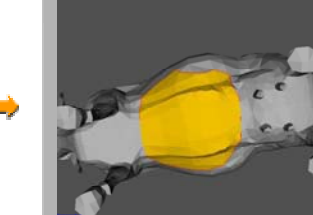
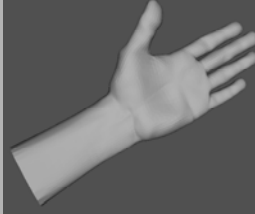
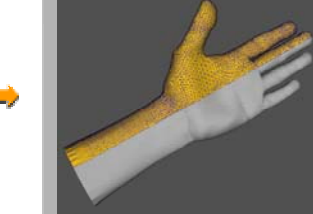
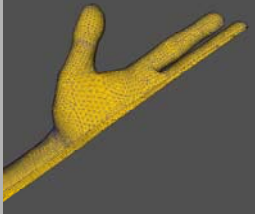
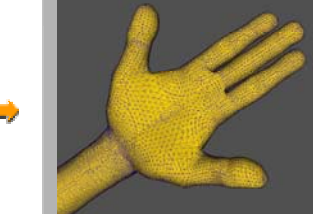
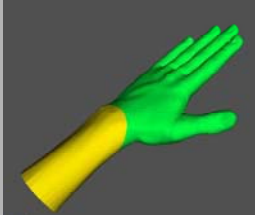
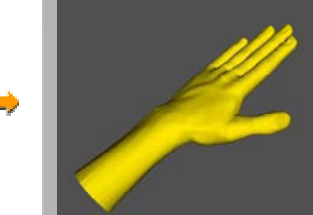
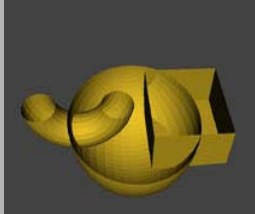
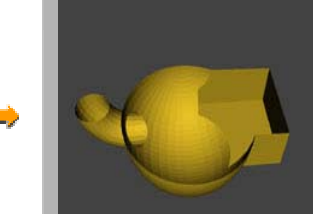
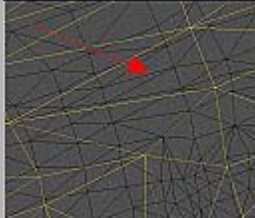
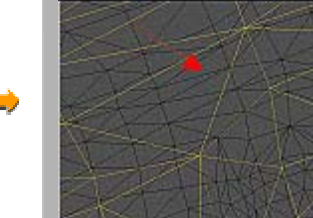
VRMesh 3.0 - Point Cloud to Mesh & Mesh Healing		
Point Cloud to Mesh <ul style="list-style-type: none">• Create meshes from point clouds accurately and efficiently.		
Clear Surface <ul style="list-style-type: none">• Remove unused points, collapsed triangles, multiple edges, and overlapping triangles.		
Unify Normals <ul style="list-style-type: none">• Unify the normal to the same direction, inwards or outwards.		
Fill Holes <ul style="list-style-type: none">• Fill all holes automatically or some preferred holes whose area is smaller than the given value.		
Stitch Gaps <ul style="list-style-type: none">• Stitch gaps between all bad edges, if the gap is smaller than the given tolerance.		
Fill Boundary by Curvature <ul style="list-style-type: none">• Fill a hole or a part of the hole smoothly using the curvature-based method.		

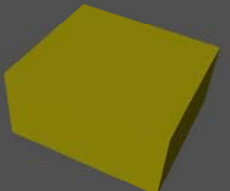
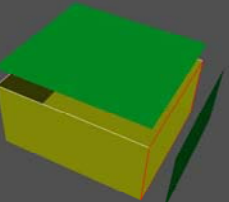
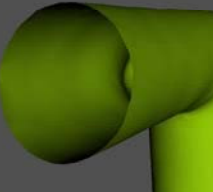
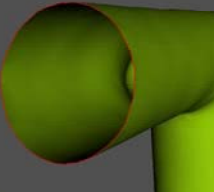

