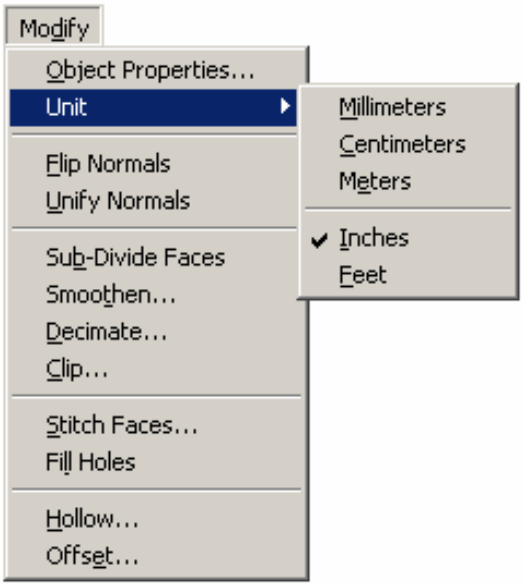
MeshWorks 1.0

Advanced Mesh Editing Software



MeshWorks is an advanced mesh editing software built using the powerful MeshLib mesh library. With MeshWorks you can create, transform and modify meshes very easily.

A mesh is usually created by exporting a solid model from another CAD system. Meshes created this way are very difficult to modify and sometimes the very nature of their geometry renders them useless for further processing. MeshWorks gives you the power to manipulate meshes so that you can alter their geometry and make them suitable to your needs.

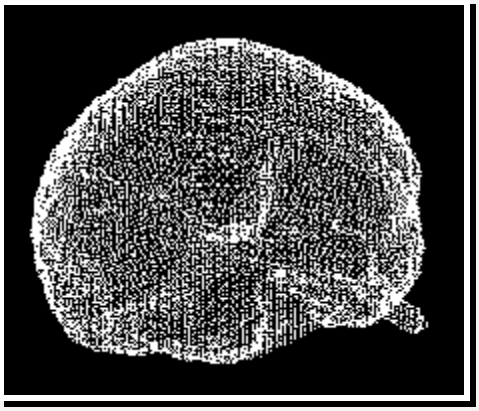
Awards



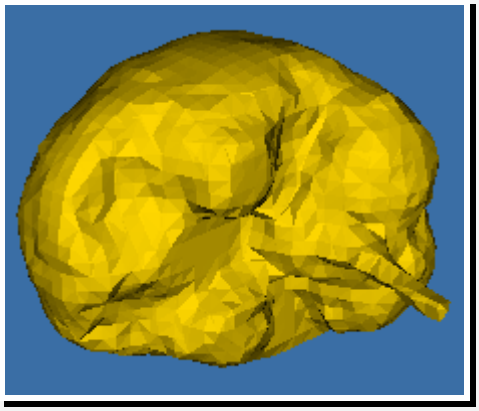


Surface Reconstruction

MeshWorks reads a point cloud from a text file and creates a mesh that wraps around the points. MeshWorks uses an advanced surfacing algorithm that accurately approximates the original surface.



Point Cloud of a human brain



Mesh created from Point Cloud

Hollow & Offset

MeshWorks hollows a mesh to a specified wall thickness. The hollow can be internal or external or both. MeshWorks also offsets a mesh internally or externally.



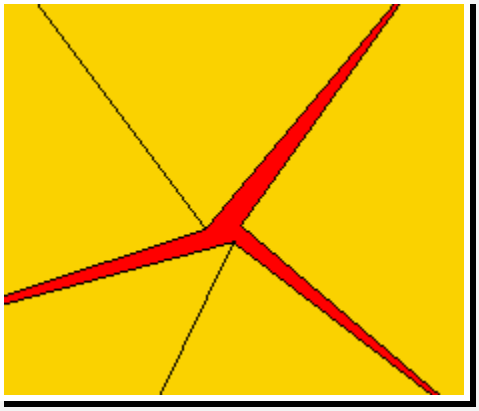
Original mesh



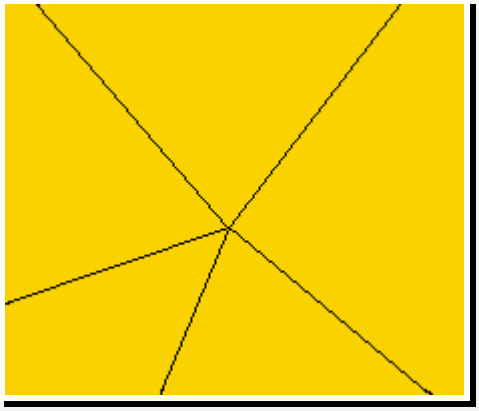
Hollowed mesh (50% transparency)

Stitch Faces

Some CAD systems export meshes with loosely tied faces. The edges of adjacent faces seem to coincide to the naked eye, but actually there are minute needle shaped spaces between adjacent faces. MeshWorks stitches adjacent faces of a mesh together to remove the gaps.



