



AIRPORT

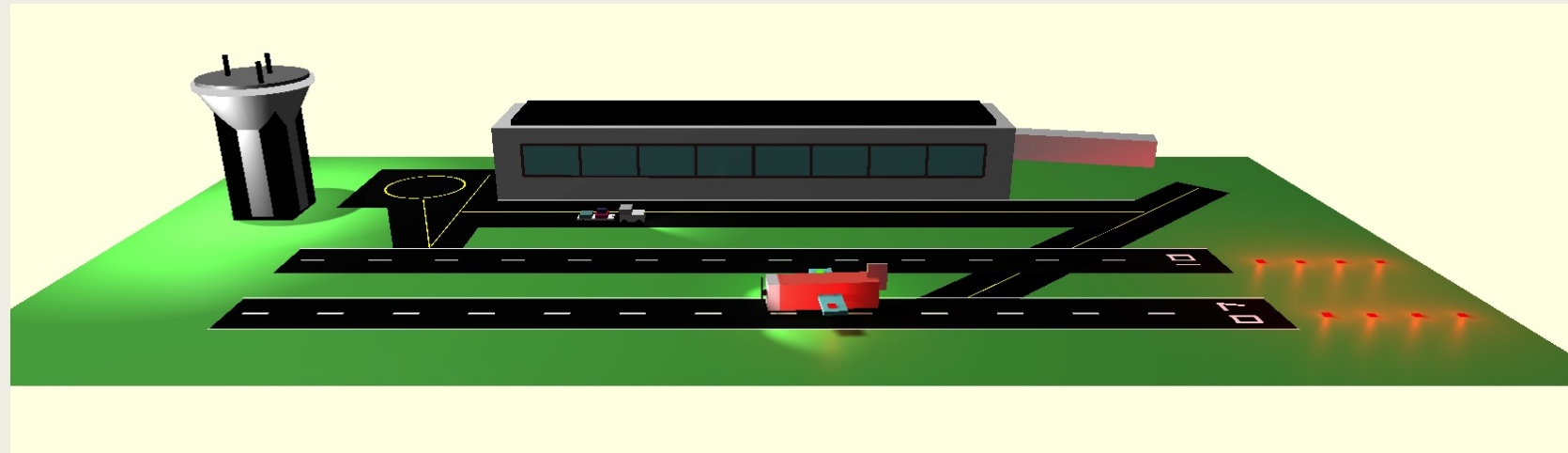
Pedro Sobral - 98491

Introdução à Computação Gráfica - 2021/2022 - Projeto 1



Ideias principais

- Aeroporto
- Movimento Aéreo
- Interação com o Utilizador

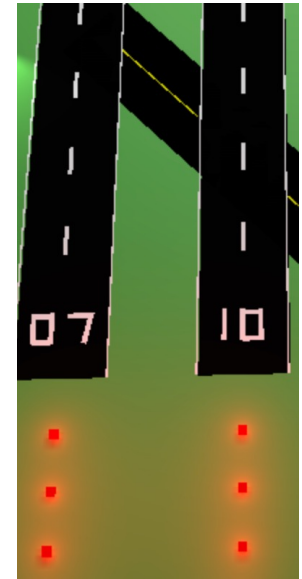
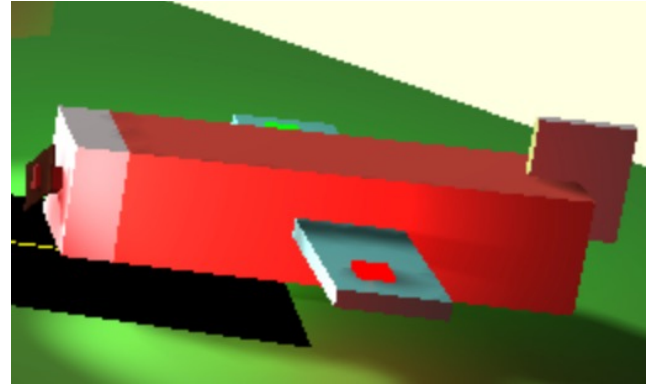
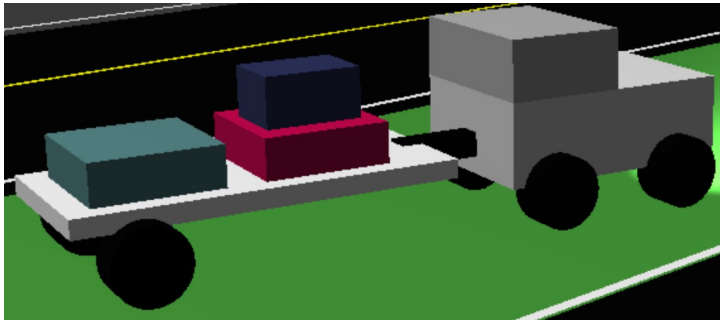
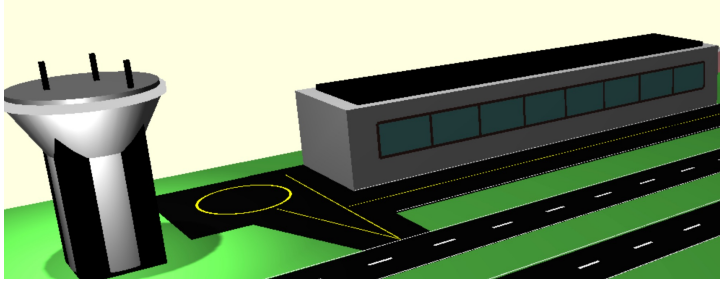


