



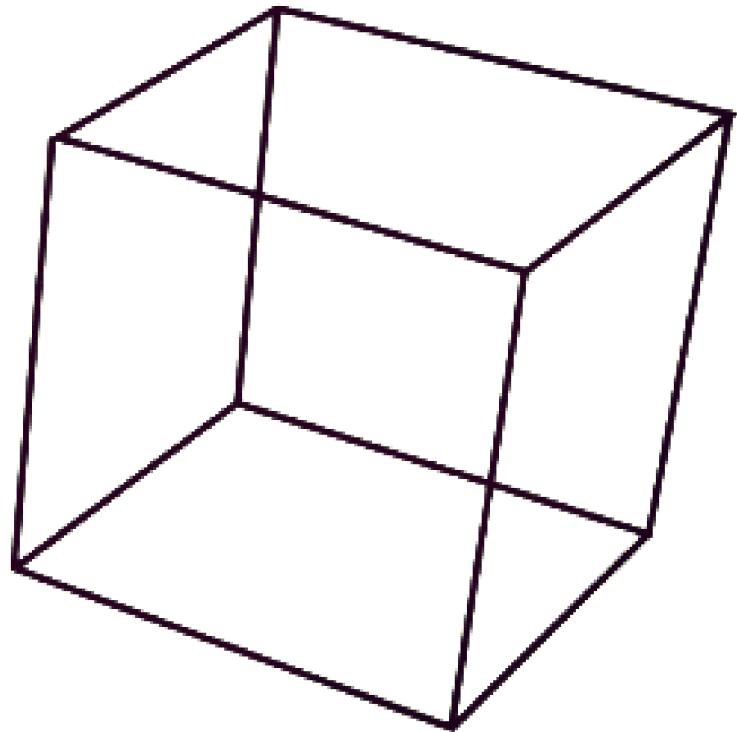
Three.js

CARLOS GARCIA LEZCANO
ANDRES ZEUS HERNANDEZ IMPINI

MADE WITH

beautiful.ai

Content



WHAT IS THREE.JS

A simple explanation about this library.

HISTORY

A little of Three.js's history.