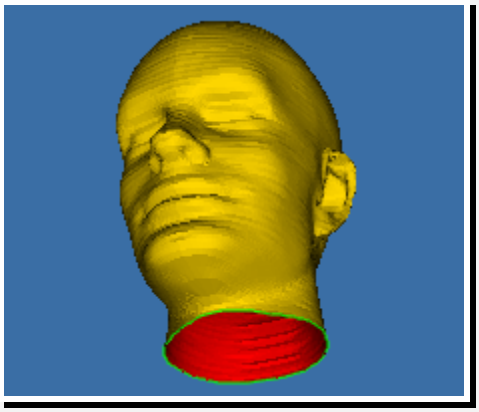
Original mesh with gaps



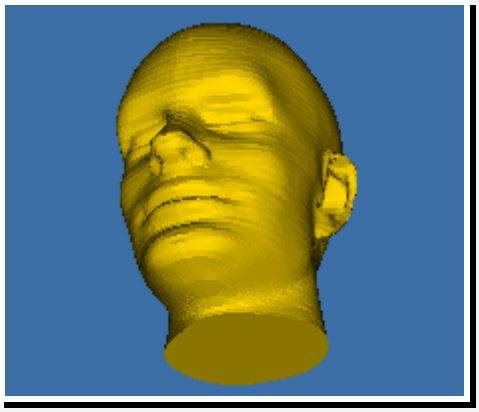
Stitched mesh

Fill Holes

MeshWorks fills large holes present in a mesh. Holes can occur due to original geometry or due to other MeshWorks mesh editing commands such as clipping. Filling holes is essential to make a mesh water-tight.



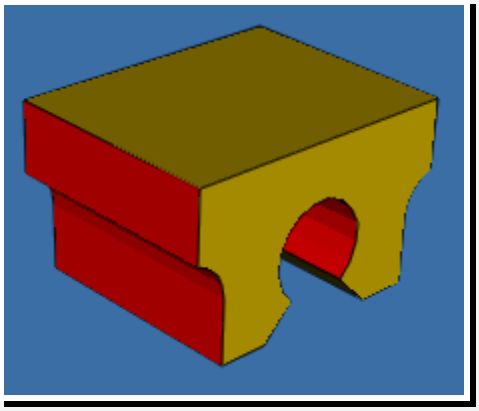
Original mesh with hole



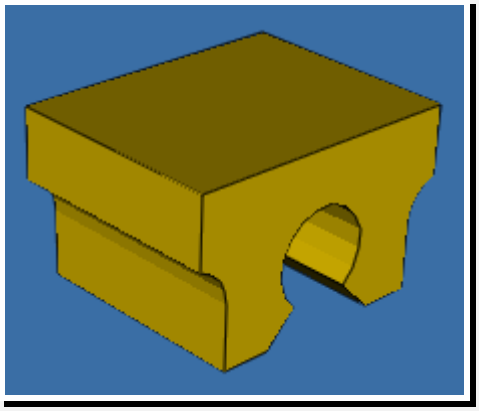
Modified water-tight mesh

Flip & Unify Face Normals

MeshWorks inverts a mesh by flipping the direction of the face normals. Sometimes the normals of a mesh are not consistent in their direction. MeshWorks unifies all the face normals so that they point in the same direction, i.e. inwards or outwards.



