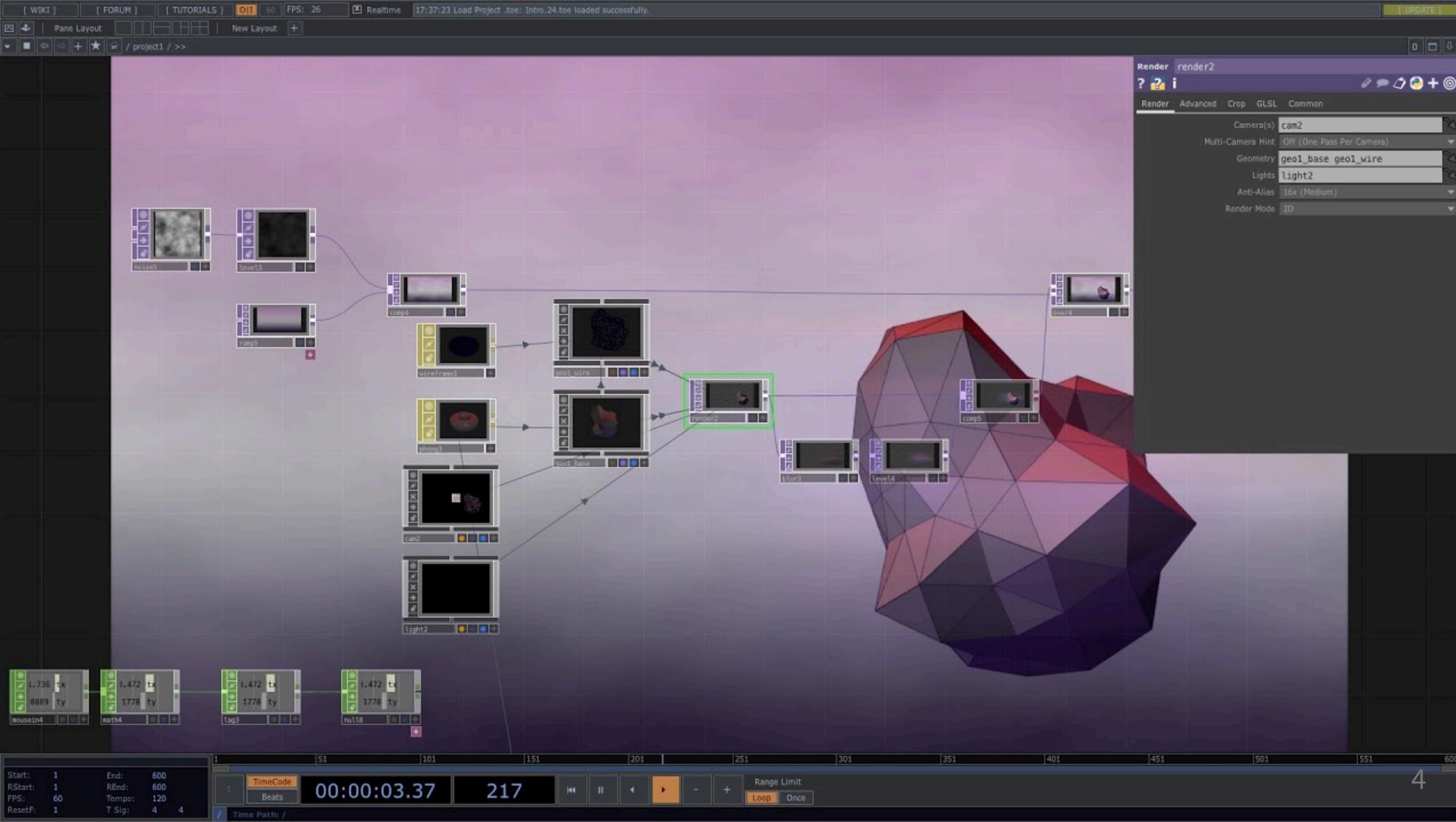


Workshop 06: Introduction and Installation of TouchDesigner



About TouchDesigner



TouchDesigner

- <https://derivative.ca/>
- A visual programming environment developed by the Canadian company Derivative.
- It allows for the easy construction of systems for various video, music, and digital art applications, such as installation art, projection mapping, and media art.
- Details: <https://derivative.ca/feature/application-building>

