

Projection Mapping

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Intro to Projection Mapping

A general introduction to Projection Mapping

Intro

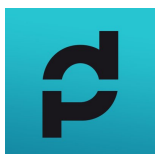
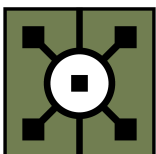
What is Projection Mapping?

Projection Mapping is a technique used to display content such as images or video onto irregularly shaped surfaces or objects. It is commonly used in advertising and stage design, but also by artists who wish to add depth or movement to static objects.



This technique was first used for Disney's Haunted Mansion ride in 1969, where a video of five singing ghosts was projected onto physical busts, creating the illusion of movement. Since then, many creatives continue to incorporate projection mapping in their artistic practice, and the technique has expanded to incorporate more advanced methods, including 3D and immersive projections.

Software



A variety of projection mapping software and masking tools are available online; The Creative Technology Lab supports projects in [Touchdesigner](#) and [Madmapper](#). While our "Intro to Projection Mapping" workshop introduces students to the technique in Touchdesigner, resources are available for both tools on this wiki.

Hardware

Selecting the right projector is crucial for projection mapping: Different projectors suit various environments and surfaces. LED or Laser projectors are ideal for dark rooms, offering intense colors and high resolution. For brighter rooms, Lamp projectors (3000 ANSI lumens or more) work best. It's important to handle lamp projectors carefully – mounting these upside down or from ceilings might damage the lamp inside.

Check out the variety of projectors available in college on ORB or speak to a technician to find out what might work best for your project.


Projection Mapping in Touchdesigner

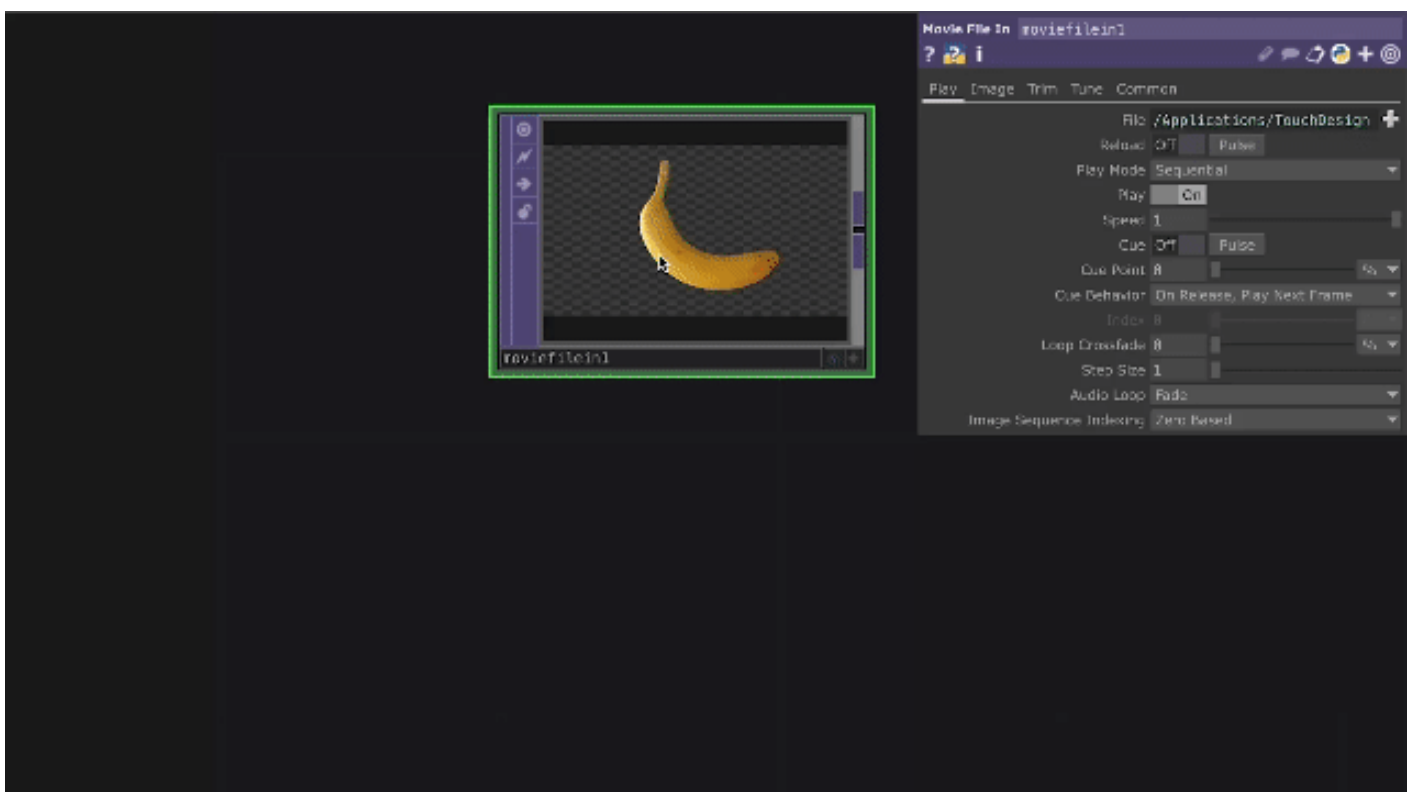
Before we begin...