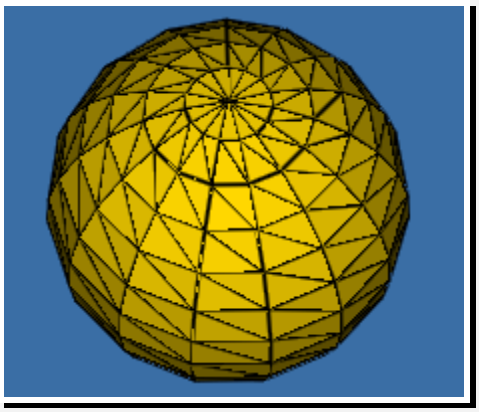
Original mesh with inconsistent normals



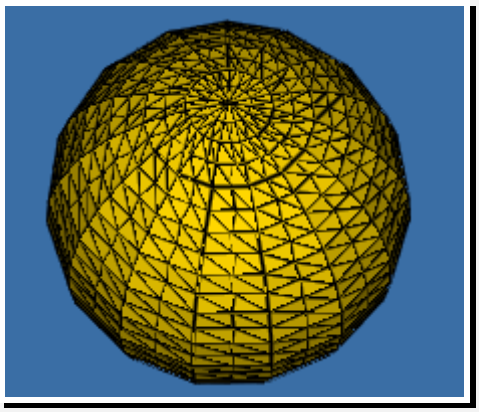
Modified mesh with unified normals

Sub-Divide Faces

MeshWorks sub-divides each face of a mesh to yield 4 faces to result in a high resolution mesh.



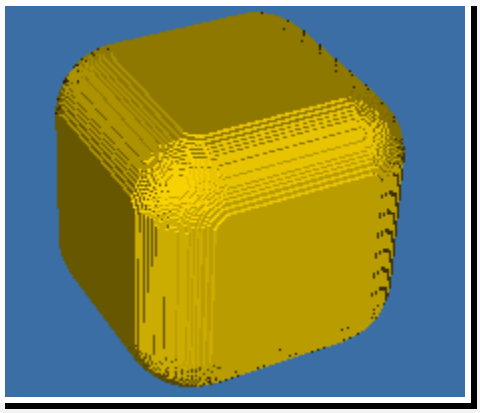
Original mesh



Modified high resolution mesh

Smoothen

MeshWorks can smoothen meshes with jagged and rough surfaces. This "relaxes" the mesh and results in faces that are better shaped.



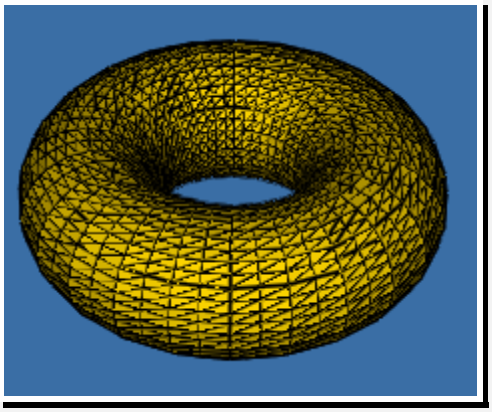
Original rough mesh



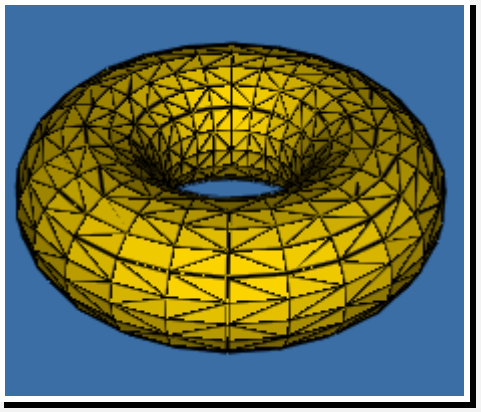
Smoothened mesh

Decimate

MeshWorks can decimate a mesh to reduce the number of faces. This greatly simplifies large meshes with very high resolution.



Original high resolution mesh



Decimated mesh

Clip

MeshWorks can clip a mesh to cut away a portion of the mesh or divide the mesh into two parts by retaining the cut portion.



Original mesh



Clipped mesh

Standard objects
MeshWorks creates standard objects such as box, sphere, cylinder, cone, torus and even text.

Measurement
You can measure vertices and distance between two vertices of a mesh. MeshWorks also calculates mass properties of meshes such as surface area and volume.

Transformations
You can move, align, rotate, scale, mirror and shear meshes precisely giving accurate values for the transformation parameters. You can also move, rotate and scale meshes free hand with the mouse.

Superior 3D Trackball Style Viewing
MeshWorks lets you view your models with the 3D trackball style mouse interface. Navigate easily through your drawing using the mouse with dynamic zoom, pan and orbit.