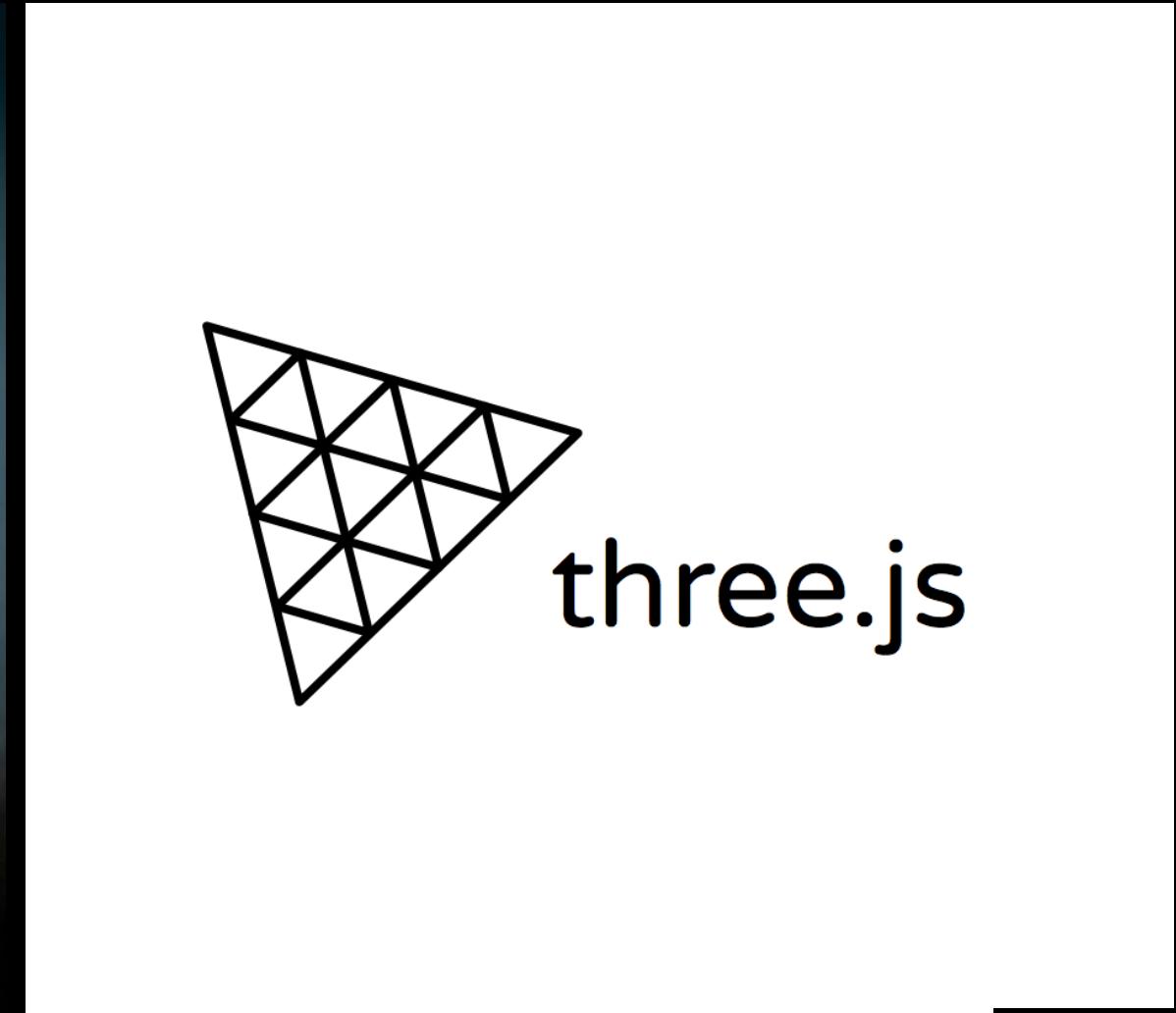
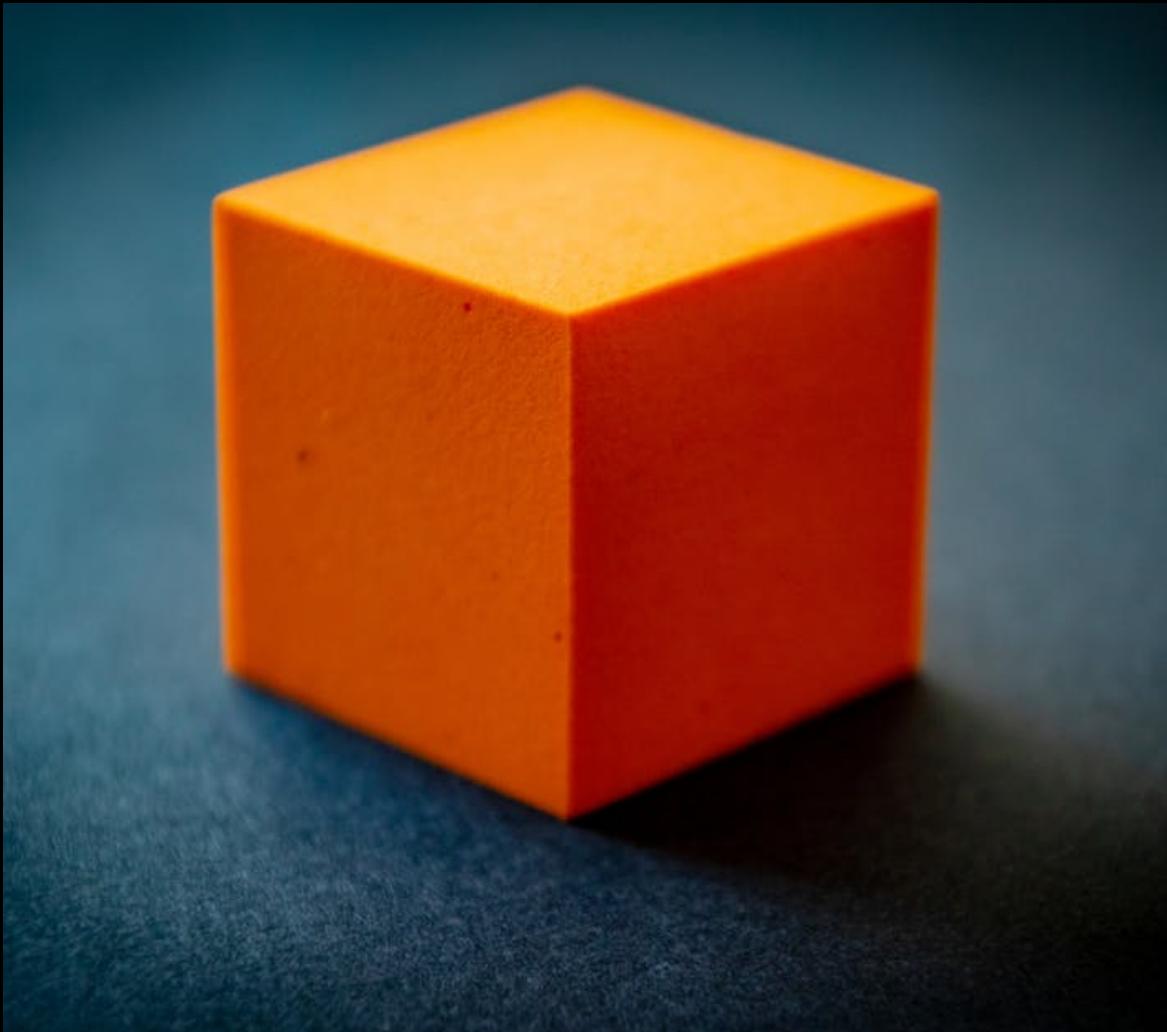
STRUCTURE

The Three.js basic structure

CODE

Demonstration of how its work

What is Three.js about?