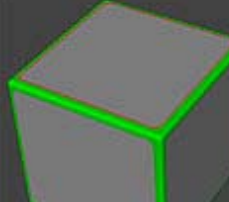
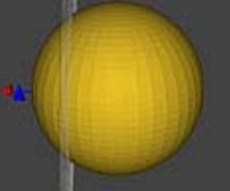
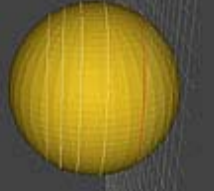






VRMesh 3.0 - Smart Form		
<p>Simple Form</p> <ul style="list-style-type: none"> • Create an editable free-form object from a shape curve without analysis of the shape curve topology. • Example includes three shape curves: body, and two feet, with the default <i>Conic</i> cross-section. 		
<p>Complex Form</p> <ul style="list-style-type: none"> • Create editable free-form objects from a shape curve with analysis of the shape curve topology. • Example chooses the default <i>Conic</i> cross-section. 		
<p>Lift Form</p> <ul style="list-style-type: none"> • Create an editable object by sweeping the original shape curve and its lifted shape curve. • Example chooses the default <i>Rectangle</i> cross-section. 		
<p>Revolve Form</p> <ul style="list-style-type: none"> • Create an editable object by revolving a shape curve. • Example revolves a shape curve along a user defined cross-section rail. 		
<p>Parallel Form</p> <ul style="list-style-type: none"> • Create an editable object from several shape curves and cross-section curves. • Example sweeps a cross-section along two shape curves. 		
<p>Extrude</p> <ul style="list-style-type: none"> • Create an editable object with extrusion. 		

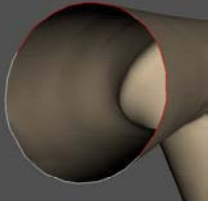
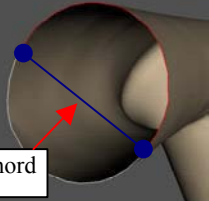
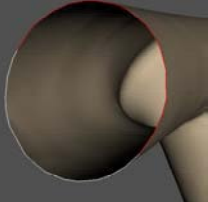
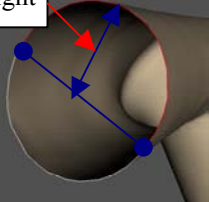

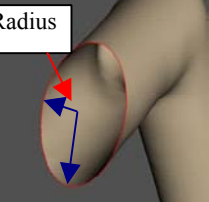
VRMesh 3.0- Digital Clay		
<p>Smooth Brush</p> <ul style="list-style-type: none"> Smooth a brushed surface region with remeshing or sharpening. 		
<p>Footprint</p> <ul style="list-style-type: none"> Print a pattern on the surface. 		
<p>Emboss Texture</p> <ul style="list-style-type: none"> Emboss a desired region with the texture luminance value. 		
<p>Morph Brush</p> <ul style="list-style-type: none"> Morph a brushed surface region. 		
<p>Morph Contour</p> <ul style="list-style-type: none"> Deform a surface region outside the selected surface curve. 		
<p>Sculpt Brush</p> <ul style="list-style-type: none"> Push, pull, and crease a brushed surface region to create complex organic shapes. 		
<p>Sculpt Curve</p> <ul style="list-style-type: none"> Push, pull, and crease a region along the selected curve to create complex organic shapes. Example shows restoring a sharp edge. 		

VRMesh 3.0 - Mesh Editing		
<p>Project and Paste</p> <ul style="list-style-type: none"> Project a source object onto a target surface, and the source object will be deformed according to the change of its boundary curve. 		
<p>Project and Fillet</p> <ul style="list-style-type: none"> Project a source object onto a target surface, and the source object will be kept intact. 		
<p>Fillet by Skin / Subdivision</p> <ul style="list-style-type: none"> Create an object by connecting two objects using a skin/subdivision method. Example shows the fillet by skin operation. 		
<p>Sketch and Solid Cut</p> <ul style="list-style-type: none"> It's a composite command, including four commands: sketch a shape curve, extrude the shape curve, clip the mesh, and take a difference operation of the Boolean. 		
<p>Extrude Contour along Curve</p> <ul style="list-style-type: none"> Extrude a surface curve along a sketched curve or a sketched line. 		
<p>Extrude Boundary along Normal</p> <ul style="list-style-type: none"> Extrude a boundary curve along its surface normal direction or its contour direction. 		
<p>Boolean</p> <ul style="list-style-type: none"> Include the Union, Difference, and Intersection operation. Example shows the Difference operation. 		