Ideias principais

- Three.js
- Deployment

<https://thescorpoi.github.io/icg-airport/>



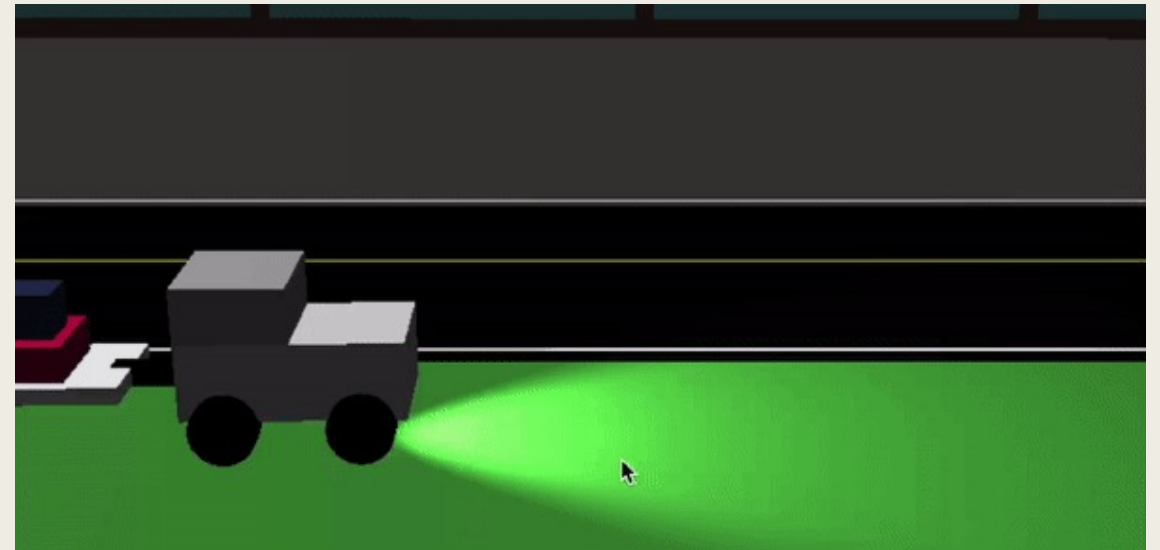
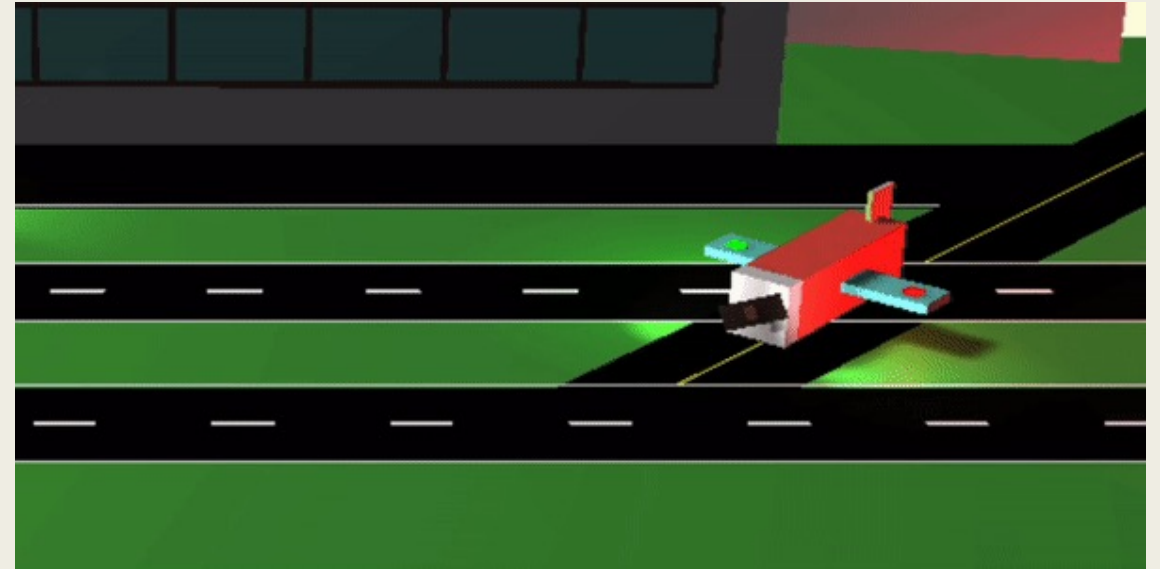