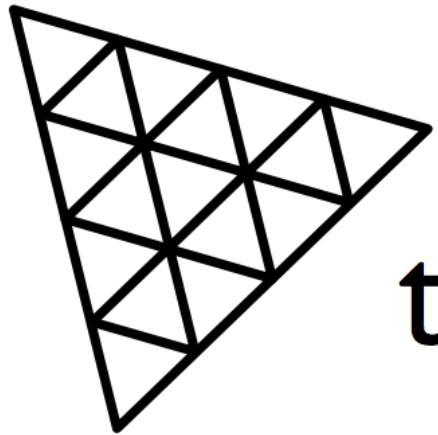


MADE WITH

beautiful.ai

History

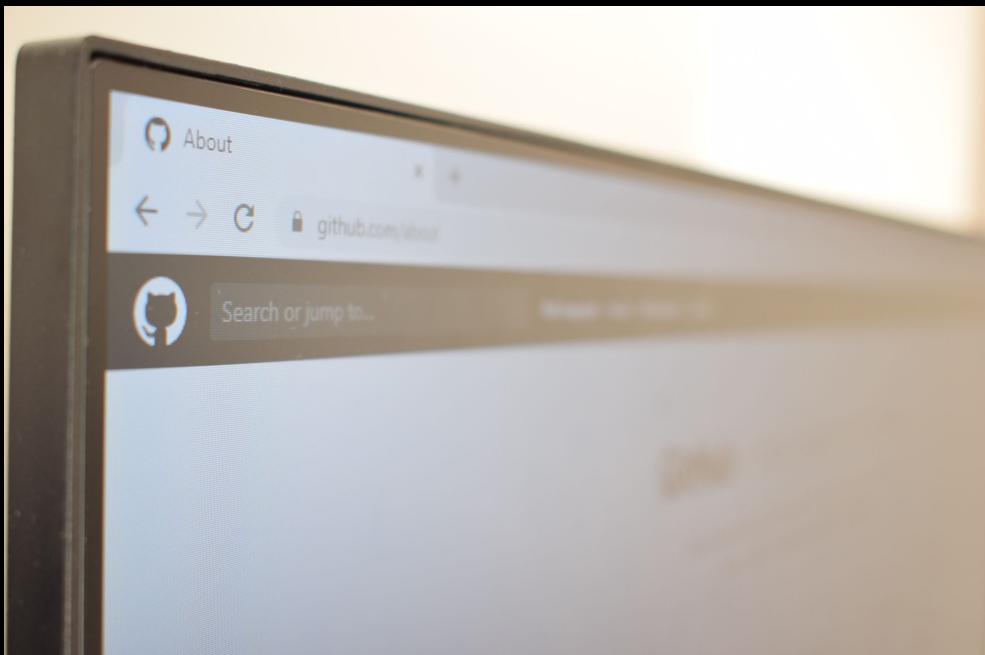


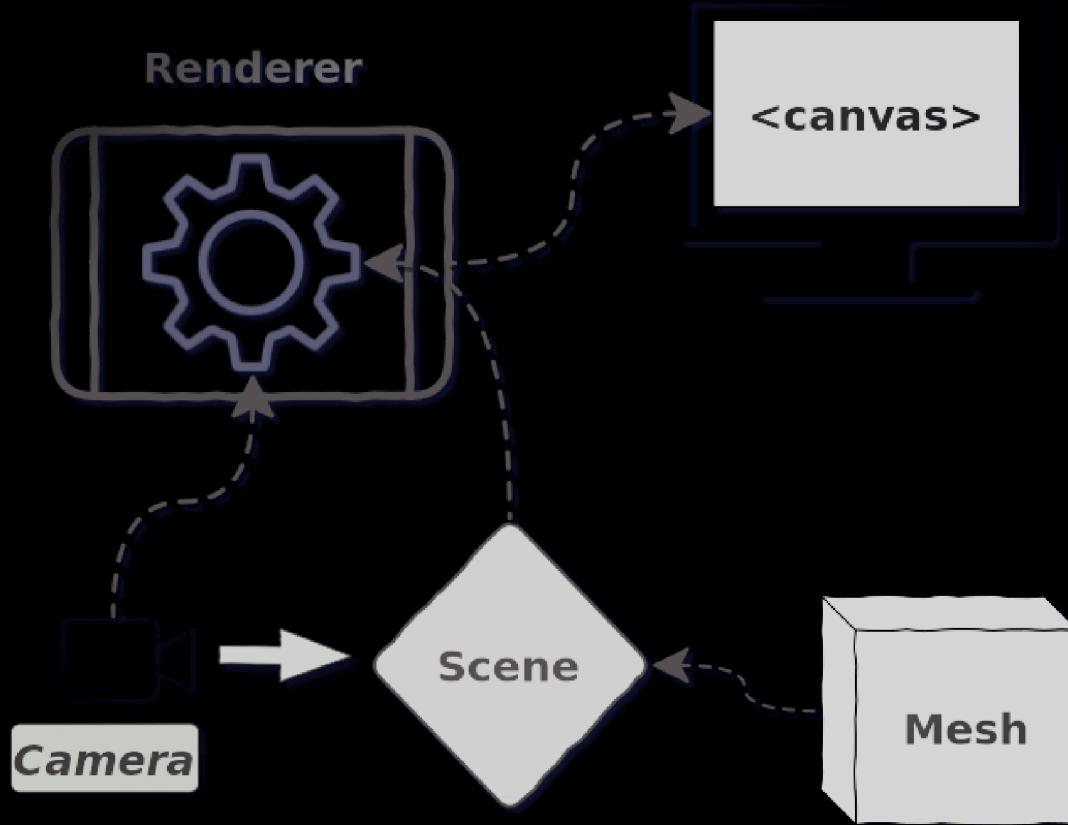


three.js

First stable version was released to GitHub in April 2010

It was released by a Spanish developer called Ricardo Cabello also known by its Github name Mr.doob and this js library at first was develop in Actionscript which is a Object oriented language