Examples of Works Using TouchDesigner



Astro Immersive AV Performance -
Weidi Zhang



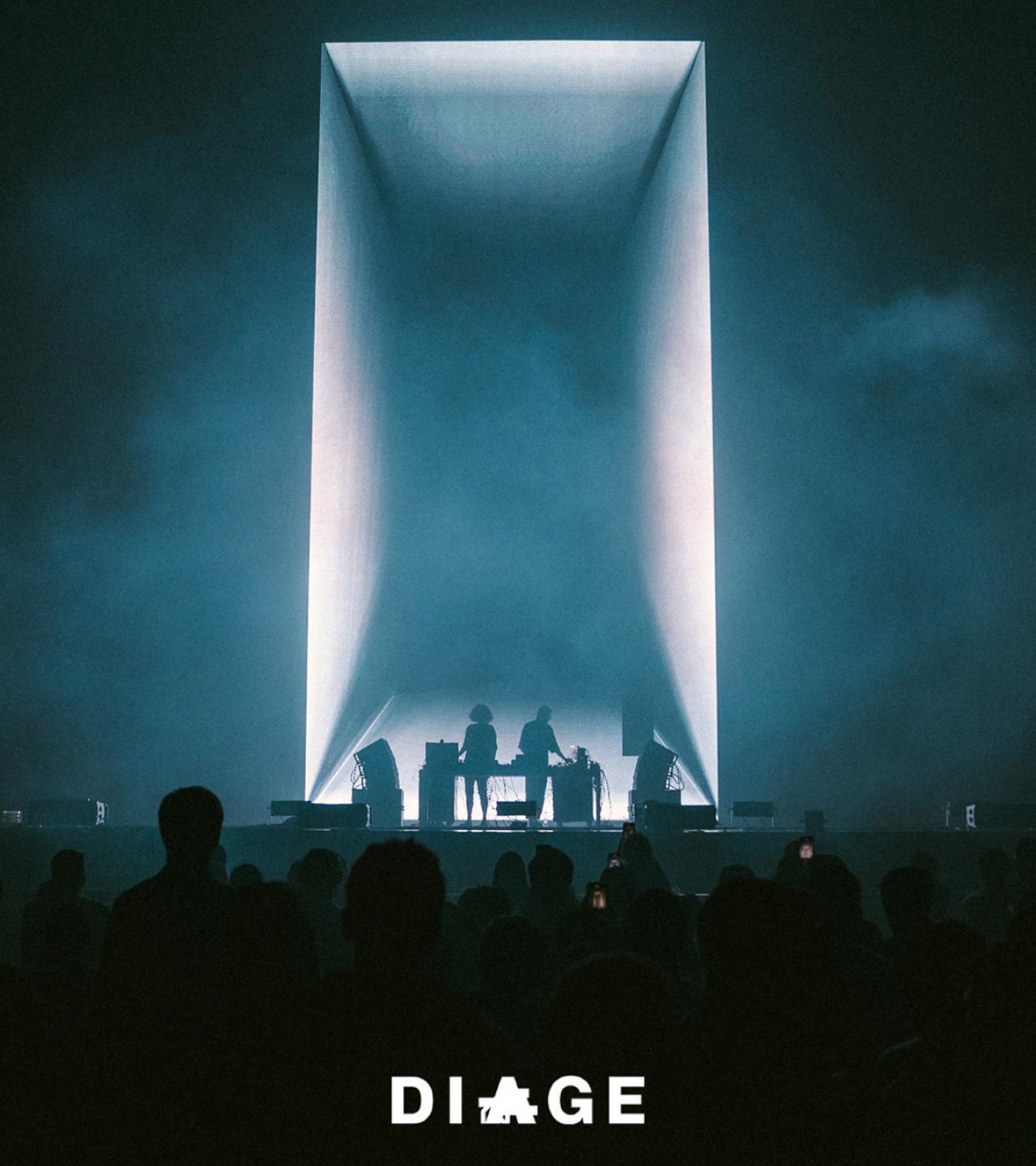
Tokorozawa Sakura Town
KADOKAWA Tokorozawa Campus



