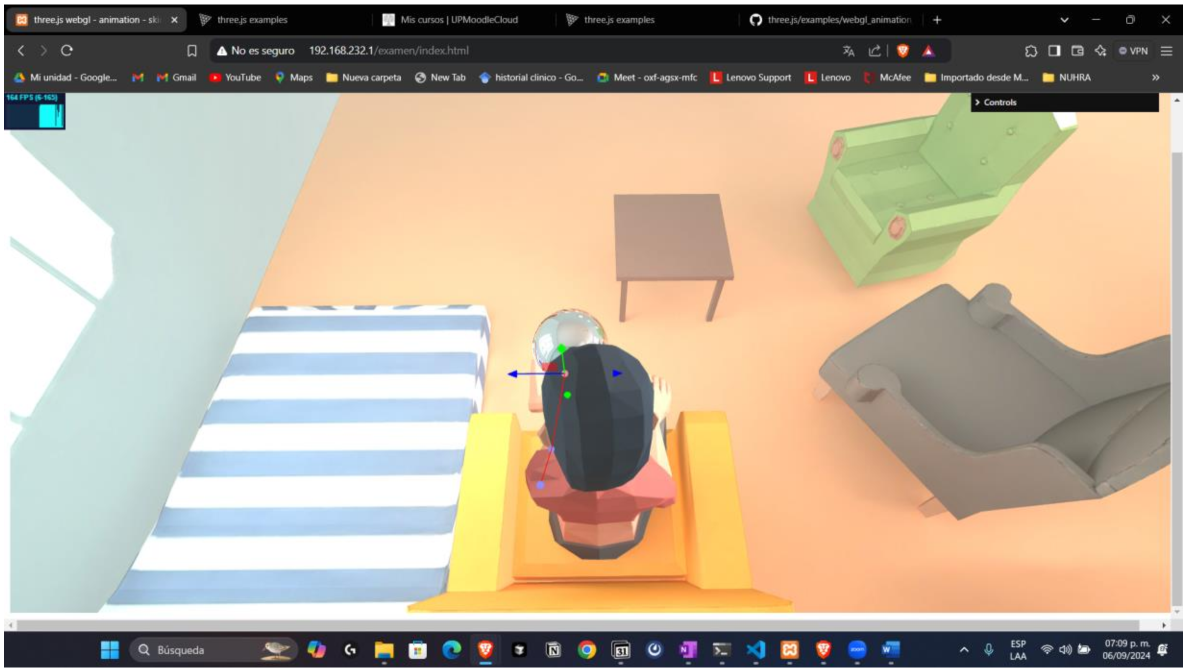
```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>three.js webgl - animation - skinning - ik</title>
    <meta charset="utf-8" />
    <meta
      name="viewport"
      content="width=device-width, user-scalable=no, minimum-scale=1.0, maximum-scale=1.0"
    />
    <meta name="author" content="Antoine BERNIER (abernier)" />
    <link type="text/css" rel="stylesheet" href="main.css" />
    <style>
      body {
        color: white;
      }
      #info a {
        color: #4d6675;
      }
    </style>
  </head>
  <body>
    <div id="info">
      <a href="https://threejs.org" target="_blank" rel="noopener">three.js</a>
      - webgl - inverse kinematics<br />
      Character model by
      <a
        href="https://assetstore.unity.com/packages/3d/characters/humanoids/humans/kira-lowpoly-
character-100303"
        target="_blank"
    rel="noopener"
    >Aki</a
  >, furnitures from
  <a href="https://poly.pizza" target="_blank" rel="noopener">poly.pizza</a
  >, scene by
  <a
    href="https://abernier.name/three.js/examples/webgl_esher.html"
    target="_blank"
    rel="noopener"
    >abernier</a
  >. CC0.
</div>

<script type="importmap">
  {
    "imports": {
      "three": "./js/three.js-master/build/three.module.min.js",
      "three/addons/": "./js/three.js-master/examples/jsm/"
    }
  }
</script>

<script type="module">
  import * as THREE from "three";

  import { OrbitControls } from "three/addons/controls/OrbitControls.js";
  import { TransformControls } from "three/addons/controls/TransformControls.js";
  import { GLTFLoader } from "three/addons/loaders/GLTFLoader.js";
  import { DRACOLoader } from "three/addons/loaders/DRACOLoader.js";
import {
  CCDIKSolver,
  CCDIKHelper,
} from "three/addons/animation/CCDIKSolver.js";
import Stats from "three/addons/libs/stats.module.js";
import { GUI } from "three/addons/libs/lil-gui.module.min.js";

let scene, camera, renderer, orbitControls, transformControls;
let mirrorSphereCamera;

const OOI = {};
let IKSolver;

let stats, gui, conf;
const v0 = new THREE.Vector3();

init();

async function init() {
  conf = {
    followSphere: false,
    turnHead: true,
    ik_solver: true,
    update: updateIK,
  };

  scene = new THREE.Scene();
  scene.fog = new THREE.FogExp2(0xffffff, 0.17);
  scene.background = new THREE.Color(0xffffff);
```

```
camera = new THREE.PerspectiveCamera(
  55,
  window.innerWidth / window.innerHeight,
  0.001,
  5000
);
camera.position.set(1, 1.5, 2); // Ajusta la posición de la cámara para una mejor vista
camera.lookAt(scene.position);

const ambientLight = new THREE.AmbientLight(0xffffff, 8); // Luz blanca suave
scene.add(ambientLight);

const directionalLight = new THREE.DirectionalLight(0xffffff, 5);
directionalLight.position.set(5, 10, 7.5); // Ajusta la dirección de la luz
scene.add(directionalLight);

const dracoLoader = new DRACOLoader();
dracoLoader.setDecoderPath(
  "./js/three.js-master/examples/jsm/libs/draco/"
); // Cambié la ruta de Draco para que sea correcta
const gltfLoader = new GLTFLoader();
gltfLoader.setDRACOLoader(dracoLoader);

const gltf = await gltfLoader.loadAsync(
  "./js/three.js-master/examples/models/gltf/kira.glb"
); // Verifica la ruta correcta del modelo
gltf.scene.traverse((n) => {
  if (n.name === "head") OOI.head = n;
  if (n.name === "lowerarm_l") OOI.lowerarm_l = n;
  if (n.name === "Upperarm_l") OOI.Upperarm_l = n;
  if (n.name === "hand_l") OOI.hand_l = n;
  if (n.name === "target_hand_l") OOI.target_hand_l = n;

  if (n.name === "boule") OOI.sphere = n;
  if (n.name === "Kira_Shirt_left") OOI.kira = n;
});
scene.add(gltf.scene);

const targetPosition = OOI.sphere.position.clone(); // for orbit controls
OOI.hand_l.attach(OOI.sphere);

// mirror sphere cube-camera
