LuBan

3D Window
File → Create → Lithophane

Overview

LuBan Lithophane is designed to make a photo frame, multi-faced lamp, cylindrical, and spherical objects with one or several 2D photos overlaid on their surface.

Select photo

Select one or several photos using the Browse button.

If the lithophane shape is Flat, Arc, or Sphere, only one photo will be applied to the lithophane.

Other shapes can apply more than one photos to the lithophane.

Unit

Set the unit of the lithophane model. The Saved model button at the bottom exports the lithophane in STL format, which is unitless. What is changed in changing the unit is the coordinate data of the model.

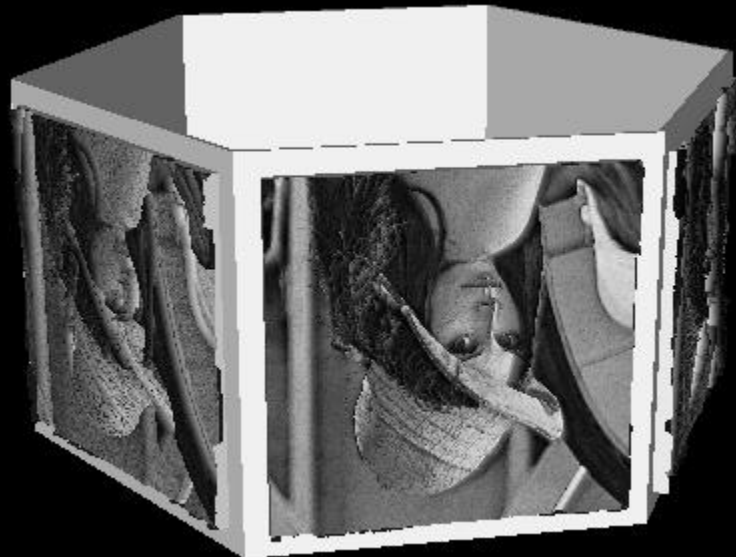For example, the data of a model in cm are 10 times smaller than those of the same model in mm.

Positive vs. Negative

Positive and negative directly correspond to their meaning in conventional photography.
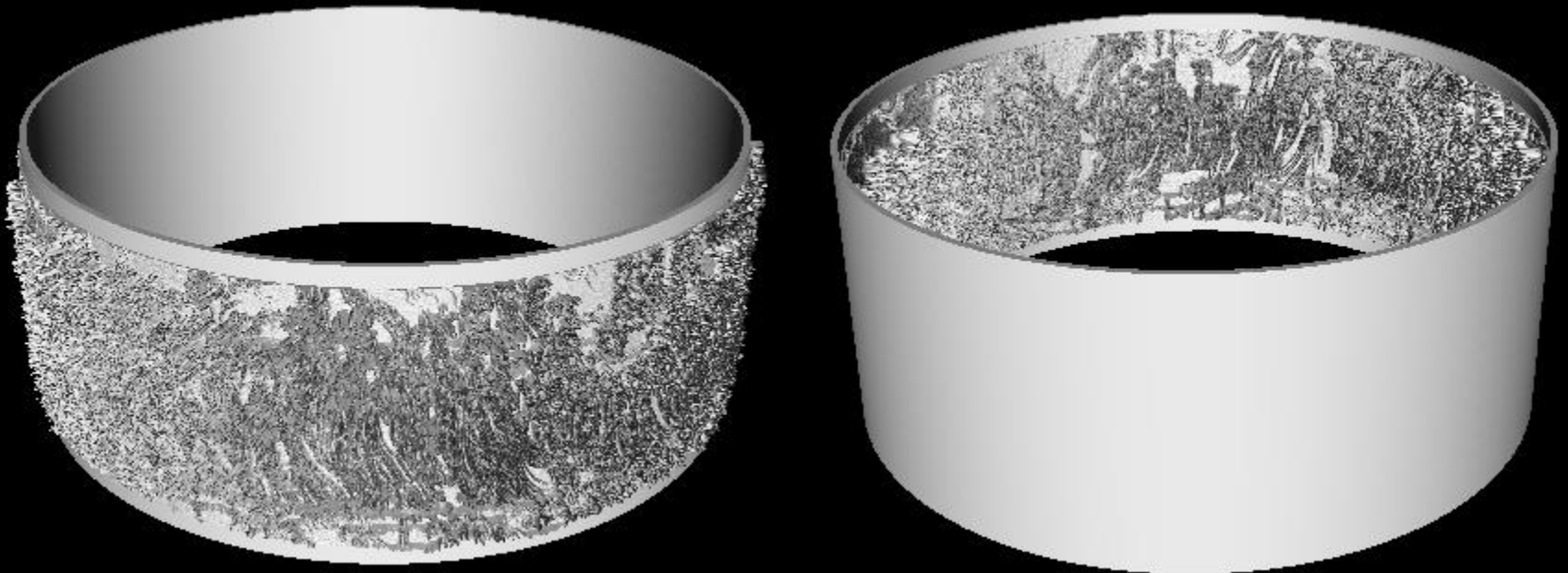
Upright vs. Inverted