Make sure you have installed Touchdesigner, a tutorial on how to get the software started is available [here](#). This tutorial will cover the basics to projection mapping content onto 3D surfaces in Touchdesigner, to learn more about this technique student can attend the 'Intro to Projection Mapping' workshop in the Creative Technology Lab.

Importing content in Touchdesigner

Double click anywhere on the interface to access the OP dialog, this is a "library" of all operators available in Touchdesigner. Operators are divided into families, in this tutorial we'll work with TOPs (Texture Operators).


Select the **moviefilein** TOP to import images or videos. You can change the default image to your own visuals by clicking on the  button next to "File" in the parameters window.

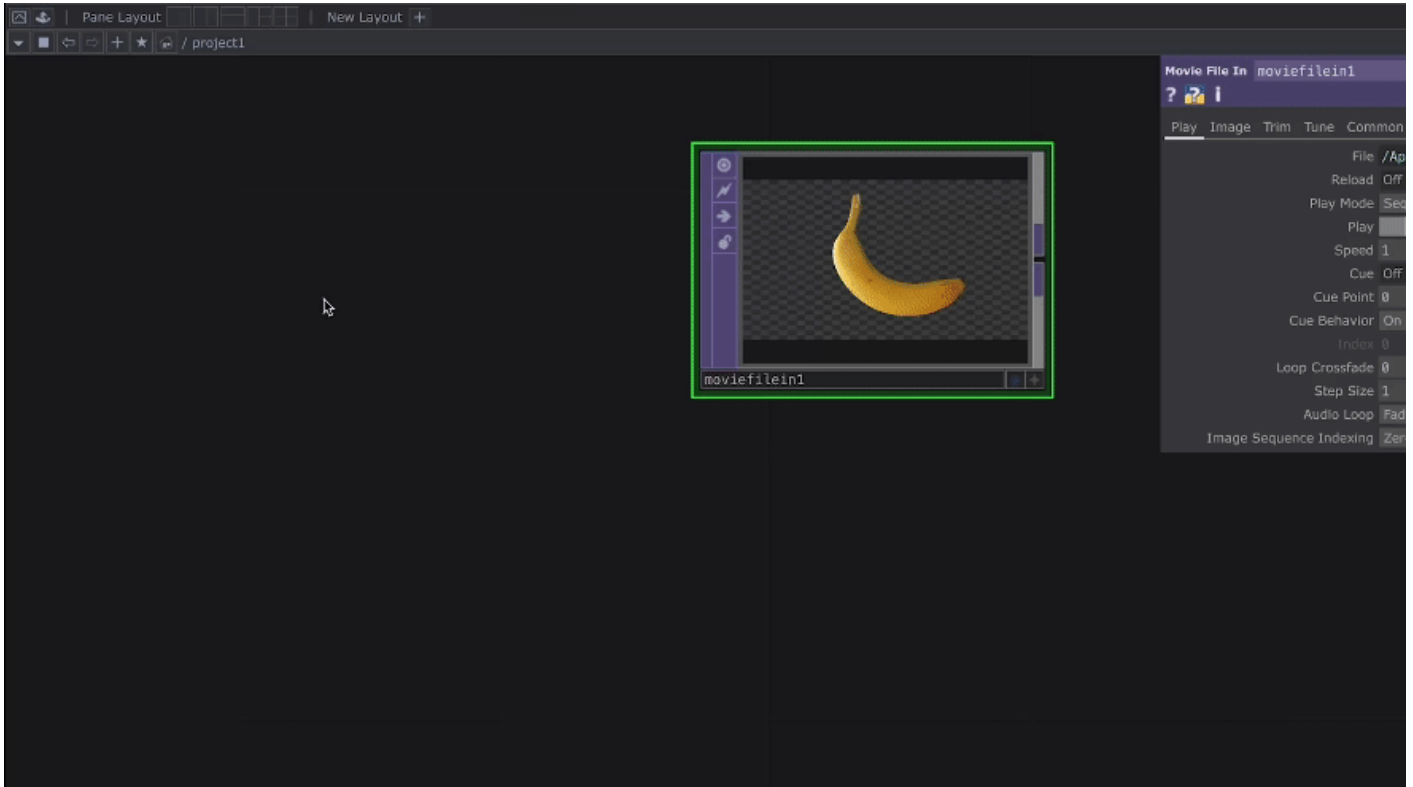


Projection Mapping with kantanMapper

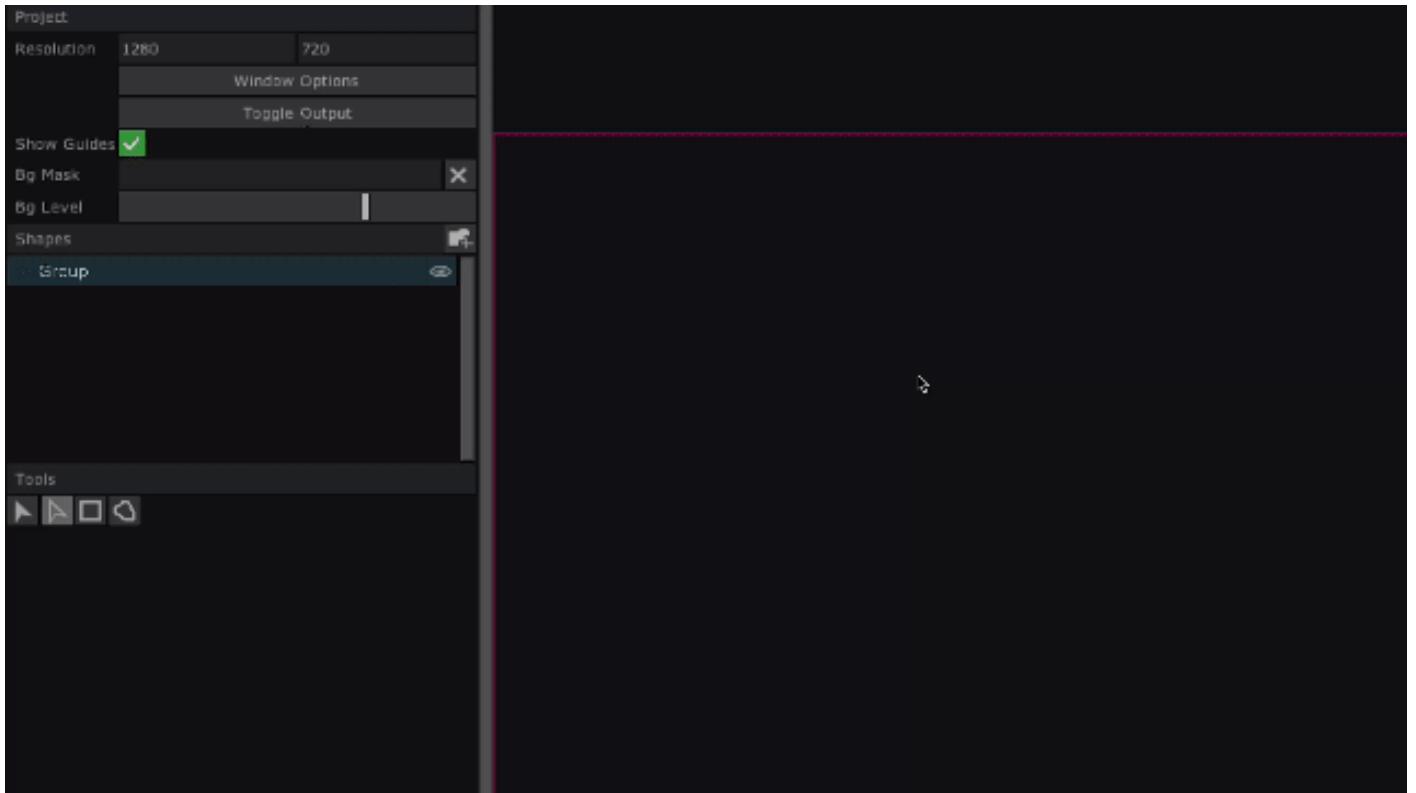
Now that we have uploaded our content we are ready to projection map it onto our object. Make sure to connect your projector to your laptop and that this is set up as an extended monitor: follow

the steps provided [here](#) for Windows or [here](#) for iOS.