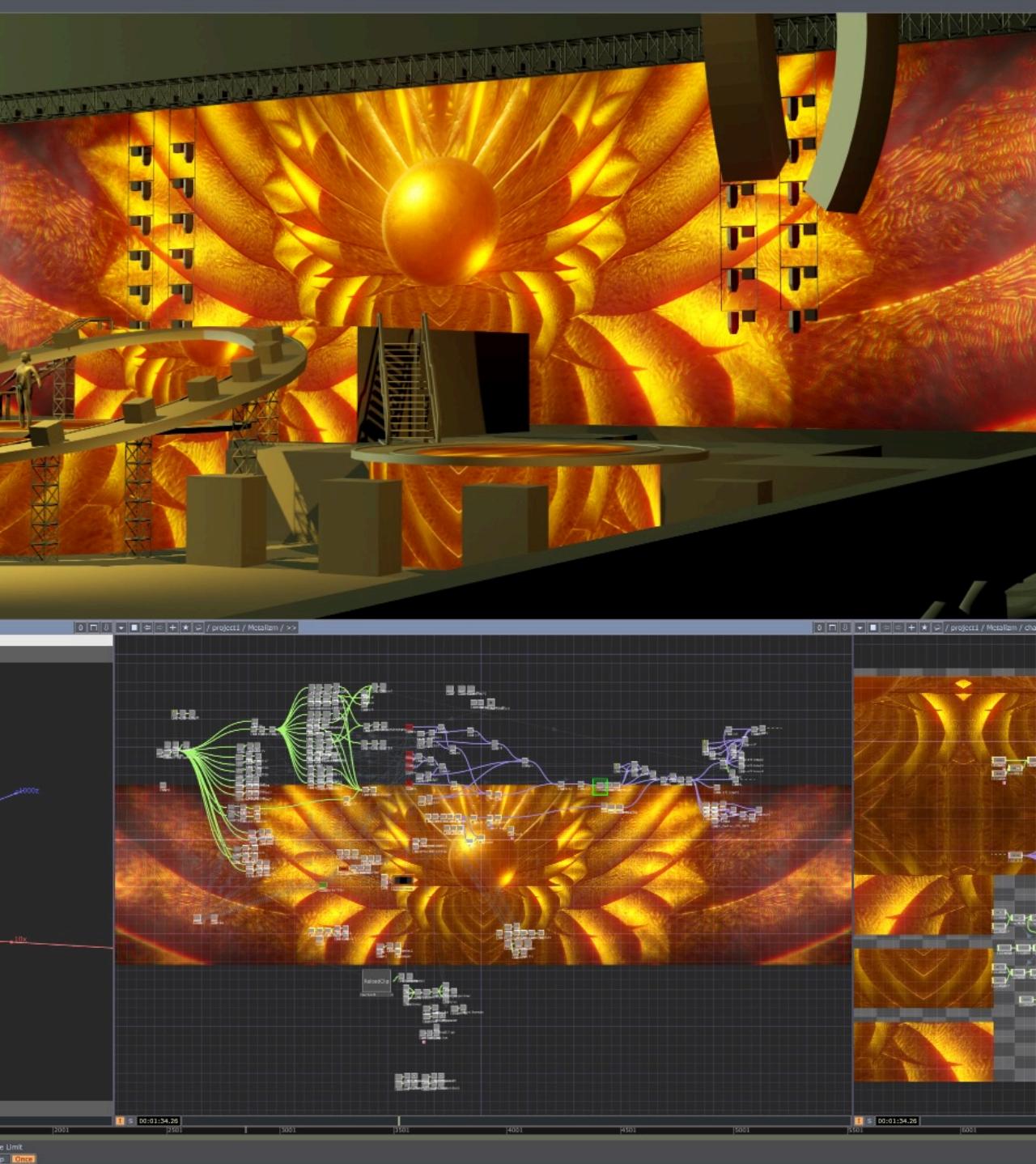
Fragment Shadow
Generating Fragmented Shadows
with Multi-Projectors Geometry and
Color Calibration



Natural Encounters
an emotional link between human
and algorithm



404.zero live at Diage Festival,
Bangkok, 2023.



Interactive live visual system with
venue simulator and chart output
for BABYMETAL “METALIZM” -
Kezzardrix



NONOTAK - SHIRO (TEASER)



NONOTAK - DUAL

Many other works are regularly published on Derivative's [Showcase](#). Please take a look for reference.

TouchDesigner Installation and Key Registration

TouchDesigner Licenses

TouchDesigner is not an open-source development environment like Processing or openFrameworks, but a product sold by Derivative (proprietary software). However, it is available for free for non-commercial use.