On Rectangle, Hexagon, Octagon, Dodecagon, Cylinder and Cone lithophanes, a photo may be upright or inverted on the lithophane.

Exterior vs. Interior

On Arc, Cylinder, Cone, and Sphere lithophanes, the uneven surface can be generated on the exterior or interior.

Model size

The model size can be set in one or several directions. If the shape is Flat or Arc, the Z direction size can be set but not the X direction. The latter is determined by the photo's aspect ratio.

On Flat and Arc lithophane, the entire photo is applied. On other shapes, photos are auto cropped to fit in fixed-sized faces.

Min and Max thickness

The intensity variation of a photo is mapped to thickness variation of a lithophane and the latter is in between min and max thickness settings.

The default value is a rough guide. The best value is related to printer settings, desired contrast, and a range of other factors.

Resolution

Resolution of a lithophane determines the detail in the saved STL model. The smaller the resolution value, the higher the detail and the larger the STL file.

Although you can set an arbitrarily small non-zero resolution, the lithophane's resolution is limited by the resolution of a photo.
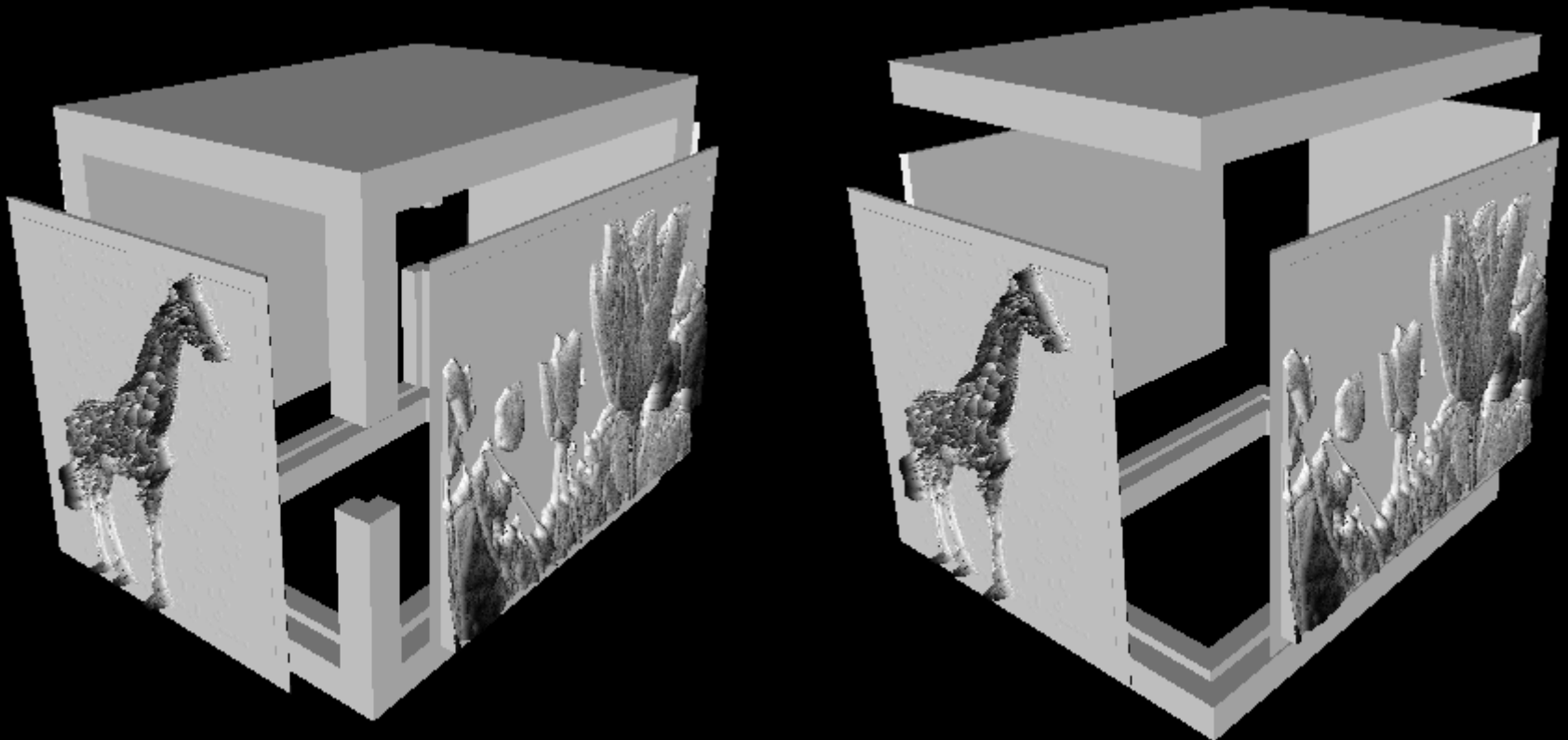
One body vs. Assembly

On Rectangle, Hexagon, Octagon, and Dodecagon lithophanes, the model can be generated as one body or as an assembly.
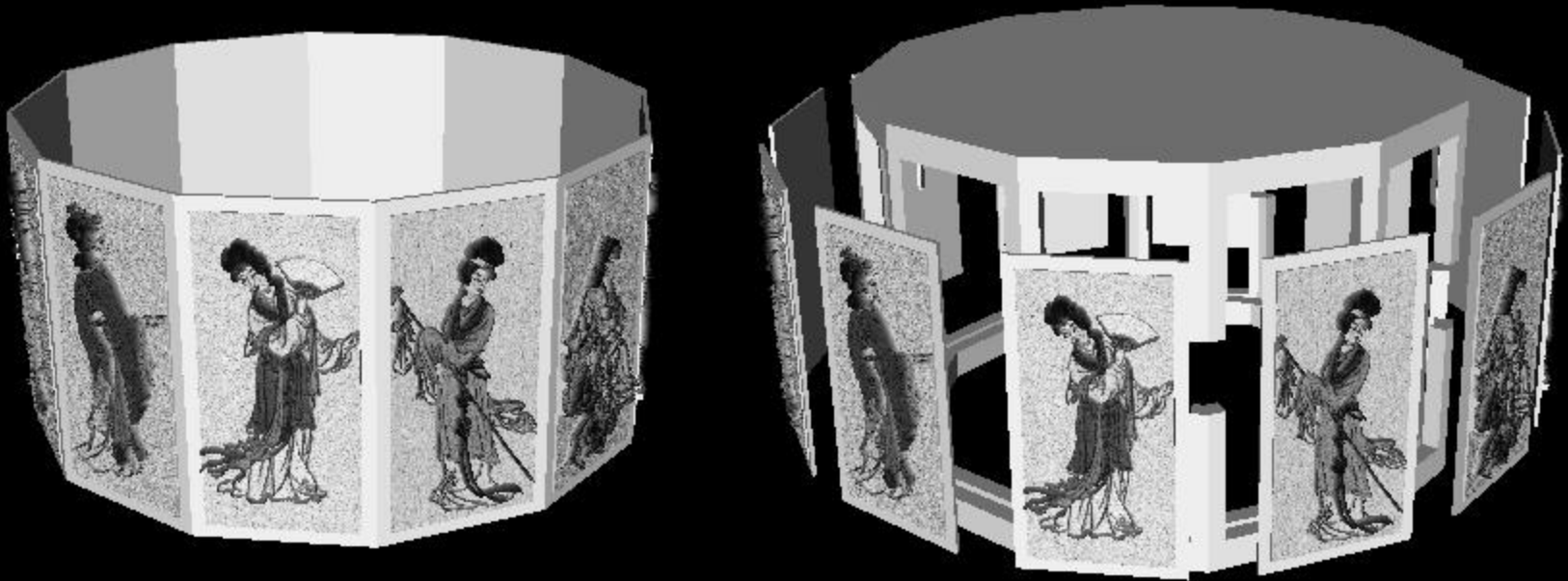
Pillar