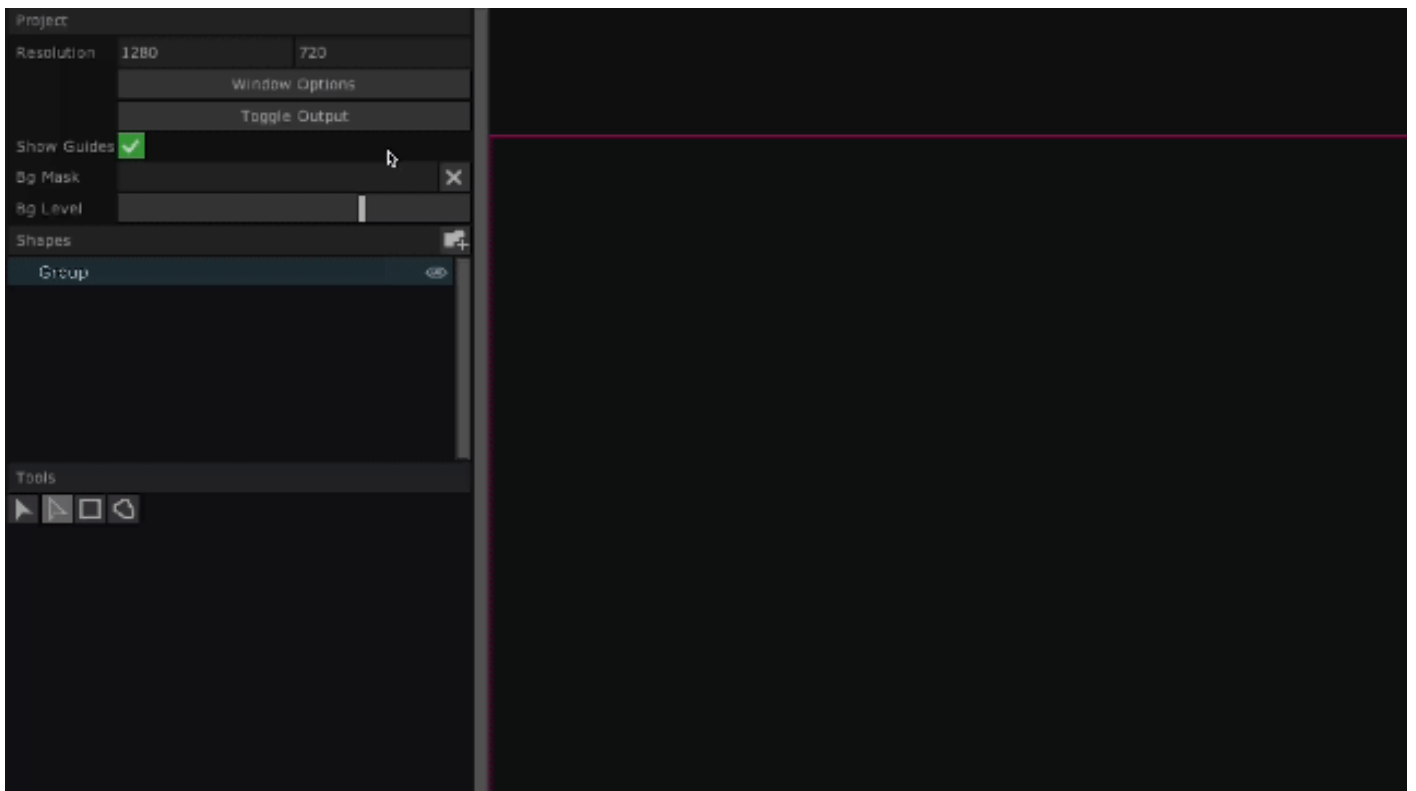
Open the Palette window by clicking on the  button; The Palette is a collection of ready-made useful components (COMPs). In the Palette look for the group “Mapping”, all tools for projection mapping are found here. KantanMapper has been designed to easily mask your area of projection and warp your content onto it. Drag and drop it on your network.



In the parameters' window on the right click on PULSE to open Kantan window, this will enable us to access this operator. At this point we have to inform Touchdesigner on where our projector is before masking the surface area we will project onto: To do that click on WINDOW OPTIONS, here use the “monitor” slider to specify the number that corresponds to your projector, this is usually 1. Change the “opening size” to FILL and hit UPDATE - this will make sure that your masking tool fills all of the screen area available. Scroll to the bottom of this window to “Open as Separate Window”, hit OPEN to view the masking tool.