Three.js Structure

Features

1 **EFFECTS**

2 **SCENES**

3 **CAMERAS**

4 **ANIMATION**

5 **LIGHTS**

6 **MATERIALS**

7 **OBJECTS**



Effects



1 | EDGE SMOOTHING

5 | MASKING

2 | FXAA

6 | BACKGROUNDS

3 | SXAA

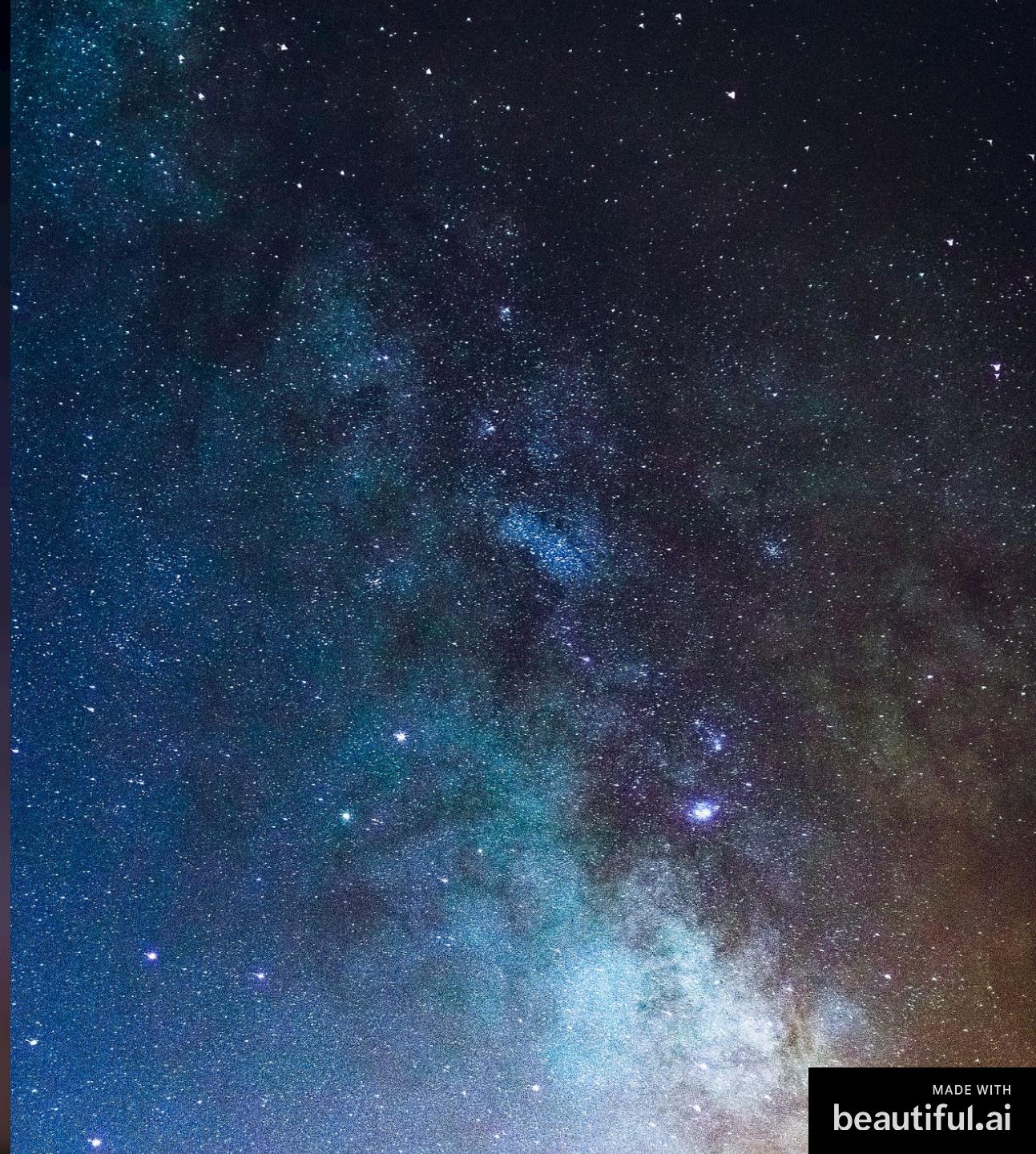
7 | CROSSFADES

4 | DEPTH OF FIELD



OUR LITTLE UNIVERSE

Scenes



MADE WITH

beautiful.ai



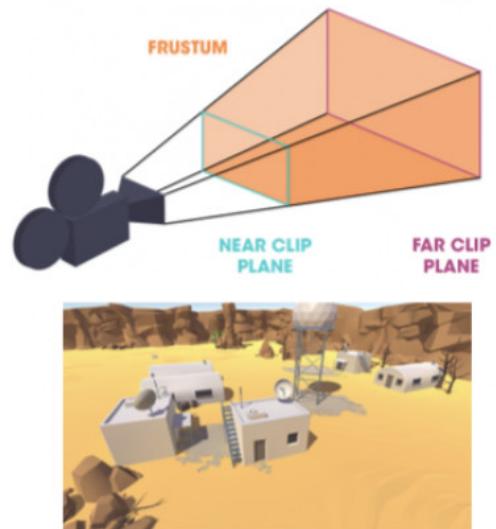
What we will see

Camera

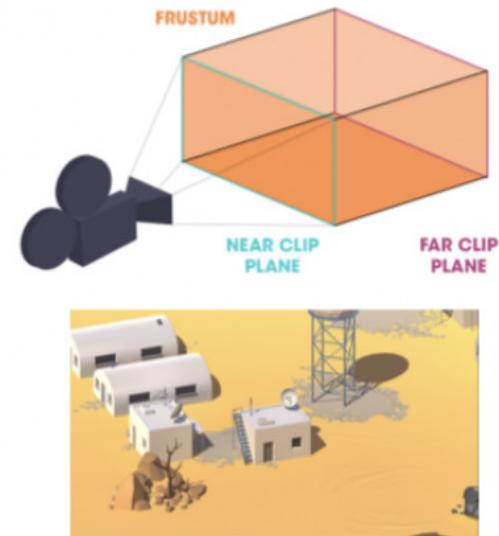
Type of cameras

In Three.js we can use different camera perspectives.