License Details

NON-COMMERCIAL

For personal use or learning. Not for paying projects

FREE

[LEARN MORE →](#)

Resolution limited to 1280x1280

Includes all basic operations

For personal use or learning

All accounts start with 10 Non-

Commercial keys

Not for paying projects

EDUCATIONAL

For schools, faculty and students. Not for paying projects

from **\$300 USD**

[LEARN MORE →](#)

Use max resolution of your GPU

Export H.264/H.265 movies in realtime

Stream video to web

Use TouchEngine in other apps

Leuze LIDAR scanner support

Shared Memory and Direct X operators

HD Notch Block playback x2

Not for paying projects

Forum Support

COMMERCIAL

Fully featured and for use in paying projects

from **\$600 USD**

[LEARN MORE →](#)

Use max resolution of your GPU

Export H.264/H.265 movies in realtime

Stream video to web

Use TouchEngine in other apps

Leuze LIDAR scanner support

Shared Memory and Direct X operators

HD Notch Block playback x2

Can use in paying projects

Forum Support

PRO

Every feature in TouchDesigner and access to Pro Support

from **\$2200 USD**

[LEARN MORE →](#)

All Commercial features and...

Sync multiple process or machines

Hardware frame-lock

Stype camera tracking

BlackTrax and WrnchAI tracking

Vioso and Scalable Display support

Notch Block playback

Privacy features to protect IP

Pro Support (includes 6 hours)

In this workshop, we will use the NON-COMMERCIAL version. It has the following limitations:

- Resolution is limited to 1280x1280 pixels.
- Can only be used for personal or learning purposes.
- All accounts are granted 10 non-commercial keys.
- Cannot be used for paid projects.

It's a good idea to start with the NON-COMMERCIAL version, and if you want to use it more seriously, you can purchase the EDUCATIONAL version.

Installation and Key Registration Steps

After installing the TouchDesigner application, you need to register a key assigned to your account. Let's follow these steps.

User Registration: Register as a user on the Derivative site

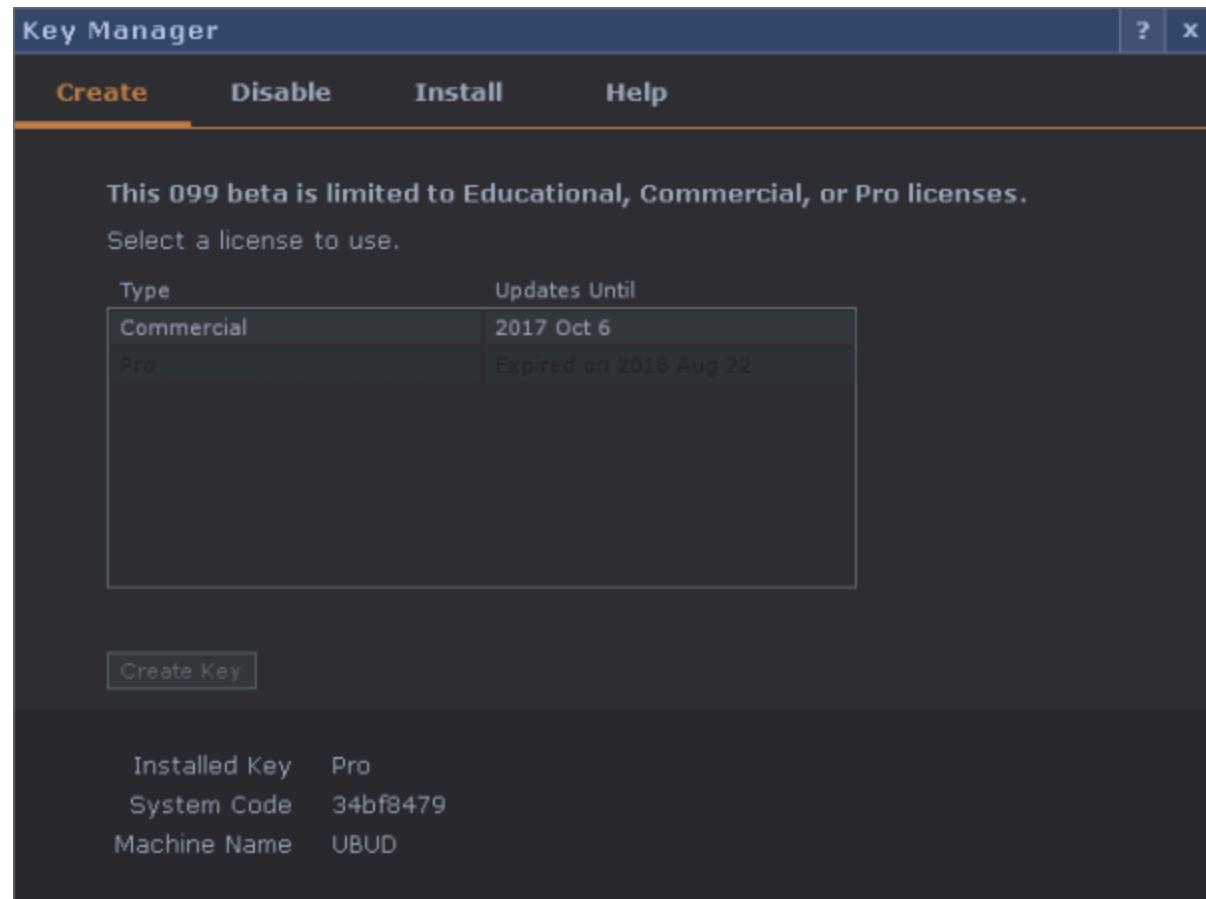
- From the “SIGN UP FOR AN ACCOUNT” page on the Derivative website:
<https://derivative.ca/user/register>
- Fill in the required information and submit.
- A confirmation email will be sent to your registered email address. Click the link to complete the registration.