MODELOS E GRÁFICOS

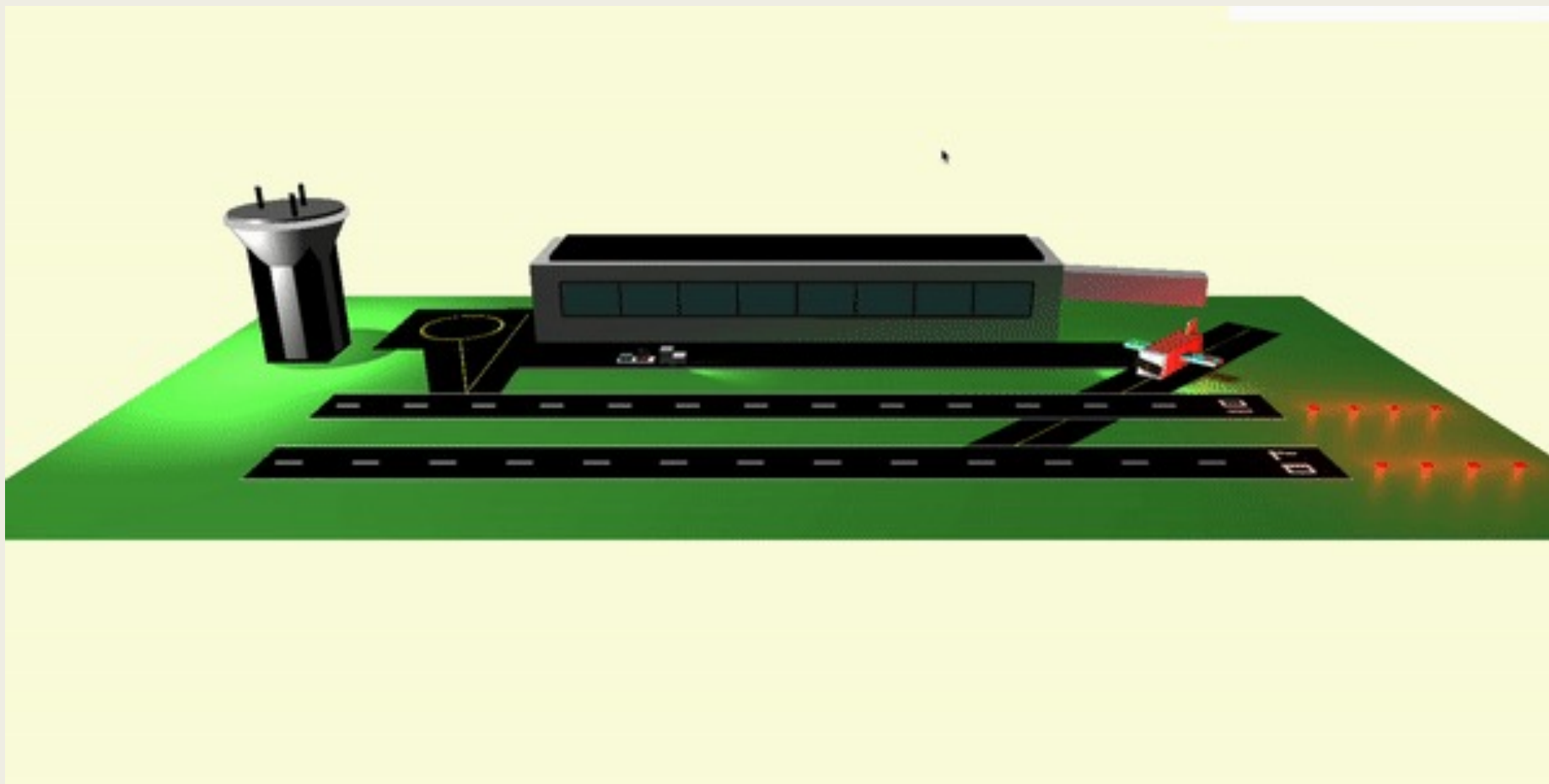
Principais Modelos

Animações

- Movimentação do Avião
- Movimentação do Carrinho das Malas por parte do Utilizador