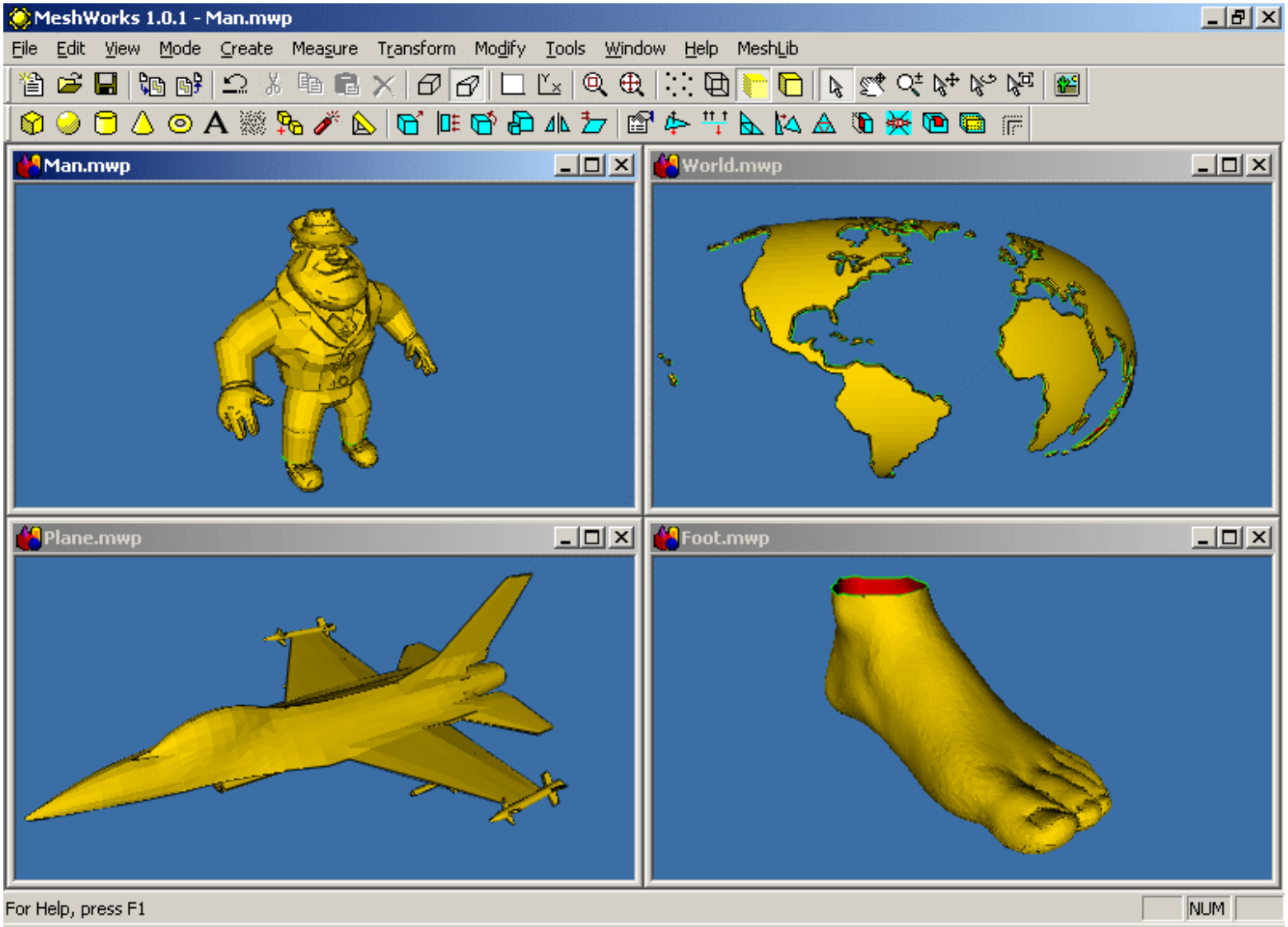
Colors & Transparency
MeshWorks allows you to assign colors and transparency to meshes so that you can see through them. This is very helpful when viewing hollowed models.

Multiple Projects with Clipboard Support
You can open multiple MeshWorks Project files and work with them simultaneously. You can cut or copy meshes from one project and paste them into another.

Print and Print Preview
MeshWorks supports the standard Windows print and print preview operations.

Import and Export
MeshWorks supports the following file formats:

- MeshLib Mesh File Format (.msh)
- Stereolithography File Format (.stl)
- Alias|Wavefront OBJ File Format (.obj)



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