Download TouchDesigner

- Download the installer for your OS from the [download page](#).
- Launch the installer and install (no need to change any settings).

Launch TouchDesigner and Register the Key

- Launch the installed TouchDesigner application.
- From the top menu, select “Dialogs > Key Manager”.
- The following screen will appear. Log in with your registered information.
- Select a key and activate it.



Restart the Application

- Restart the application, and the NON-COMMERCIAL version should launch.

Note on Using TouchDesigner Installed on AMC Macs

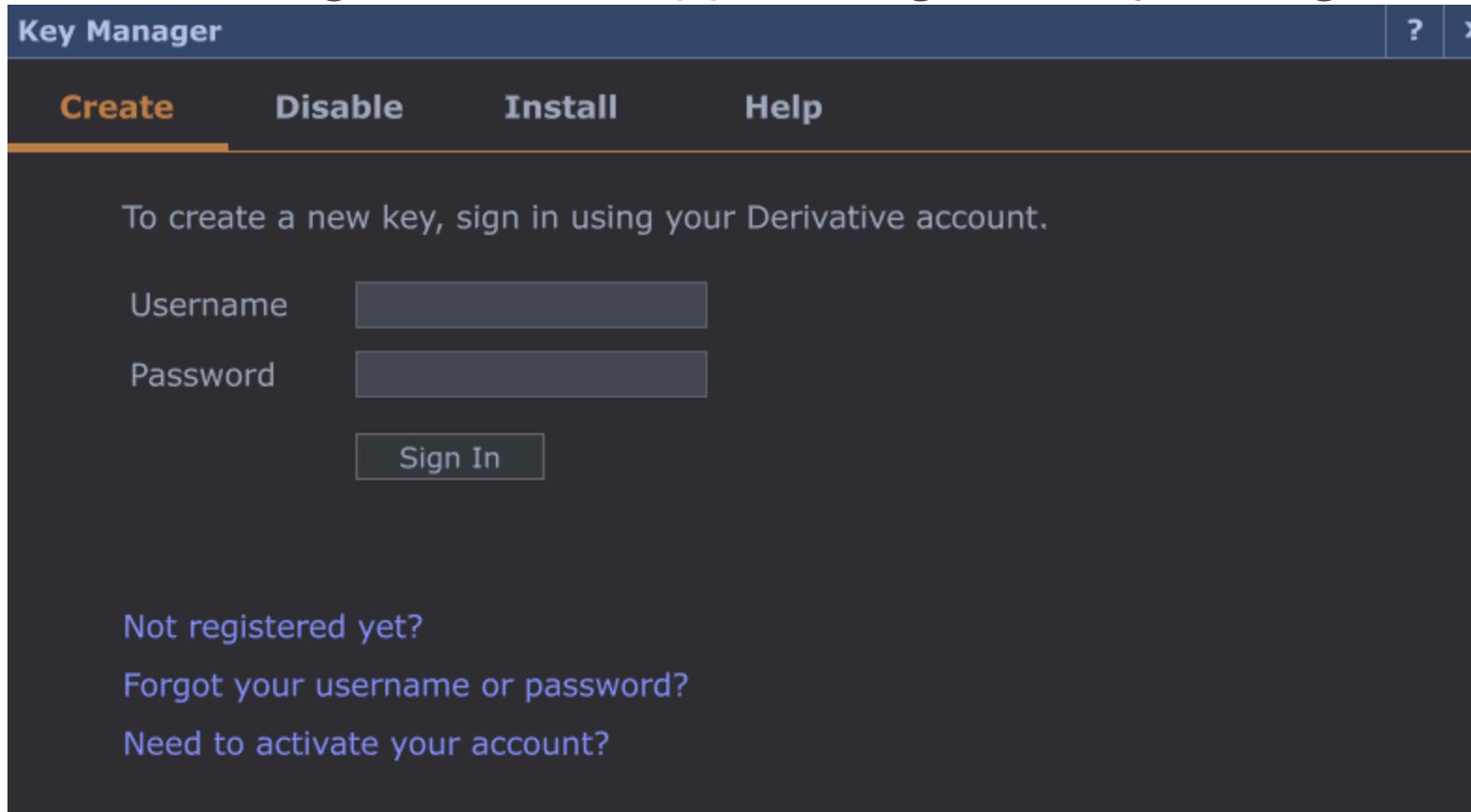
TouchDesigner is installed on all iMacs in the AMC lab. However, since files saved on the AMC Macs are erased and reset to their original state upon restart, you need to register and remove your key each time you use it by following these steps.