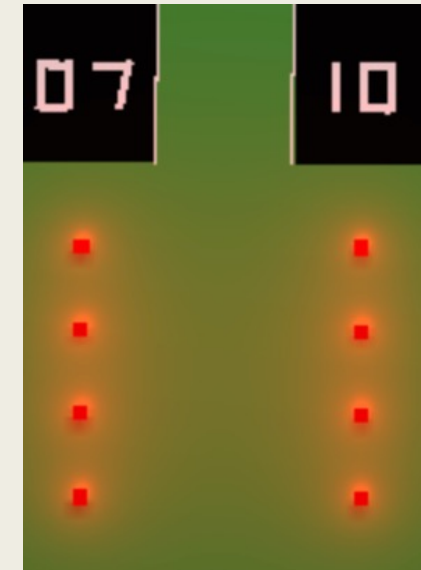
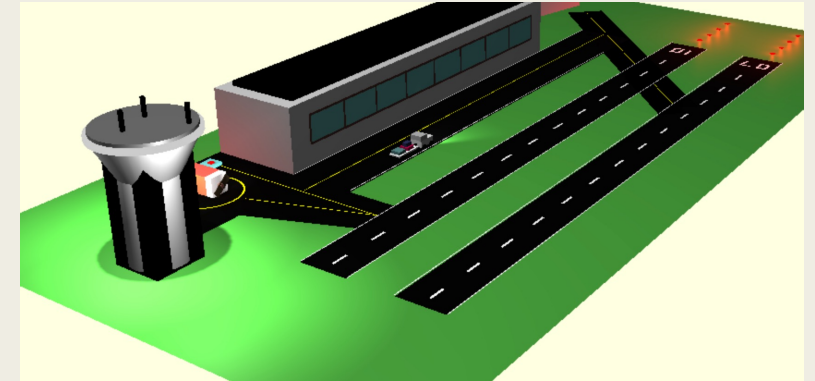


Animações



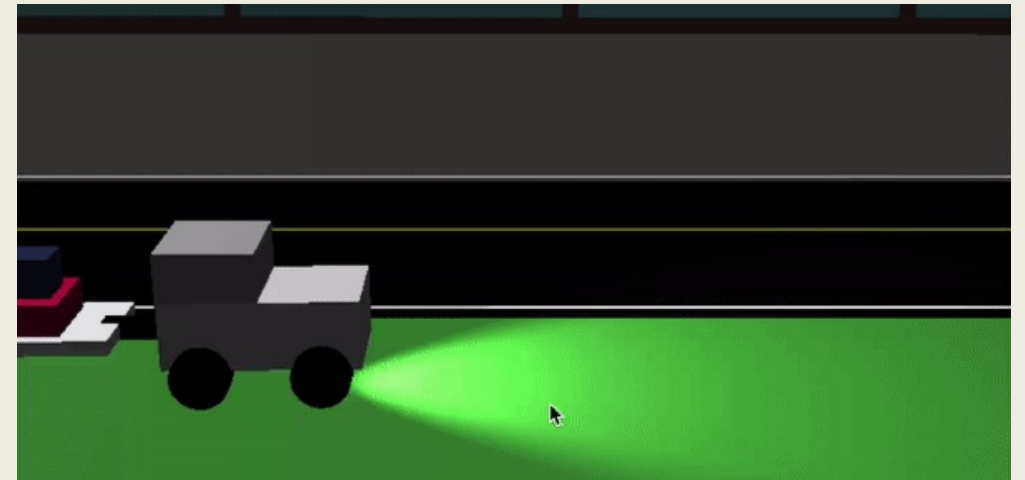
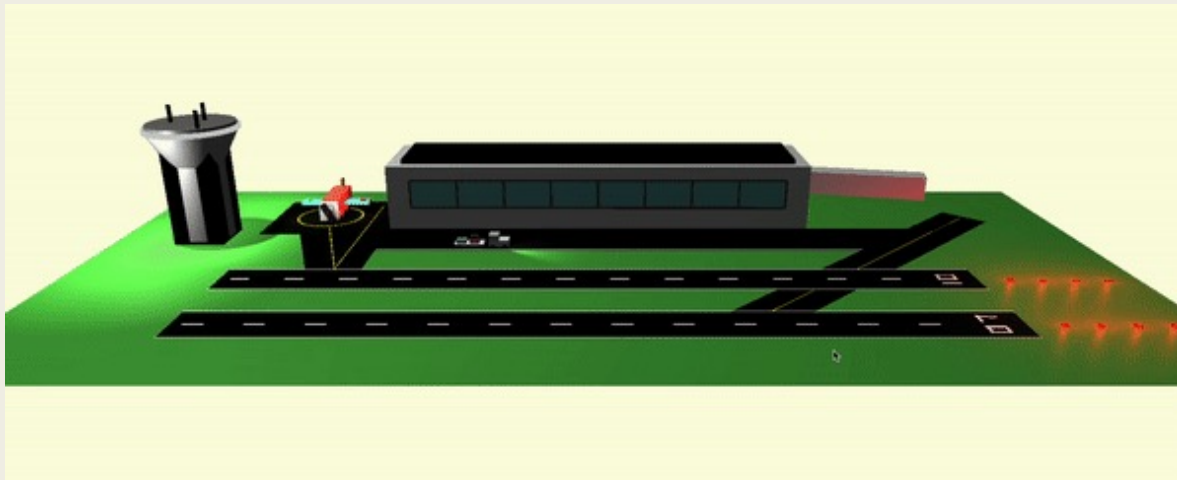
Iluminação