Enable or disable the pillars of an assembly. Pillars may be useful in blocking light from the interface of two lithophane faces.

Tolerance

The Tolerance parameter works in the same way as it does in Mesh → LuBan, method Module. A negative tolerance compensates for a shell printed around an object.

The best tolerance value depends on a printer and the settings of slicing software. Good fitness of an assembly is usually obtained through trial and error.

Border

If the border size is larger than the min thickness, a border (i.e. frame) is generated for the lithophane. Set light or dark border to obtain different effects.
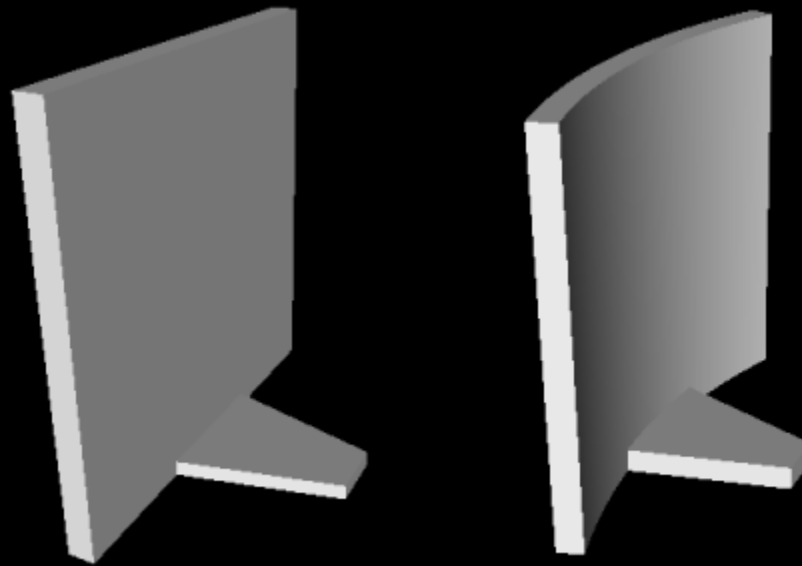
Hanger