Create a User Account

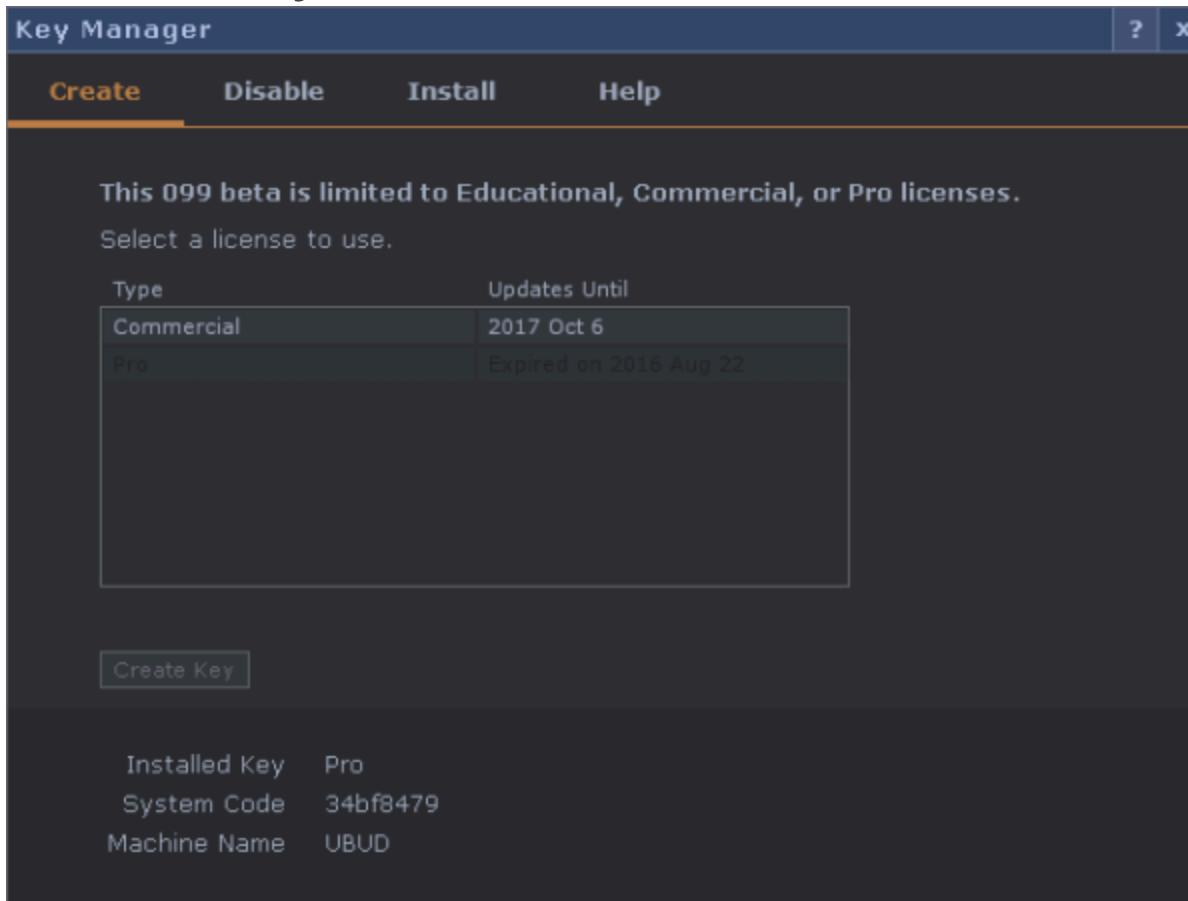
- You will use the personal key assigned to your Derivative account.
- Register for an account in advance from “[SIGN UP FOR AN ACCOUNT](#)”.

