

# Introduction to fragment shaders

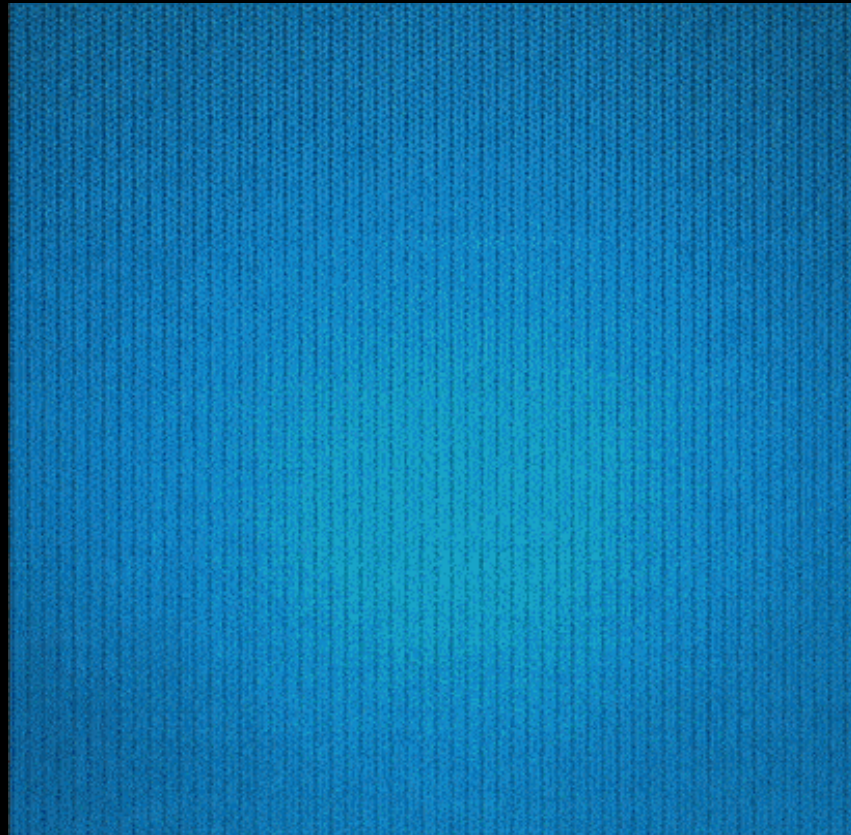


Drawing the Deezer logo  
using GLSL

And animating it with music

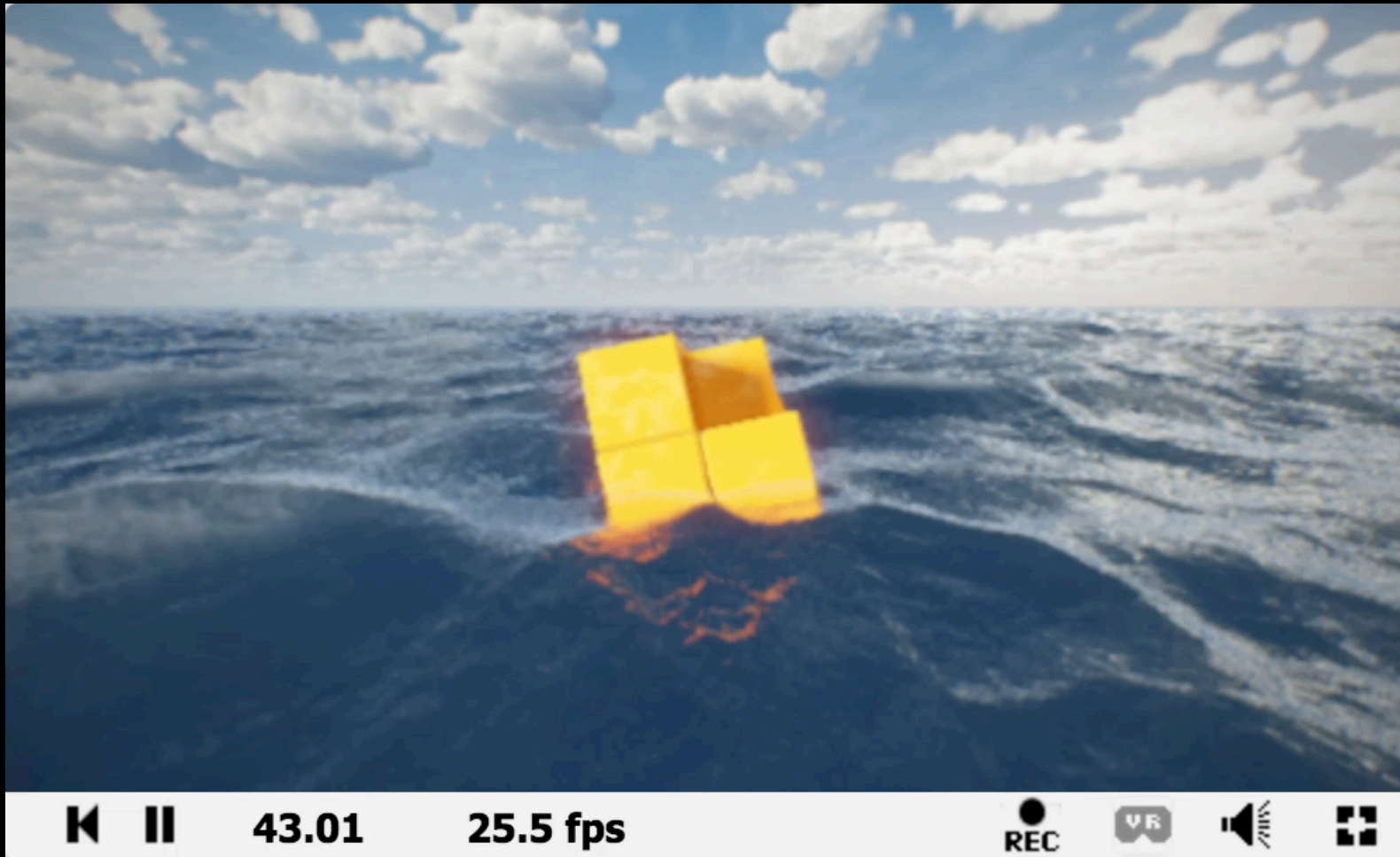
# Fragment Shaders

Build cool stuff : Knitstagram



# Fragment Shaders

Build cool stuff : [shadertoy.com](https://shadertoy.com)



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# Fragment Shaders

What is it?

- A program that runs for every pixel of the screen
- The program returns the pixel color and alpha
- It uses a dedicated language (GLSL) on OpenGL

# What is GLSL

- Dedicated language for shader programs
- C like syntax
- Super fast on GPU
- Works well with vectors

# GLSL features

- Vectors - creation

```
float alpha = 1.0; // standard float
```

```
vec3 blue_color = vec3(0.0, 0.0, 1.0); // RGB blue color
```

```
vec4 pixel = vec4(1.0, 1.0, 1.0, alpha); // a white pixel
```

```
vec4 blue_pixel = vec4(blue_color, alpha); // a blue pixel
```

# GLSL features

- Vectors - swizzling

```
vec4 blue_pixel = vec4(0.0, 0.0, 1.0, 1.0); // RGBA blue color
```

```
float blue_channel = blue_color.z; // get back the blue channel
```

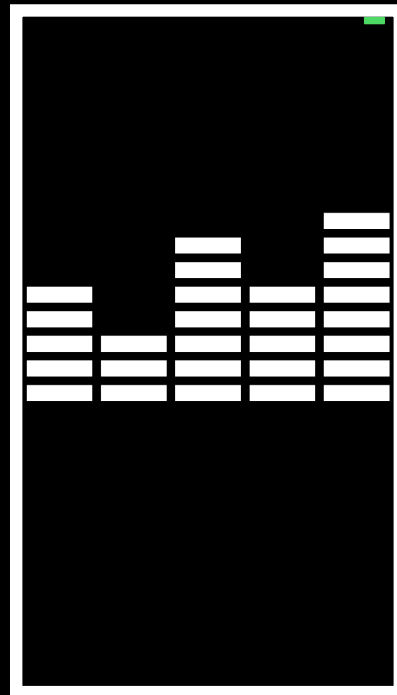
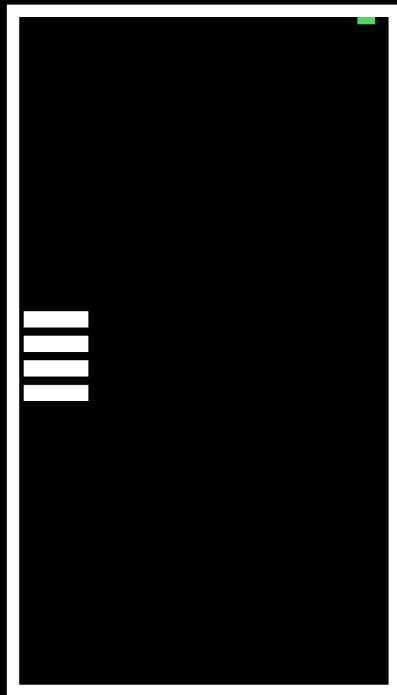
