

# Insta3D Mesh Tools

## Insta 3D Mesh Tools

Mesh  
Refinement

Mesh  
Decimation

Mesh  
Smoothing

Hole Filling

Orientation  
Correction

Sliver Face/Edge  
Removal

### Benefits of Insta3D Mesh Tools

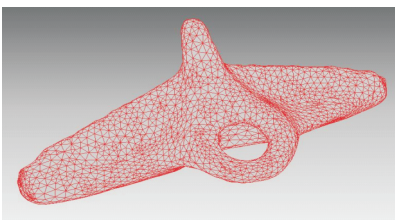
- ✎ A single comprehensive library for all your mesh editing needs
- ✎ Robust library providing accurate results
- ✎ Works with large meshes
- ✎ Easy to integrate into your base application
- ✎ Flexible licensing schemes

### Technical Features

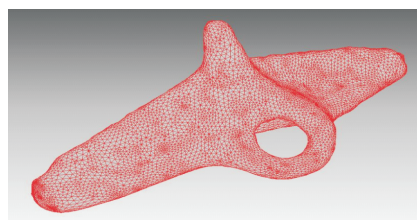
- ✎ Developed in C++
- ✎ Available as a Lib and DLL
- ✎ Small memory foot print
- ✎ Comprehensive API documentation

### Mesh Refinement

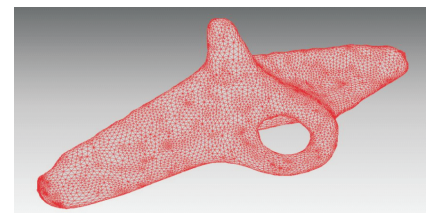
Mesh Refinement allows to refine mesh by specifying a refinement factor.



Input Mesh  
# of Facets 7408



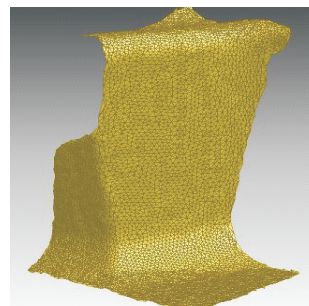
Output Mesh (3X)  
# of Facets 22114



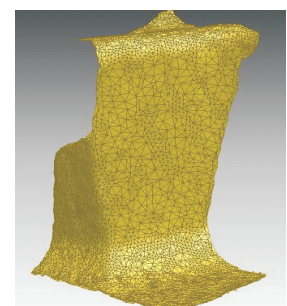
Output Mesh (4X)  
# of Facets 29498

### Mesh Decimation

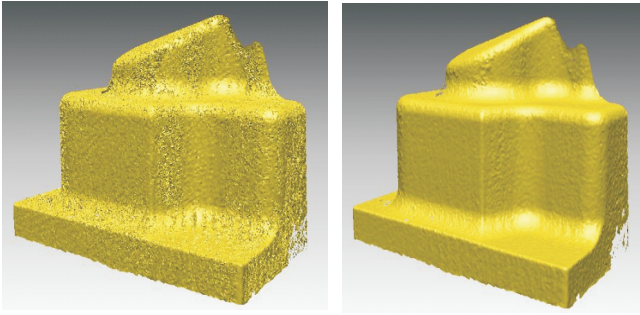
This tool allows us to reduce the number of facets in the mesh by a specified factor. Decimation algorithm also has the ability to decimate the mesh based on the curvature of the mesh.



Input Mesh  
# of Facets 14210



Output Mesh (50%)  
# of Facets 7106



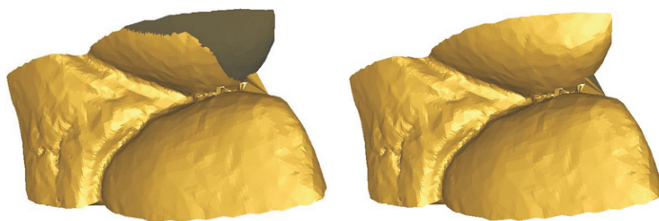
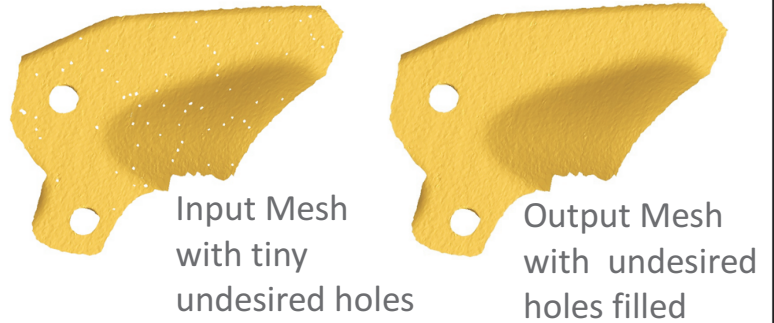
Before Smoothing    After Smoothing

### Mesh Smoothing

Mesh smoothing removes noise and smoothens the mesh.

### Hole Filling

Mesh may contain undesired holes which are not part of any hole feature. Hole Filling technique fills such holes by connecting adjacent boundary edges.



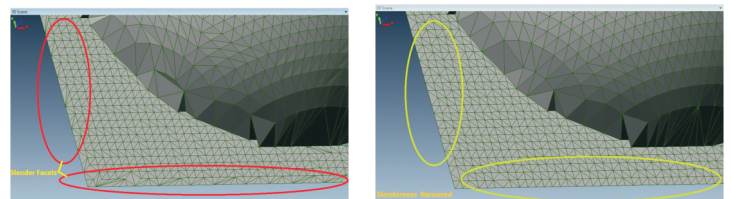
Before Correction    After Correction

### Orientation Correction

In some cases, part of the mesh may not be oriented correctly. This functionality corrects orientation of mesh to indicate single material side.

### Sliver Face Removal

Mesh may contain triangles with very high aspect ratio (ratio base/height). Such triangles are replaced by triangles with relatively better aspect ratio.



### Small Edge Removal

Mesh may contain edges that have very small length. Such edges may not be needed. This feature removes such edges by collapsing at any of its two vertices.

### Evaluation Version

For evaluation version or more information please write to [contact@pre-scient.com](mailto:contact@pre-scient.com).