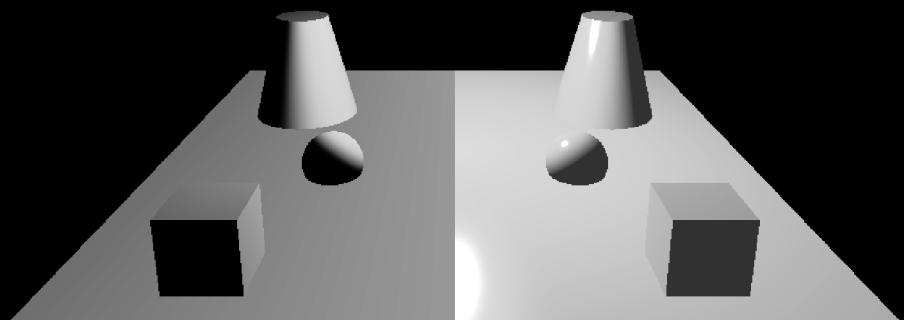
PERSPECTIVE CAMERA



ORTHOGRAPHIC CAMERA



Lights



1 | AMBIENTLIGHT

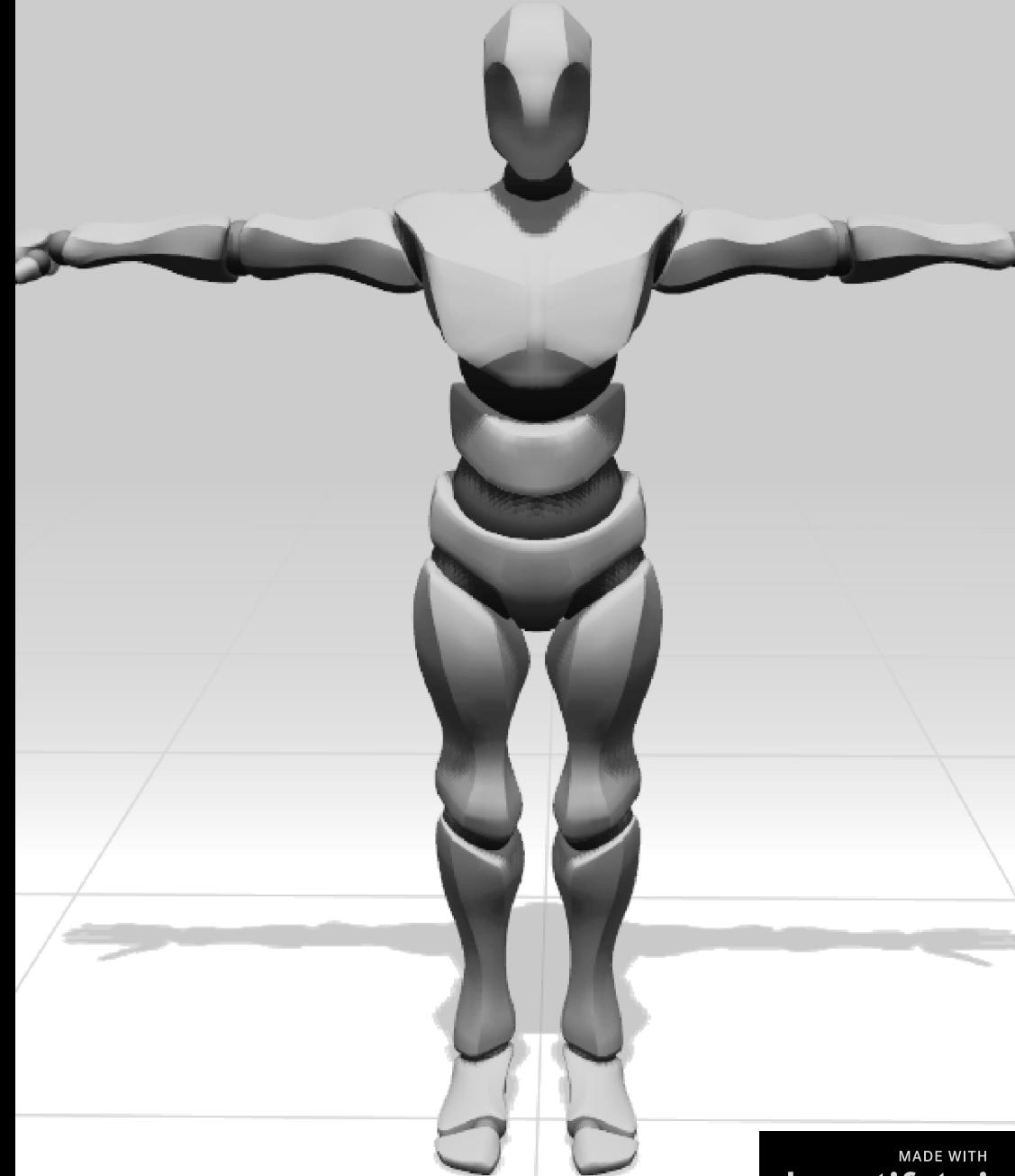
2 | DIRECTIONALLIGHT

3 | HEMISPHERELIGHT

4 | SPOTLIGHT

Animations

- 1 | **ANIMATION**
- 2 | **ANIMATIONCLIP**
- 3 | **ANIMATION MIXER**
- 4 | **KEYFRAMETRACKS**





Objects

The actors in our scene

MESH

Combination of the material and geometry of the object

MATERIAL

Is a color, a texture, a skin that you can apply in an object

GEOMETRY

Basically, the shape of the object

STL Loader

How to import custom mesh



Installation

THE INSTALLATION IS REALLY SIMPLY.
WE START BY INSTALLING THE LIBRARIES USING NPM

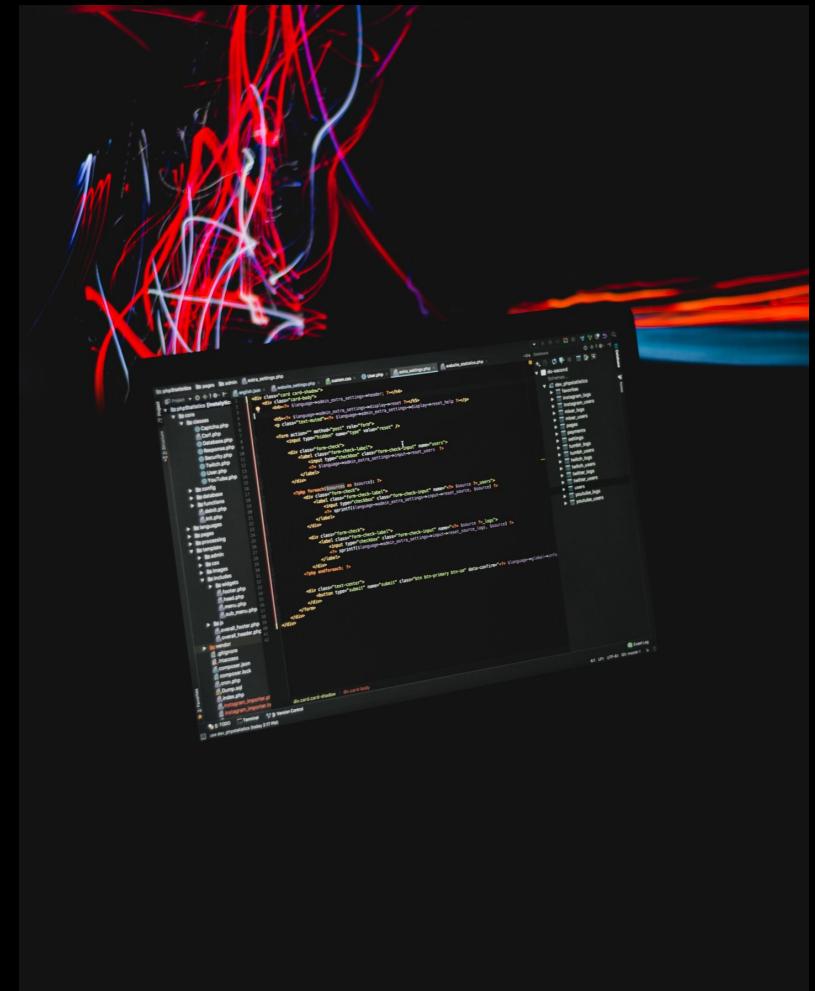


```
npm install --save three
```

THEN ONCE YOU HAVE THE LIBRARY
INSTALL YOU ONLY HAVE TO IMPORT IT



```
<script async src=" https://cdnjs.cloudflare.com/ajax/libs/three.js/r128/three.js"></script>
```



THREE.JS

Now, we are
going to talk
about coding

Hello Cube

WHAT WE USED?