- Luz Ambiente
- Pontos de Luz




Intereração com o Utilizador

- Através do rato, mexendo nas “vistas” da scene.
- Através do teclado (WASD), controlando o carrinho das malas.



Desenvolvimento


■ Organização do código


 helper.js

 index.html

 LICENSE

 OrbitControls.js

 README.md

 scene.js

 style.css

```
23 helper.initEmptyScene(sceneElements);
24 load3DObjects(sceneElements.sceneGraph, sceneElements.camera);
25 requestAnimationFrame(computeFrame);
26
27 // Create and insert in the scene graph the models of the 3D scene
28 function load3DObjects(scene, camera) {
29     // Create a ground plane
30     const planeGeometry = new THREE.PlaneGeometry(10, 5);
31     const planeMaterial = new THREE.MeshPhongMaterial({ color: "rgb(70, 158, 58)", side: THREE.DoubleSide });
32     const planeObject = new THREE.Mesh(planeGeometry, planeMaterial);
33     scene.add(planeObject);
34
35     planeObject.rotateOnAxis(new THREE.Vector3(1, 0, 0), Math.PI / 2);
36     planeObject.receiveShadow = true;
```

```
3 const helper = {
4
5     initEmptyScene: function (sceneElements) {
6
7         // Create the 3D scene
8         sceneElements.sceneGraph = new THREE.Scene();
9
10        // Add camera
11        const width = window.innerWidth;
12        const height = window.innerHeight;
13        const camera = new THREE.PerspectiveCamera(45, width / height, 0.1, 500);
14        sceneElements.camera = camera;
15        camera.position.set(0, 3, 8);
16        camera.lookAt(0, 0, 0);
17
18        // Illumination
19        // Add ambient light
20        const ambientLight = new THREE.AmbientLight('rgb(255, 255, 255)', 0.2);
21        sceneElements.sceneGraph.add(ambientLight);
22
23        // Add spotlight (with shadows)
24        const spotLight = new THREE.SpotLight('rgb(255, 255, 255)', 0.8);
25        spotLight.position.set(-5, 8, 0);
26        spotLight.castShadow = true;
27        spotLight.shadow.mapSize.width = 2048;
28        spotLight.shadow.mapSize.height = 2048;
29        spotLight.name = "light";
30        sceneElements.sceneGraph.add(spotLight);
31    }
```

Desenvolvimento

- Problemas e Dificuldades:
Fazer com que o avião seguisse pelo caminho certo.



Referências

- <https://threejs.org/>
- <https://tympanus.net/codrops/2016/04/26/the-aviator-animating-basic-3d-scene-threejs/>
- Material fornecido pelo Docente nas aulas.