```
// You can use x, y, z, or w
```

```
// Referring to the first, second, third, and fourth components.
```

[https://www.khronos.org/opengl/wiki/Data\\_Type\\_\(GLSL\)#Swizzling](https://www.khronos.org/opengl/wiki/Data_Type_(GLSL)#Swizzling)



# Deezer logo blueprint



# Project Structure

## ViewController

- Load Shader program
- Launch Shader program
- Play audio (last step)

## Ex\_1.fsh ... EX\_6.fsh

- Steps of the exercise
- Change shader name it in ViewController

If shader fails to compile -  
console shows line where the error is located

# Questions?

# Thanks to

Arthur Guibert / iOS Dev @Deezer

 @birslip     <https://github.com/ArthurGuibert>

Axelle Migniot / Bertrand Longevialle /  
Dorothée Doublet / @Deezer

Hugues Bernet-Rollande / xdev.fr

Deezer for sponsoring this event

<http://jobs.deezer.com/>

# Bibliography

Shadertoy

<https://www.shadertoy.com>

The Book of Shaders

<https://thebookofshaders.com/>

khronos group

[https://www.khronos.org/opengl/wiki/OpenGL\\_Shading\\_Language](https://www.khronos.org/opengl/wiki/OpenGL_Shading_Language)

Knitstagram

<https://github.com/ArthurGuibert/Knitstagram>



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