We used the basics objects of that ThreeJs provide us only for show you an basic example.

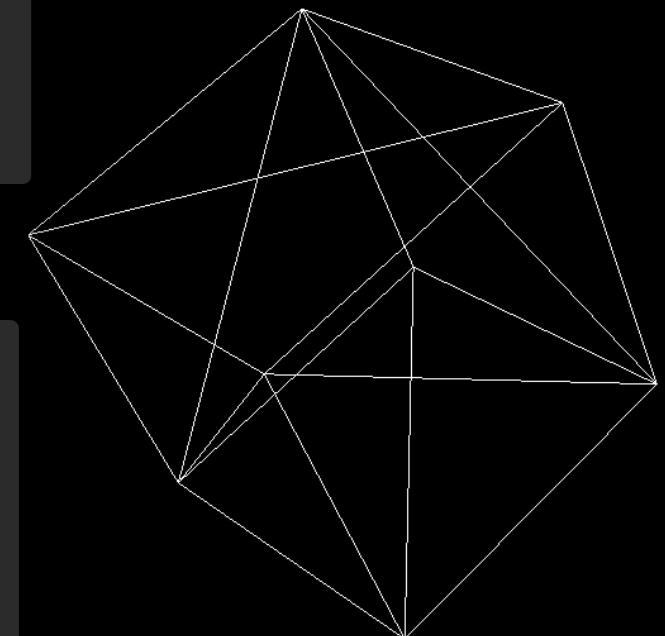
1

```
const FACE_SIZE = 2;
this.#geometry = new THREE.BoxBufferGeometry(FACE_SIZE, FACE_SIZE, FACE_SIZE);
this.#material = new THREE.MeshBasicMaterial({ wireframe: true });
this.#shape = Object.assign(new THREE.Mesh(this.#geometry, this.#material));
```

2

```
const FIELD_OF_VIEW = 35;
const WIDTH = window.innerWidth;
const HEIGHT = window.innerHeight;
const NEAR_CLIPPING_PLANE = 0.1;
const FAR_CLIPPING_PLANE = 100;
this.#camera = new THREE.PerspectiveCamera(FIELD_OF_VIEW, WIDTH / HEIGHT, NEAR_CLIPPING_PLANE, FAR_CLIPPING_PLANE);

this.#camera.position.set(0, 0, 10);
```



Hello Cube

3

```
  this.#scene = new THREE.Scene();
  this.#scene.background = new THREE.Color('black');
  this.#scene.add(this.#shape);
```

4

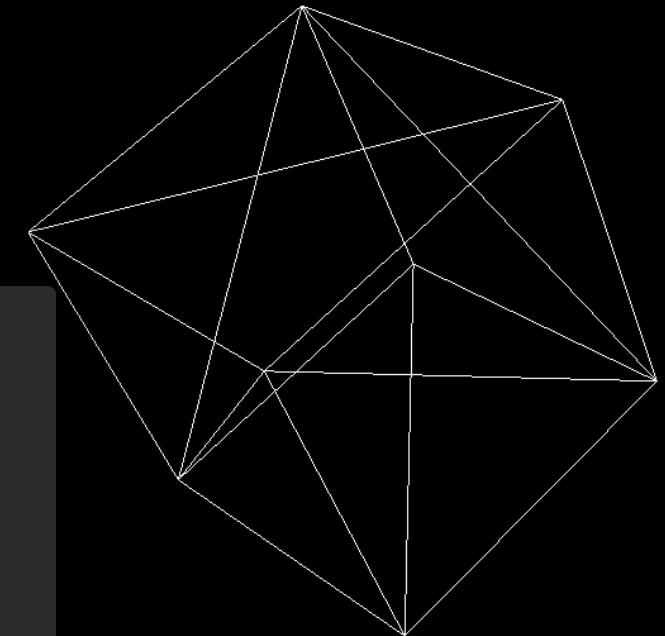
```
  this.#renderer = new THREE.WebGLRenderer();
  this.#renderer.setSize(WIDTH, HEIGHT);
```