Hanger setting allows for a frame hanger to be generated on the lithophane.
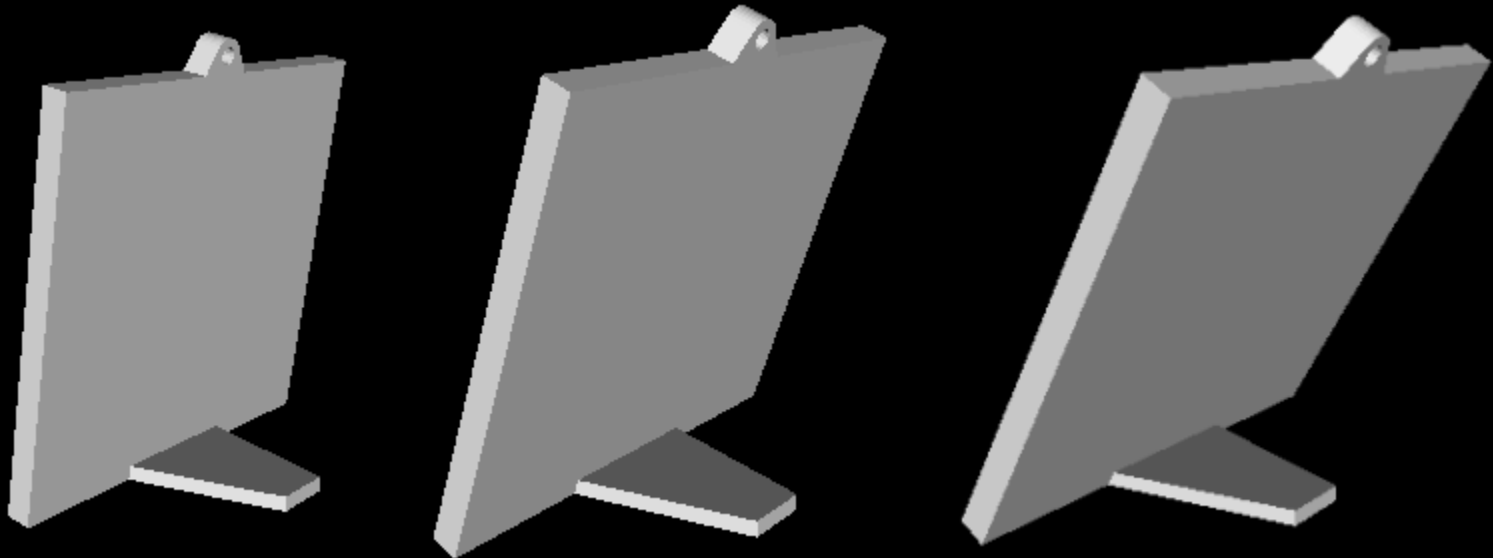
Base

On Flat and Arc lithophanes, a base can be generated to support the frame.
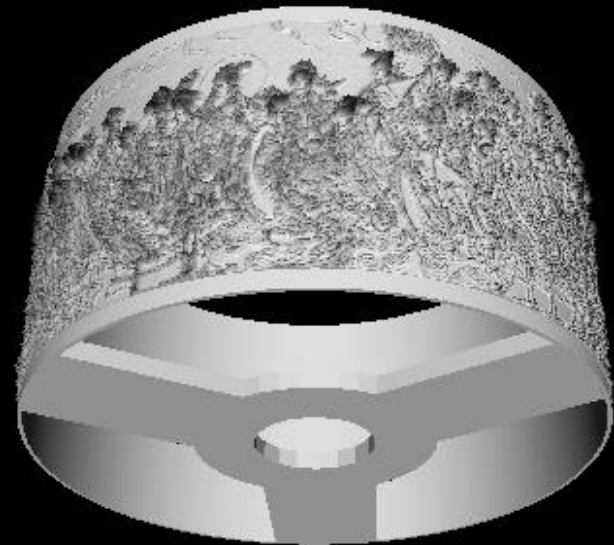
Flat lithophane: Slant