Launch and Activate the Key

- Start the computer and launch the TouchDesigner application.
- From the top menu, select “Dialogs > Key Manager”.
- The following screen will appear. Log in with your registered information.



- Select a key and activate it.

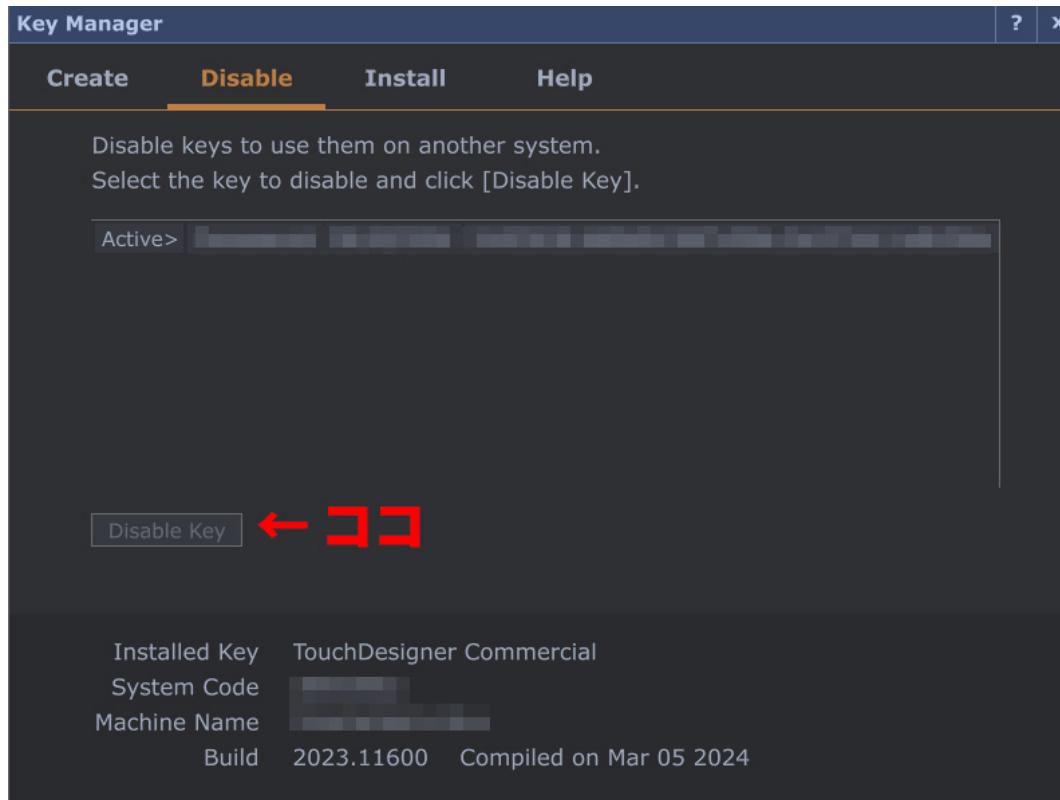


Use the TouchDesigner Application

- You can now use TouchDesigner just like someone using it on their personal laptop.

Remove the Key and Exit

- Before closing the application, you must remove the key from the app.
- From the top menu, select “Dialogs > Key Manager”.
- Select the Disable tab and press the Disable Key button.



Shut Down the System

- Close the application and shut down the system.

*Be careful! If you don't do this, the number of available keys will decrease each time.

First Steps in TouchDesigner

Today, as a first step in TouchDesigner, we will try the “Rotate a Banana” challenge. This is based on the following video tutorial.



- [\[Introduction to TouchDesigner\] Let's rotate Banana in 10min ! #00](#)

And one more!



- [【 TouchDesigner Beginner Course 】 Basic Operations and Basic TOPs #01](#)

Final Image



For Those Who Want to Learn More Thoroughly and Carefully...

100 SERIES

TOUCHDESIGNER FUNDAMENTALS



We will use the online teaching material “The 100 Series: TouchDesigner Fundamentals” provided by Derivative to learn from the introduction to the basics. Enthusiastic students are encouraged to study ahead.

101 – Navigating the Environment

The Grammar of TouchDesigner

A large part of learning any new tool or environment is figuring out where all the knobs and buttons are. This first lesson focuses on getting you comfortable moving around TouchDesigner, learning the essential interface elements and controls, and the basic principles of each operator family.