const cubeRenderTarget = new THREE.WebGLCubeRenderTarget(1024);
mirrorSphereCamera = new THREE.CubeCamera(0.05, 50, cubeRenderTarget);
scene.add(mirrorSphereCamera);
const mirrorSphereMaterial = new THREE.MeshBasicMaterial({
  envMap: cubeRenderTarget.texture,
});
OOI.sphere.material = mirrorSphereMaterial;

OOI.kira.add(OOI.kira.skeleton.bones[0]);
const iks = [
  {
    target: 22, // "target_hand_l"
    effector: 6, // "hand_l"
    links: [
      {
        index: 5, // "lowerarm_l"
        rotationMin: new THREE.Vector3(1.2, -1.8, -0.4),
        rotationMax: new THREE.Vector3(1.7, -1.1, 0.3),
      },
      {
        index: 4, // "Upperarm_l"
        rotationMin: new THREE.Vector3(0.1, -0.7, -1.8),
        rotationMax: new THREE.Vector3(1.1, 0, -1.4),
      },
    ],
  },
];
IKSolver = new CCDIKSolver(OOI.kira, iks);
const ccdikhelper = new CCDIKHelper(OOI.kira, iks, 0.01);
scene.add(ccdikhelper);

gui = new GUI();
gui.add(conf, "followSphere").name("follow sphere");
gui.add(conf, "turnHead").name("turn head");
gui.add(conf, "ik_solver").name("IK auto update");
gui.add(conf, "update").name("IK manual update()");
gui.open();

//

renderer = new THREE.WebGLRenderer({ antialias: true });
renderer.setPixelRatio(window.devicePixelRatio);
renderer.setSize(window.innerWidth, window.innerHeight);
renderer.setAnimationLoop(animate);
```

```
document.body.appendChild(renderer.domElement);

//

orbitControls = new OrbitControls(camera, renderer.domElement);
orbitControls.minDistance = 0.2;
orbitControls.maxDistance = 1.5;
orbitControls.enableDamping = true;
orbitControls.target.copy(targetPosition);

transformControls = new TransformControls(camera, renderer.domElement);
transformControls.size = 0.75;
transformControls.showX = false;
transformControls.space = "world";
transformControls.attach(OOI.target_hand_l);
scene.add(transformControls);

// disable orbitControls while using transformControls
transformControls.addEventListener(
  "mouseDown",
  () => (orbitControls.enabled = false)
);
transformControls.addEventListener(
  "mouseUp",
  () => (orbitControls.enabled = true)
);

//
```

```
  stats = new Stats();
  document.body.appendChild(stats.dom);

  window.addEventListener("resize", onWindowResize, false);
}

function animate() {
  if (OOI.sphere && mirrorSphereCamera) {
    OOI.sphere.visible = false;
    OOI.sphere.getWorldPosition(mirrorSphereCamera.position);
    mirrorSphereCamera.update(renderer, scene);
    OOI.sphere.visible = true;
  }

  if (OOI.sphere && conf.followSphere) {
    // orbitControls follows the sphere
    OOI.sphere.getWorldPosition(v0);
    orbitControls.target.lerp(v0, 0.1);
  }

  if (OOI.head && OOI.sphere && conf.turnHead) {
    // turn head
    OOI.sphere.getWorldPosition(v0);
    OOI.head.lookAt(v0);
    OOI.head.rotation.set(
      OOI.head.rotation.x,
      OOI.head.rotation.y + Math.PI,
      OOI.head.rotation.z
    );
```

```
      }

      if (conf.ik_solver) {
        updateIK();
      }

      orbitControls.update();
      renderer.render(scene, camera);

      stats.update(); // fps stats
    }

    function updateIK() {
      if (IKSolver) IKSolver.update();

      scene.traverse(function (object) {
        if (object.isSkinnedMesh) object.computeBoundingSphere();
      });
    }

    function onWindowResize() {
      camera.aspect = window.innerWidth / window.innerHeight;
      camera.updateProjectionMatrix();

      renderer.setSize(window.innerWidth, window.innerHeight);
    }
  </script>
 </body>
</html>
```


three.js webgl - animation - ski
three.js examples
Mis cursos | UPMoodleCloud
three.js examples
three.js/examples/webgl_animation
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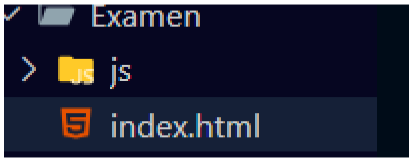
Controls
Búsqueda
07:09 p. m.
06/09/2024



Examen

js

index.html