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## 3D Mesh Cleanup Tutorial

 [PLOS One](#)

✓ Peer-reviewed method

DOI

<https://dx.doi.org/10.17504/protocols.io.kqdg391deg25/v1>

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**Protocol status:** Working

**We use this collection and it's working**

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**Keywords:** 3D imaging, 3D mesh editing, Virtual paleontology, 3d mesh cleanup tutorial, 3d reconstructions of animal, 3d object file, 3d object files for use, developing 3d reconstruction, digitized specimen, specimen

## Abstract

This is the collection of protocols for developing 3D reconstructions of animals and plants from digitized specimens (see Clark et al. 2023). 3D Object files for use in the protocols are available at <https://doi.org/10.6084/m9.figshare.21266568>

## Attachments



[671-1417.docx](#)

94MB



## Guidelines

This is the associated tutorials for *Back to life: Techniques for developing high-quality 3D reconstructions of plants and animals from digitized specimens*

### This includes:

Beginner tutorial: Fossil plant cupule (*Petriellaea triangulata* [Shi et al. 2021])

- *Included files:* Cupule Cleanup Tutorial.docx
- *3D object files:* Cupule before.stl, Cupule before.obj
- *Necessary software:* Meshlab
- *Skills developed:* Shrinkwrapping, simplification

Intermediate tutorial: Reptile (*Sphenodon punctatus* [downloaded from Morphosource.org])

- *Included files:* Sphenodon Cleanup Tutorial.docx
- *3D object files:* Sphenodon with holes.stl, Sphenodon with holes.obj
- *Necessary software:* Meshlab, Autodesk Maya, Autodesk Fusion 360
- *Skills developed:* Rearticulation, repair of broken fossils, basic sculpting, shrinkwrapping.

Advanced tutorial: Fossil crab (*Cretapsara athanata*[Luque et al. 2021])

- *Included files:* Crab Cleanup Tutorial.docx
- *3D object files:* Crab before.stl, Crab before.obj
- *Necessary software:* Meshlab, Autodesk Maya
- *Skills developed:* Debris removal, structural repair, shrinkwrapping, rearticulation, smoothing and simplification

### Before starting:

Download 3D object files and install Meshlab, Autodesk Maya, and Fusion 360.

Download 3D Object files at <https://doi.org/10.6084/m9.figshare.21266568>

Meshlab is an opensource software available at <https://www.meshlab.net/>

Autodesk Maya and Fusion 360 are available with a student and educators license at <https://www.autodesk.com/education/edu-software/overview>

## Attachments



671-  
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## Files

 SEARCH

### Protocol

NAME

3D Mesh Cleanup Tutorial: Fossil Plant Cupule (Beginner)

VERSION 1

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### Protocol

NAME

3D Mesh Cleanup Tutorial: Sphenodon (Intermediate)

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### Protocol

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3D Mesh Cleanup Tutorial: Fossil Crab (Advanced)

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