101-1. The User Interface

- Course Page
- Tutorial Video (YouTube)
- Download Sample File

101-2. Using the OP Create Dialog

- Course Page
- Tutorial Video
- Download Sample File

101-3. Reading Network Anatomy

- Course Page
- Tutorial Video
- Download Sample File

101-4. Reading Operator Anatomy

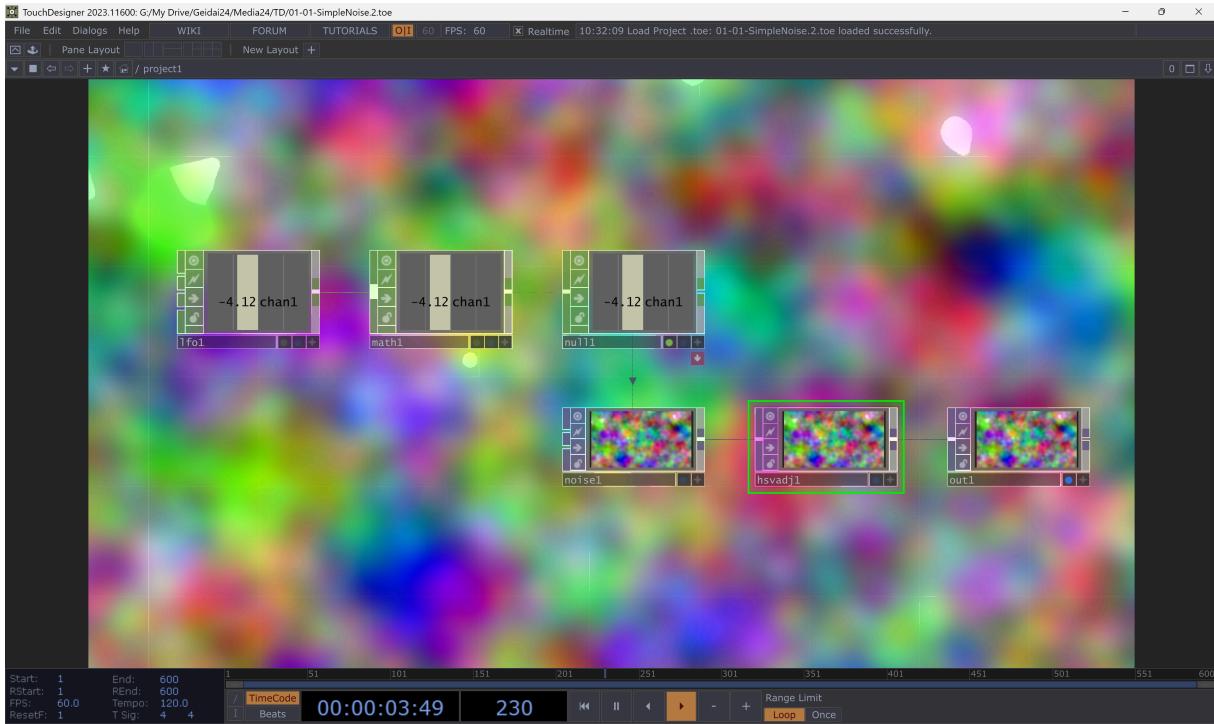
- Course Page
- Tutorial Video
- Download Sample File

101-5. Operator Wires, References & Links

- Course Page
- Tutorial Video
- Download Sample File

Today's Assignment

Assignment: Let's play with noise!



Using the Noise TOP, which can easily generate noise from two to four dimensions, try to create your own “work” through trial and error. You can download the prototype program from the link below.

- [Noise Sample](#)

Although you have just learned the basics of operation, let's first get a feel for the basic operations through trial and error. Then, try to make the following improvements.

References

- Perlin noise ([wikipedia](#))
- The Book of Shaders by Patricio Gonzalez Vivo & Jen Lowe

Basic: Try changing the parameters of the used operators

- Noise TOP (noise1)
 - Fineness of the noise
 - Complexity of the noise
 - Type of noise
 - ...etc.
- LFO CHOP (lfo1)
 - Speed of change
 - Type of waveform for the change
 - ...etc.

- **HSV Adjust TOP** (hsvadj1)
 - Try changing the hue
 - Try changing the saturation
 - Try changing the brightness
 - ...etc.

Advanced: Try adding operators

- What happens if you connect a Noise TOP to a Noise TOP?
- Try adding another TOP before or after the HSV Adjust TOP.
- Try adding an LFO CHOP and referencing it to other parameters.
- ...etc.