

[Skip to content](#)

# Laplacian Deform Modifier

The *Laplacian Deform* modifier allows you to pose a mesh while preserving geometric details of the surface.

The user defines a set of “anchor” vertices, and then moves some of them around. The modifier keeps the rest of the anchor vertices in fixed positions and calculates the optimal locations of all the remaining vertices to preserve the original geometric details.

This modifier captures the geometric details with the use of differential coordinates. The differential coordinates capture the local geometric information, the curvature and direction of a vertex based on its neighbors.

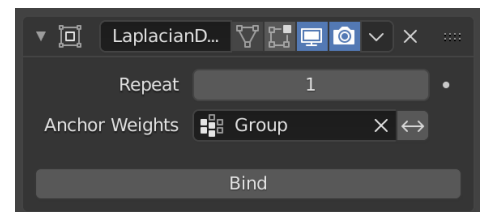
## Note

You must define an *Anchors Vertex Group*. Without it the modifier does nothing.

## Options

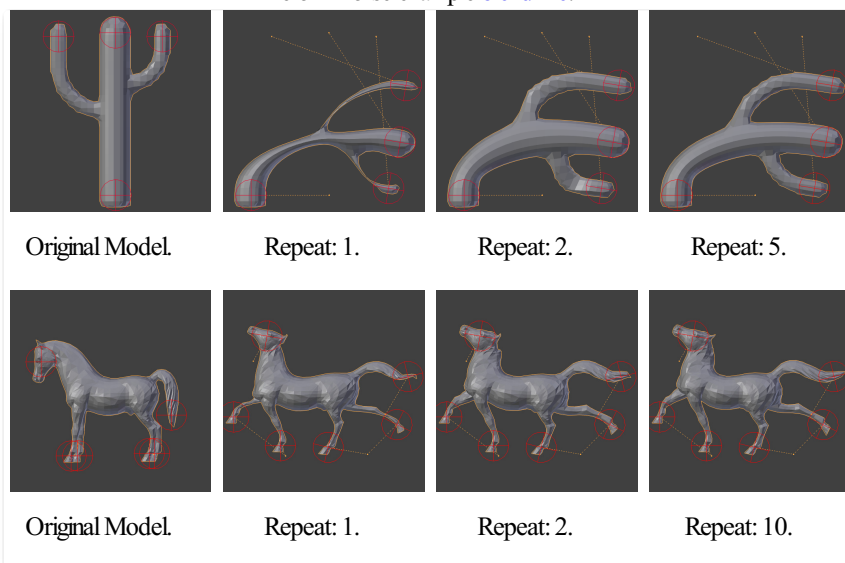
### Repeat

How many iterations to do to improve the found solution. The objective is to find the rotation of the differential coordinates preserving the best possible geometric details. Details are retained better if more iterations are used, however, it will take longer to calculate.



The Laplacian Deform modifier.

Deform horse example [blend-file](#).



### Anchor Weights

The group of vertices that the user will use to transform the model. The weight of each vertex does not affect the behavior of the modifier, the method only takes into account vertices with weight greater than 0.

### Invert <->

Inverts the influence of the selected vertex group, meaning that the group now represents vertices that will not be deformed by the modifier.

The setting reverses the weight values of the group.

### Bind

The *Bind* button is what tells the *Laplacian Deform* modifier to actually capture the geometry details of the object, so that altering the anchor vertices actually alters the shape of the deformed object.

### Unbind

After binding the modifier, you may later decide to make changes to the *Anchors Vertex Group*. To do so you will first need to *Unbind* the modifier before binding it again.

# Error Messages

## Vertex group *group\_name* is not valid

This message is displayed when a user deletes the vertex group or changes its name.

## Vertices changed from X to Y

This message is displayed when a user adds or deletes vertices to/from the mesh.

## Edges changed from X to Y

This message is displayed when a user adds or deletes edges to/from the mesh.

## The system did not find a solution

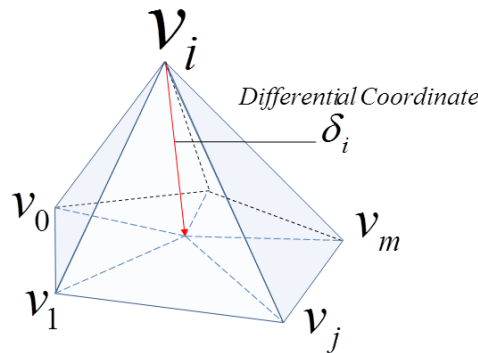
This message is displayed if the solver could not find a solution for the linear system.

### Note

If the mesh is dense, with a number of vertices greater than 100,000, then it is possible that the nonlinear optimization system will fail.

# History

[Laplacian Surface Editing](#) is a method developed by Olga Sorkine and others in 2004. This method preserves geometric details as much as possible while the user makes editing operations. This method uses [differential coordinates](#) corresponding to the difference between a vector and the weighted average of its neighbors to represent the local geometric detail of the mesh.



$$\delta_i = \sum_{j=1}^m w_{ij} (v_i - v_j)$$

Differential Coordinate.

### See also

- [Laplacian Surface Editing \(Original paper\)](#)
- [Differential Coordinates for Interactive Mesh Editing](#)

[Previous](#)  
[Hook Modifier](#)

Copyright © : This page is licensed under a CC-BY-SA 4.0 Int. License

[Ne](#)  
[Lattice Modif](#)

Made with [Furo](#)

Last updated on 2025-05-10

[View Source](#)  
[View Translation](#)  
[Report issue on this page](#)