

Coding One Final - PokemonPad (beta)

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On UAL Git

<https://git.arts.ac.uk/22044483/C1-Final> (Repository)

<https://git.arts.ac.uk/pages/22044483/C1-Final/> (Git Page)

On GitHub

<https://github.com/Pannic17/C1-Final> (Repository)

<https://pannic17.github.io/C1-Final/> (GitHub Page)

Built with Vue.js + Vite

Introduction

This project using **three.js** to generate an online music-3D pad with interactive graphic animations using shaders.

A Cute Pokemon model sets at the center of the screen and swing as the music beats. When user press different keys on keyboard or click/tap on different area of the page, various effect generate accordingly and play audio effects. Press SPACE will change the model and background color.

There are 20 built-in effects or animation based on **Shaders**, **Postprocessing** and **Motion-Graphic** animations. The animations will render according to sequence of trigger. Each Path animates individually. Thus, please try to press multiple keys together to see the fascinating combination of effects.

Double-click to PLAY/PAUSE background music

Effects

All effects come with a fade-in animation that smooth the transition.

Custom Shader Effects

all custom shader can be found at `\src\three\shader`

I wrote custom shader to generate different fabulous visual effect and filters. All shader are **alpha-channel adaptive**.

DotEffect & DotShader [Q]

effect path: `\src\three\c\DotEffect.js`

Dot Effect generate a dot map covers the full screen and the dots of the color will multiply the 3D model, thus generates a dot-color map; The dot will easy in as the size shrinks.

Press **Q**

GlitchEffect & GlitchShader [Z]

effect path: `\src\three\c\GlitchEffect.js`

Glitch Effect presents wild image distortion with image.

Press **Z**

HatchShader

Generate a cross-hatch effect, not significant for this scene. NOT EXPOSED

LineEffects & LineShader [A]

effect path: \src\three\c\LineEffect.js

Covert the image to a line graph, the width of line varies each time.

Press **A**

MaskShader

Perform a Luma effects that coverts black pixels to transparent. NOT EXPOSED

PaintShader

Water-paint filter. Used as buffer shader.

SliceEffect & SliceShader [E]

effect path: \src\three\c\SliceEffect.js

Slice the 3D image horizontally into pieces.

Press **E**

SobelEffect & SobelShader [R]

effect path: \src\three\c\SobelEffect.js

Sobel effect uses differentiated convolutional kernel to detect and outline the edge of the 3D image. My shader also performs a fade-out of color.

Press **R**

SpiralEffect & SpiralShader [C]

effect path: \src\three\c\SpiralEffect.js

This shader generates a spiral mask overlay the 3D image, when combining with wave effect, a very beautiful water drop effects will present. The spiral rotates.

Press **C**

WaterShader

Pool-water filter. Used as buffer shader.

WaveEffect & WaveShader [X]

effect path: \src\three\c\SpiralEffect.js

Generates a water wave effects from center to boarder.

Press **X**

Postprocessing

For some effects, I used the built-in postprocessing from three.js\examples

AfterEffects [F]

effect path: \src\three\p\AfterEffect.js

This is the AfterimagePass which presents a drag or replica effects.

Press **F**

HalftoneEffect [S]

effect path: \src\three\p\HalftoneEffect.js

This will convert the 3D image to a scattered spectrum look, there are 3 possible pattern: eclipse, line & square.

Press **S**

NormalEffect [T]

effect path: \src\three\p\NormalEffect.js

This is the effect that shows the normal map generated for the model. I also add WaterShader & PaintShader to generate a thick edge that make the filter more cartoon. This may overlay some effects.

Press **T**

PostEffect [V]

effect path: \src\three\p\PostEffect.js

This is a postprocessing effect preset of three.js that convert the 3D image to black-white dot screen.

Press **V**

ShiftEffect [W]

effect path: \src\three\p\ShiftEffect.js

This split the RGB channels of the origin, thus perform a chromatic aberration effect.

Press **W**

Motion Graphic

CharEffect [K]

effect path: \src\three\g\CharEffect.js

Generate lines of Japanese characters that move forward.

Press **K**

CubeEffect [I]

effect path: \src\three\g\CubeEffect.js

Generate particles of cubes that rotate by itself.

Press **I**

HedronEffect [L]

effect path: \src\three\g\HedronEffect.js

Generate a wireframe of polyhedron that rotate around center.

Press **L**

RingEffect [P]

effect path: \src\three\g\RingEffect.js

Generate a ring rotate around model.

Press **P**

WrapEffect [O]

effect path: \src\three\g\WrapEffect.js

Generate rings that forms a wrap that move toward top.

Press **O**

Change Model [SPACE]

Press SPACE will change the model and background color.

Discover your next surprise Pokemon!

Copyright

All models were downloaded from <https://www.models-resource.com/>

All audio samples were downloaded from <https://www.noiz.com/>

Music is *morning flip* by *StrawberryPapa*

Shader reference <https://www.shadertoy.com/>