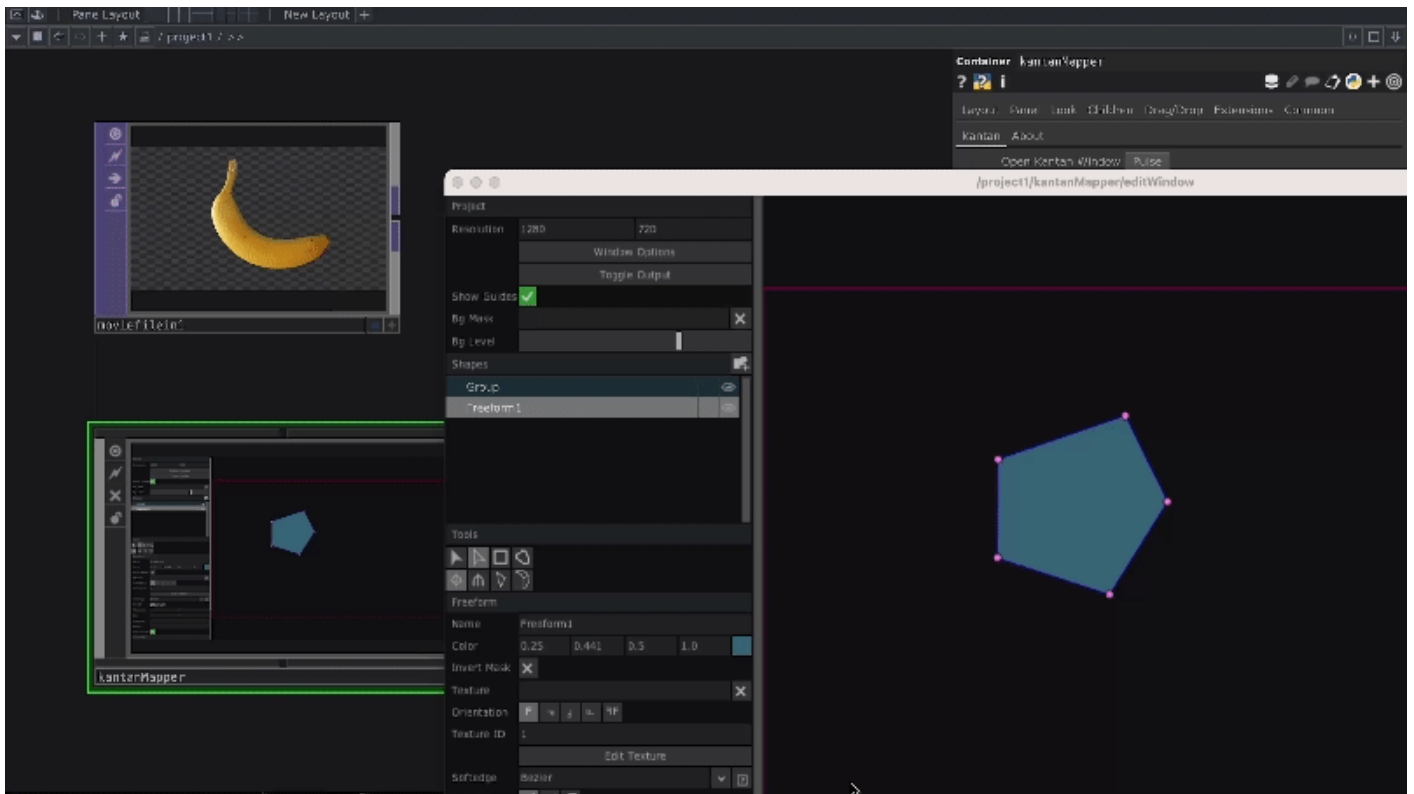


You can now close this window and click on TOGGLE OUTPUT to finally start masking your area of projection. Select the freeform tool and click on the corners of your object to trace its perimeter. Make sure to close your shape before moving on. Other tools are also useful to transform your shape, read more about this [here](#).



With the shape masking our area of projection read, we can now assign our **moviefilein** TOP as the "texture" of the shape, simply drag and drop this in the parameter and click the button near it

to activate view the texture.



Find out more about kantanMapper in Touchdesigner:

<https://docs.derivative.ca/Palette:kantanMapper>.

Intro to Projection Mapping

Projection Mapping in MadMapper

Work in progress.

MadMapper guide available here: <https://madmapper.com/files/02-My%20First%20Video%20Mapping.pdf>

Intro to Projection Mapping

Wireless Projection in the Multipurpose Booth

Interactive Projections

WORK IN PROGRESS

If you're interested in creating an interactive wall or floor projection, the first step would be to map the space and track anyone within it. Lidar technology can scan large areas by targeting a surface with a laser and measuring the time for the reflected light to return to the receiver; A Slamtec's RPLidar is a small scanner and is available for students to be used within the lab. We have done a little bit of the set up for you