On Flat lithophane, a slant angle can be generated between the frame and base. When saving the model, the frame is reset to vertical as 3D printing a lithophane vertically gives the best results.
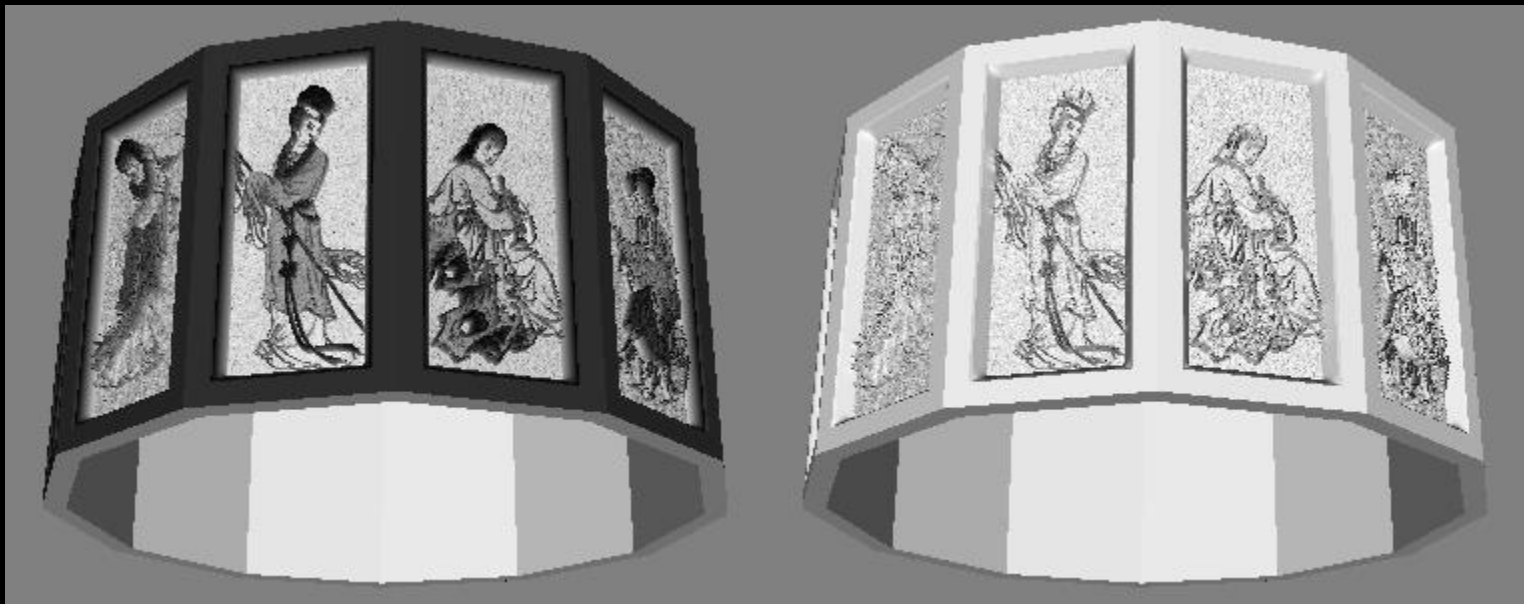
Lamp socket

On Rectangle, Hexagon, Octagon, Dodecagon, Cylinder, and Cone lithophanes, a lamp socket can be generated.

