Nexus

Organic pattern generator

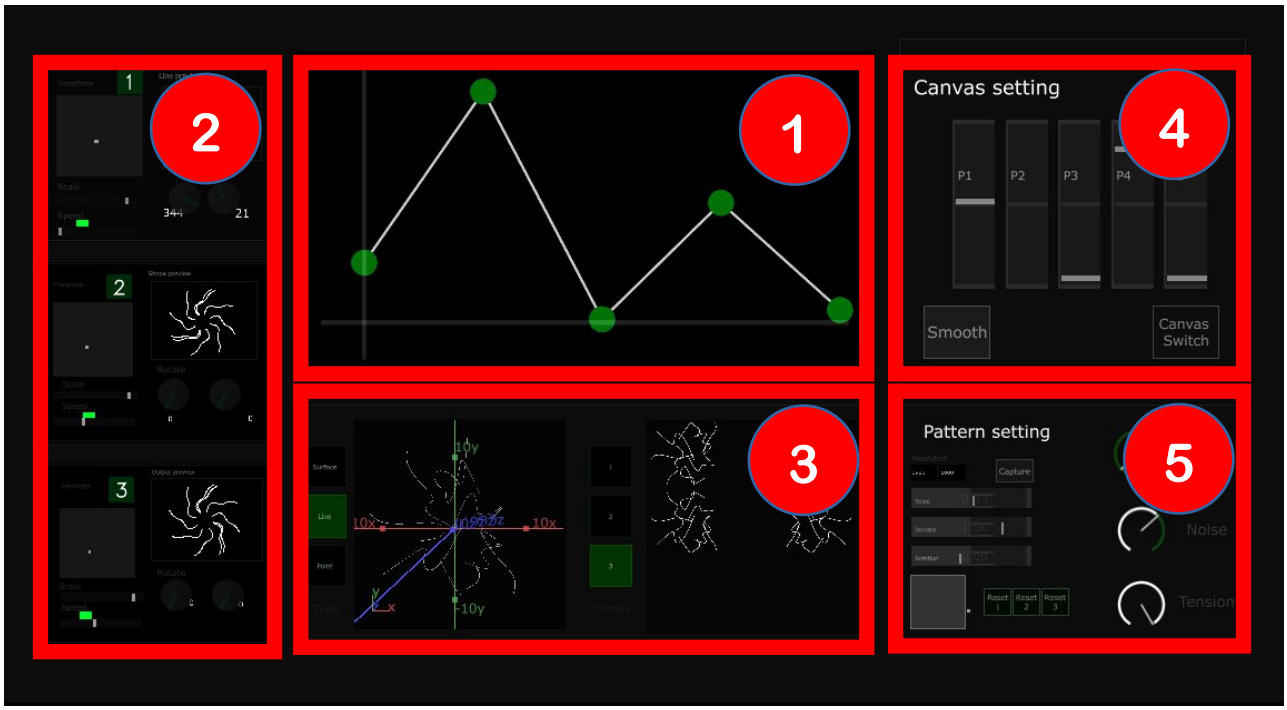
user guide

V 1.0

Introduction

the instructions are intended to introduce user the different parts of the Nexus, features and how to use them to achieve interesting patterns. This is a step by step guide. The Development documents are provided in the last section (as is in .tox file)

Overall UI overview



1.The canvas

This is where you create the line. It displays the line and also let's you draw a line in draw mode.

2.Shape creation steps

There are three steps to create a 3D shape from the primitive line: step one is to adjust the line itself. Step two creates copies of the line. Step three is to adjust the created shape

3.Previews

The left display shows the final created 3D shape after all adjustments. You can select between modes (Surface, Line and points). The right one shows the generated pattern from the shape. This is the output.

4.Canvas setting

In parameter mode, it shows the position of the points. Switch to draw mode to see the result of your drawing(it shows your drawing prepared for 3d generation

5.Parameter setting

Overall setting for the parameters

Create the first pattern

The line

There are two ways to create the primitive line. The draw mode allows you to adjust the height of 5 points. There is a "smooth" button to make curves.
Alternatively, click on "Canvas switch" at the right. Now you can draw on the canvas with your cursor. Try to keep it simple to avoid heavy calculations. However, it recreates your drawing to prepare it for 3D space.
Draw your desired line and press "Set" button. Look at the created line, it may removes complex parts of your drawing. Draw clearer lines to minimize the loss.
Press "Clear" to blank the canvas. Then you will need press "Set" again.

The steps

Each step has its parameters and the previews at right, show the result of that step.
Under the displays are two infinite knob to rotate X Y the line you created.
The 2D slider is to slightly move the line along X Y axis. Scale parameter scales the shape at each step. In the step 2, it controls the copies scale.
Speed slider controls the speed of Z rotation for each step.
Start with step 1, adjust the parameters as you want. The created 3D shape that is shows in the third step display, is used to create the pattern.

The types

Now after 3D creation, go to previews panel and select between types. The surface type creates surface between the copied lines.
At the right you can select between 3 cameras to get different patterns. Select your desired type and camera and go for the next part.

Pattern setting

There are parameters that affect the whole shape through all steps.
Resolution – set the resolution of the render and the output.
Capture – Captures the current preview and saves a .jpg file beside the project file.
Scale – Adjust the scale of the generated patterns.
Density – Controls the number of copies generated in step 2.
Rotation – Controls the rotation of the pattern.

2D Slider – Controls the position of the pattern
Reset – There are separated reset buttons to reset the steps parameters.

Speed – Controls the overall speed. Will multiplied with the speeds sat at each step.
Noise – The strength of the noised applied to the shape.
Tension – Adjust the "exponent" parameter of the noise.

Examples

You can find more examples, previews and tutorials on the TenderWorld Youtube channel.

Troubleshooting & Advanced Tips

The line is too different that what I draw: draw a simpler and clearer line.
Displays are black: make sure you are in proper mode and avoid empty canvas.
Generated patterns are too similar: try playing with the parameters and also switch to Draw mode to create versatile output. There are also types you can select between.
How can I use the output: If you want an output image, press "Capture" button. And if you are working inside Touchdesigenr, you have two output from the Nexus node. One is The final generated pattern TOP. The second on is the positions of the 3D generated shape points (shown in the left preview display) CHOP.

Developers guide

The .tox file is documented.
There are modules inside Nexus.'baseCanvas' contains the draw mode and parameter mode. 'baseBezier' creates the line with 5 points and outputs CHOP. The 'baseDraw' uses feedback and mouse position to draw the line with a small circle. Thresholds it to make it usable in 3D and outputs SOP. 'baseLineParam' Renders the line. A switch will change the output.
'baseGeo' gets the line and does the step processes to create the 3D shape. Outputs the render of crated 3D shape and also its CHOP. 'baseRender' does 2D processes to create the final pattern.
.tox save build: 2023.11340