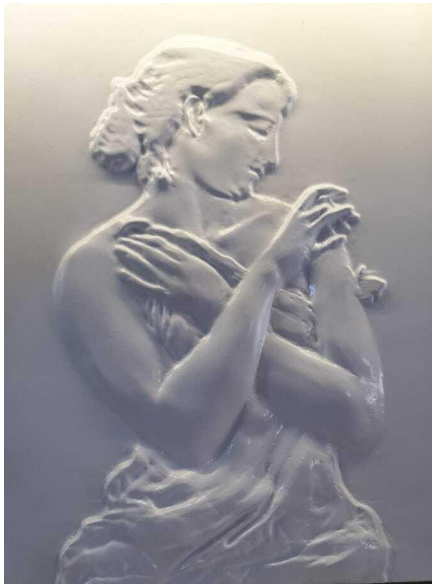
How To - 3D paintings / Tactile Art

Overview

3D paintings are bas-reliefs of actual paintings, be it oil, or some other technique. They are instrumental in allowing sight impaired people to experience this kind of art form.



In order to achieve this, we're employing several digital techniques that allow us to partly automate an intricate process:

- Lithophany: *the process of impressing porcelain objects, as lamp bases, with figures that become translucent when light is placed within or behind them. — lithophanic, adj.*
- 3D CAD: Anything that can import .STL type files and modify them. One simple tool is Microsoft 3D Builder
- 3D Printing - any printer can be used, preferably one that can print the entire painting in one go. It is possible to assemble one from multiple printed parts, but adds to labour time.

The end result should look similar to the image to the left.

How to implement

1. Take a good photograph of the art piece
   It can be any format. The photograph need to be high quality.

2. Make adjustments to the image so that front relief is lit and back relief is shaded
   Upload image and edit the photography. It can be done in any photograph editing program that has brightness option. You can use the color reversal option. The main idea is to have as much contrast difference as possible.
   The recommended app may be Adobe Photoshop.

3. Convert it to 3D format using a lithophany app.
   There are many tools for turning your photo into a lithophane model, but virtually all of them work the same way so you can choose any. When you finished with your creation, you can download it as a STL file.

4. Make adjustments to the 3D model
   Set all settings for 3D printing. Make sure that it is well done.

5. 3D print it
   It will take a while but it depends on the size of the painting. It can take about ? h.

6. Eventual finishing: sanding down and applying lacquer
   The surface must be smooth so it needs to be sanded and lacquered.

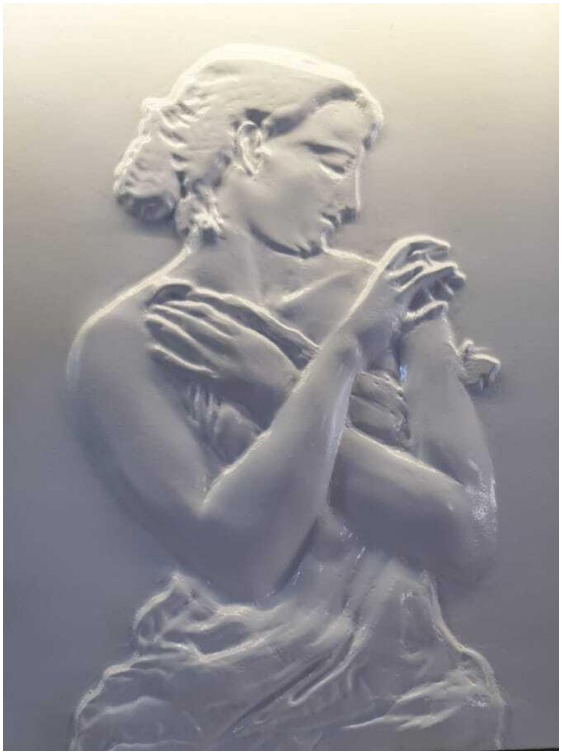
7. Frame it

8. 3D Print a Braille label with author and title
   The label can be done in any application that can convert text to Braille format. You can introduce the text and set the desired parameters and the application generate the 3D model. To print it, you need to download STL file format.

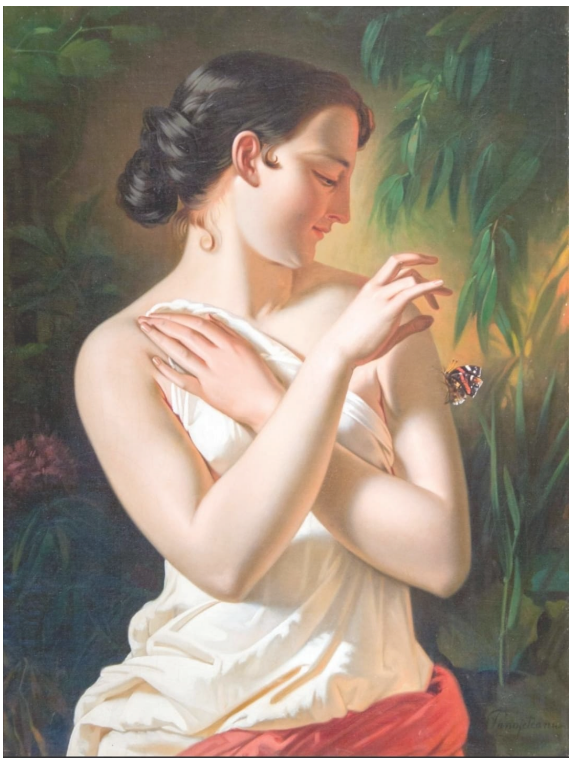
   You can see below some 3D paintings made:

3D painting

Original picture



3D painting



Original picture

3D painting

Original picture