Back light

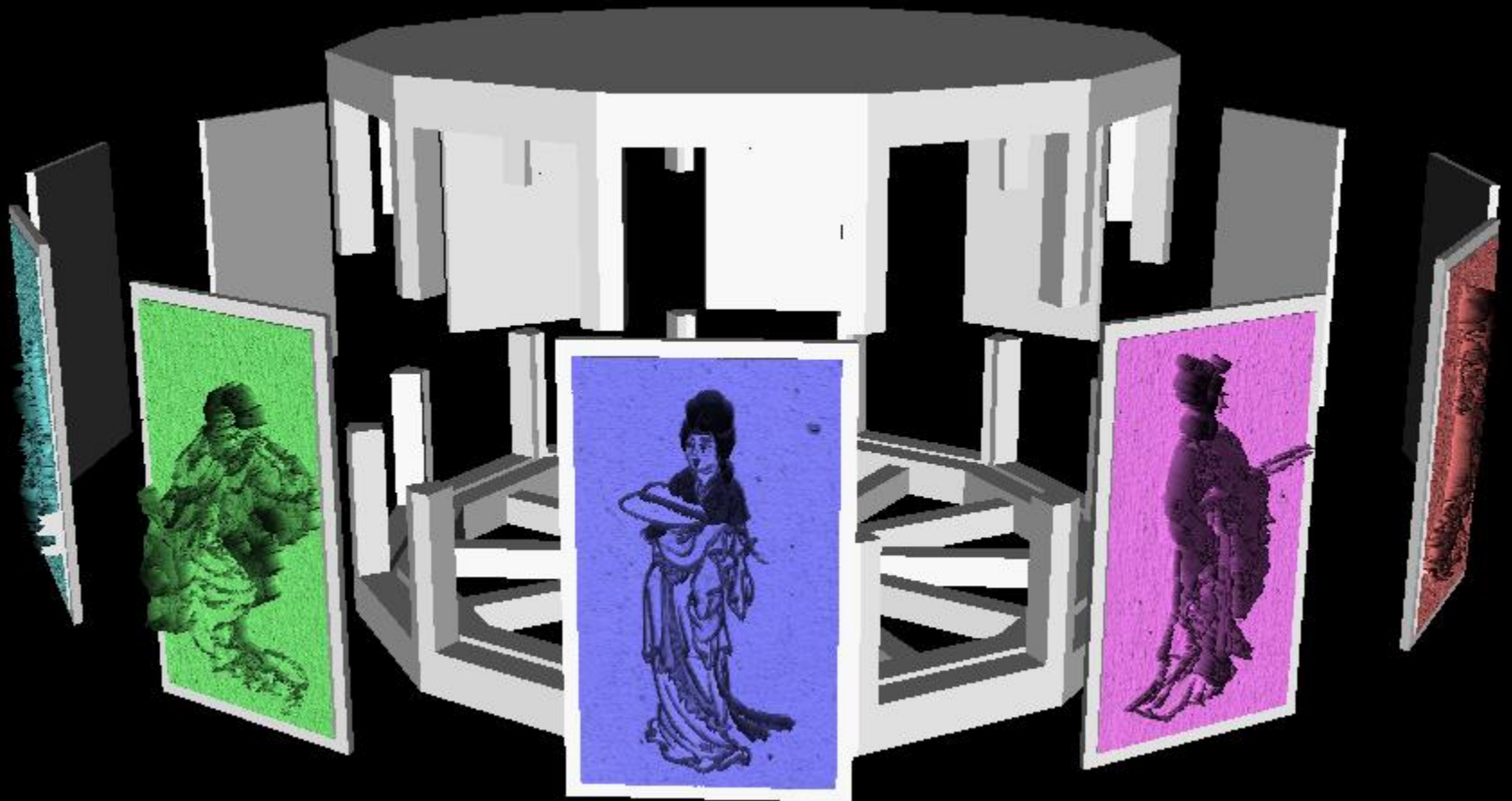Turn the back light on and off to switch between two rendering effects.

Intensity and Color of backlight

The intensity and color of the backlight can be adjusted.