VRMesh 3.0 -Mesh Editing		
<p>Smoothing</p> <ul style="list-style-type: none"> Remove noises from the selected object. There are four smoothing types: <i>Remesh</i>, <i>Sharp</i>, <i>Enhance</i>, and <i>Laplacian</i>. 		
<p>Decimation</p> <ul style="list-style-type: none"> Reduce the number of triangles on the meshes with preserving the marked region. 		
<p>Subdivision</p> <ul style="list-style-type: none"> Subdivide the selected object. Example shows two times of subdivision. 		
<p>Smooth Boundary</p> <ul style="list-style-type: none"> Remove noises from the selected boundary region. 		
<p>Offset Surface</p> <ul style="list-style-type: none"> Offset the whole part with varying distance. 		
<p>Registration</p> <ul style="list-style-type: none"> Align a source object to a target object according to each set of marked points. 		
<p>Extract Contour Region</p> <ul style="list-style-type: none"> Create a new object using the region inside the selected contour. 		

VRMesh 3.0 - Mesh Editing		
<p>Split Marked Region</p> <ul style="list-style-type: none"> Split the marked region from an object to create a new object. 		
<p>Clip by Contour</p> <ul style="list-style-type: none"> Clip the region by a closed surface curve. 		
<p>Clip by Plane</p> <ul style="list-style-type: none"> Clip the selected object by a plane. The plane can be: X-Y plane, Y-Z plane, X-Z plane, work plane, or user-defined clip plane. 		
<p>Mirror</p> <ul style="list-style-type: none"> Mirror the selected object about a plane. The plane can be: X-Y plane, Y-Z plane, X-Z plane, work plane, or user-defined clip plane. 		
<p>Merge Objects</p> <ul style="list-style-type: none"> Merge objects into a single object. 		
<p>Unify Objects</p> <ul style="list-style-type: none"> Unify all objects in the selected group into a single object. This operation only preserves the outer triangles and all the inner triangles will be thrown away. 		
<p>Triangle Editing</p> <ul style="list-style-type: none"> Include Swap, Insert, Collapse, Delete, and Pick. Example shows swapping the edge. 		

VRMesh 3.0 – Surface Curve Editing		
<p>Pick Edge</p> <ul style="list-style-type: none"> • Create a surface curve along the edge. • Example picks the edge, and then clips the object with the surface curve. 		
<p>Pick Boundary</p> <ul style="list-style-type: none"> • Create a surface curve along the boundary. 		
<p>Pick Marked Boundary</p> <ul style="list-style-type: none"> • Create a surface curve around the marked region. 		
<p>Section Curve by Work Plane</p> <ul style="list-style-type: none"> • Create a surface curve by cutting the selected object with the work plane. 		
<p>Offset Surface Curve</p> <ul style="list-style-type: none"> • Offset the selected surface curve. 		
<p>Mirror Surface Curve</p> <ul style="list-style-type: none"> • Mirror the selected surface curve. 		
<p>Adjust Surface Curve</p> <ul style="list-style-type: none"> • Adjust a surface curve based on the interpolated spline curve. 		

VRMesh 3.0 - Analysis		
<p>Curve Chord</p> <ul style="list-style-type: none"> • Compute the chord length of an open curve. The chord is defined as the line that connects the ending points of an open curve. 		 <p>Chord</p>
<p>Curve Height</p> <ul style="list-style-type: none"> • Compute the maximum distance from points on an open curve to its chord. 		 <p>Height</p>
<p>Contour Radius</p> <ul style="list-style-type: none"> • Compute the maximum, minimum, and average radius of a closed surface curve. 		 <p>Radius</p>
<p>Contour Area</p> <ul style="list-style-type: none"> • Compute the surface area within a closed surface curve. 	