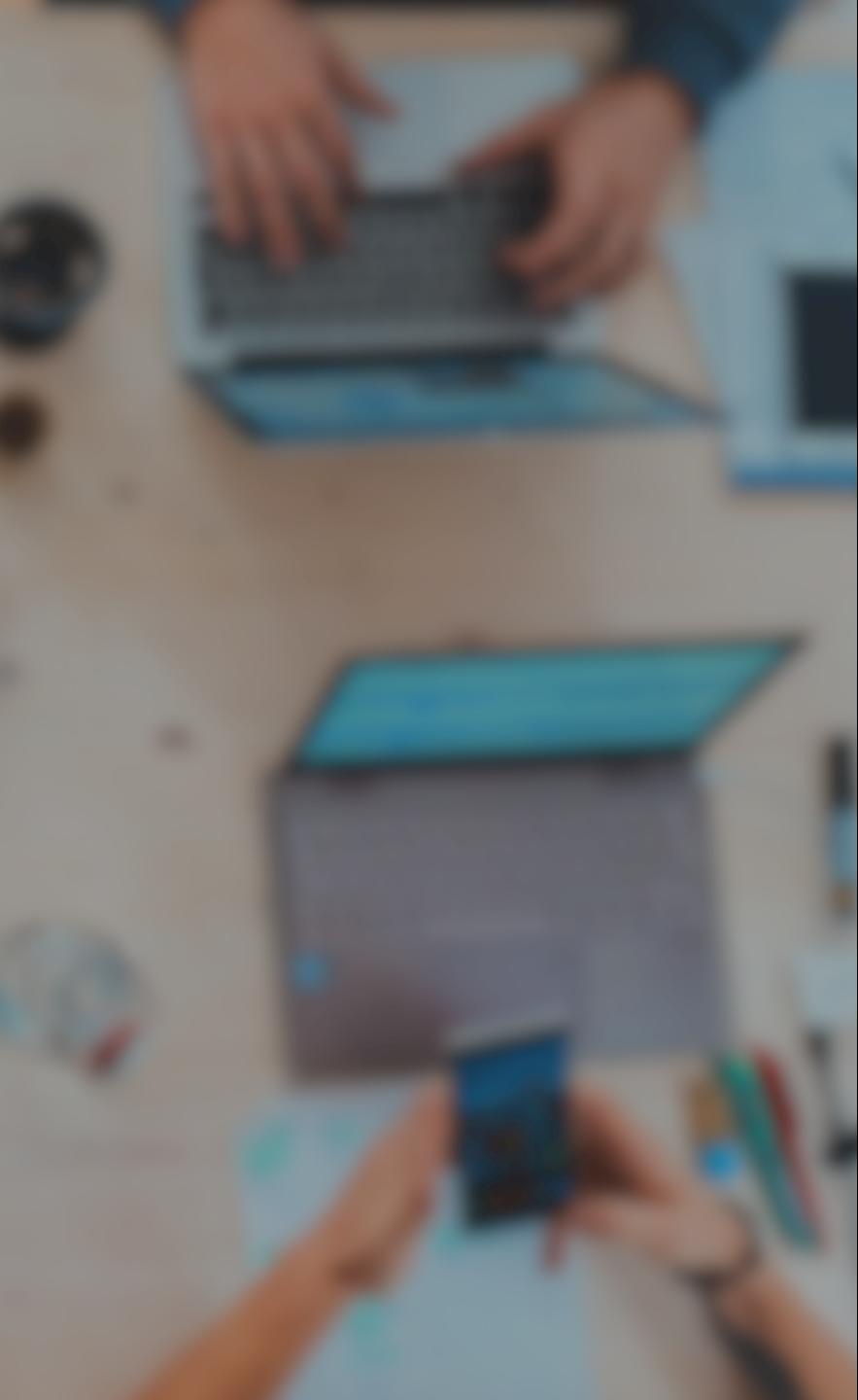
5

```
animation() {
  requestAnimationFrame(() => this.#animation());

  this.#shape.rotateX(0.01);
  this.#shape.rotateY(0.01);
  this.#shape.rotateZ(0.01);

  this.#renderer.render(this.#scene, this.#camera);
};
```





References

<https://en.wikipedia.org/wiki/Three.js>

<https://discoverthreejs.com/book/first-steps/first-scene/>

<https://threejs.org/>

<https://threejsfundamentals.org/threejs/lessons/threejs-fundamentals.html>

<https://threejs.org/docs/#manual/en/buildTools/Testing-with-NPM>

<https://plumegame.com/>

Contact us

- @ Carlos Garcia Lezcano
alu0101208268@ull.edu.es
- @ Andrés Zeus Hernandez Impini
alu0101207957@ull.edu.es
- 🌐 Github