Filament

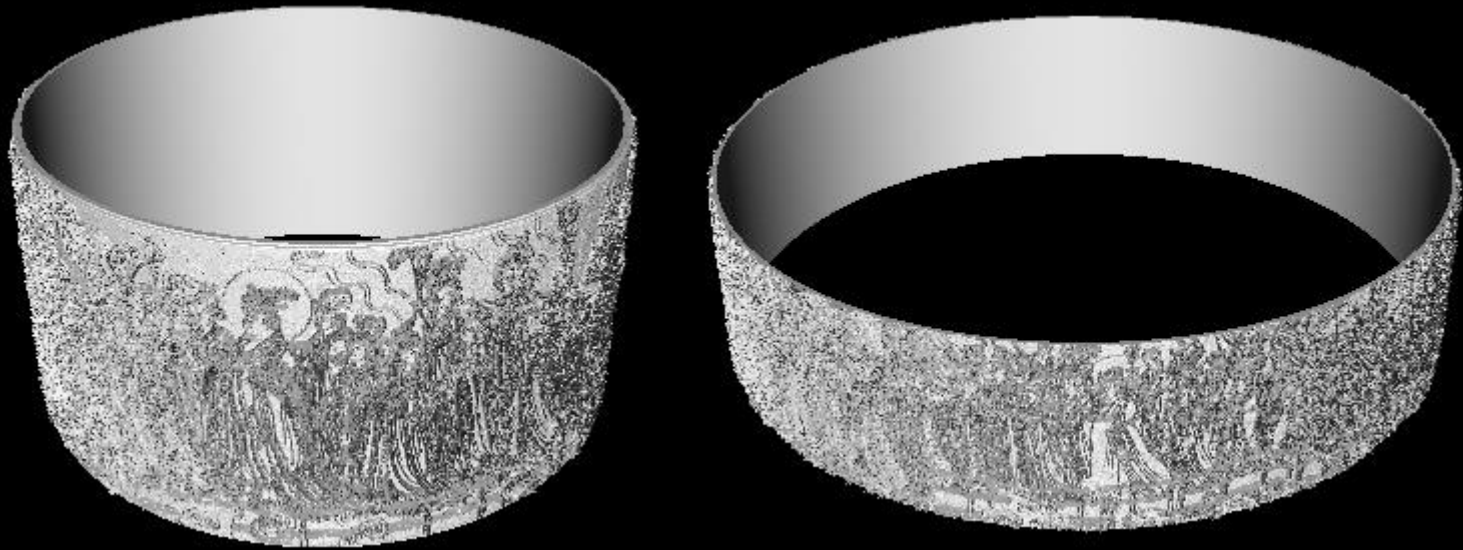The color of each filament can be specified.

Arc lithophane: Arc angle

On Arc lithophane, the arc angle can be set to any positive value no greater than 360. When the angle is above 350, a cylinder is generated.

Cylinder: Model diameter

On Cylinder lithophane, the model diameter can be adjusted.

Cone: Top and Bottom diameters

On Cone lithophane, the top and bottom diameters can be adjusted.

Sphere lithophane: Photo alignment

On Sphere lithophane, there are three options to align a photo to the surface of a sphere. Under each option, an offset can be applied on top and bottom of the photo.
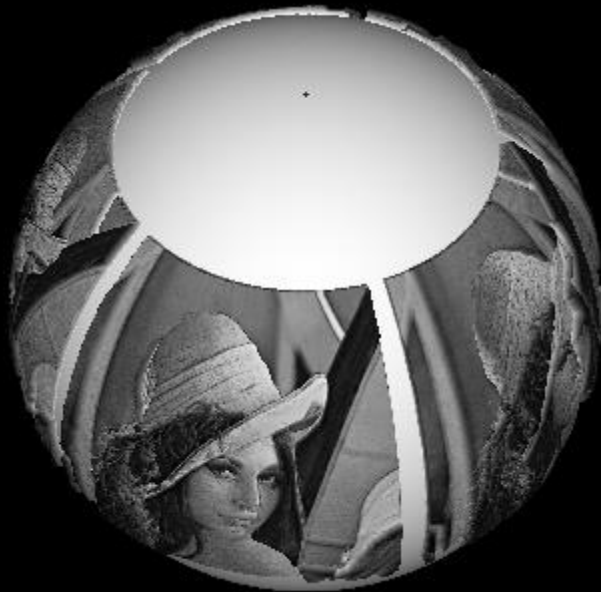
Sphere lithophane: Sphere angle

On Sphere lithophane, the sphere angle can be set to any value between 10 to 350. A semi-sphere has a sphere angle 180 degrees.

Duplicated photos on a sphere

A photo is stretched to cover the whole sphere on the center alignment. It may be duplicated around the sphere to maintain its aspect ratio on the top or bottom alignment.

Sphere lithophane: Globe

With a world map shown on the left, a globe lithophane can be generated using the top alignment.

Special-effect photo

Special-effect photos, such as the one on the left, can be used to generate sphere lithophane with near real-world aspect ratio.