

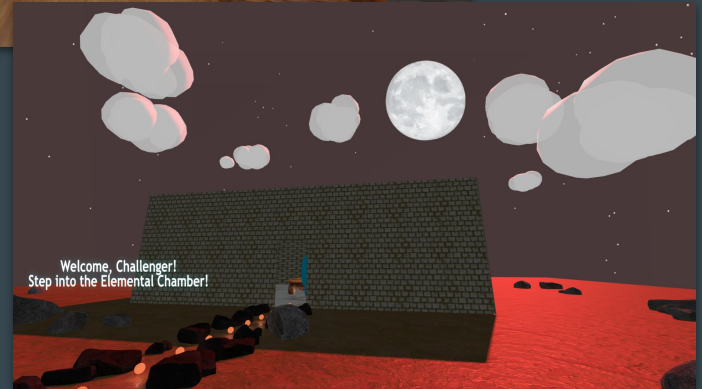
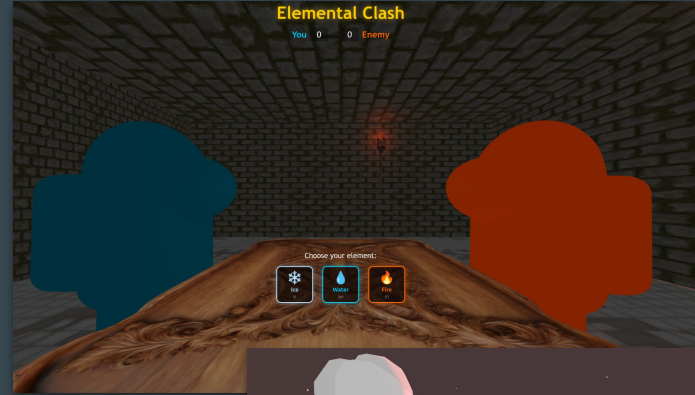
Elemental Clash



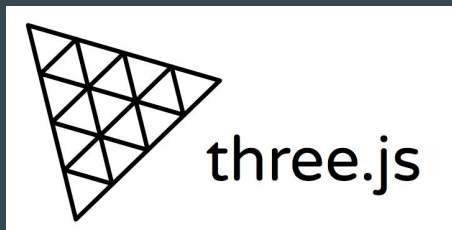
Diogo Silva-nMec: 108212
Introduction to Computer Graphics
2024/2025

Main Ideas

- Rock-Paper-Scissors Style mini-Game
- 3D Open World to Explore
 - Using **Keyboard** and **Mouse**
- Move freely through environment
- Interact with other characters



Three.js



Load Dynamic Objects:

- sceneLoader.sj
- scene.js
- outsideScenery.js

Game State:

- gameState.js
- gameManager.js

Mini game:

- miniGame.sj
- characters.js

Ambient/Physics:

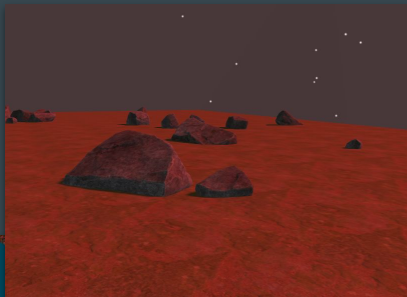
- lightning.js
- physics.js

Player Navigation:

- controls.js
- config.js

Models and Textures

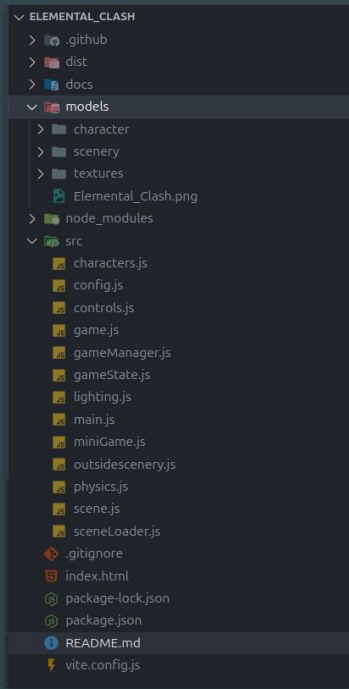
Wall Torch
Rocks
Table
Characters



Ground
floor
Walls
Moon



Organization



THREE.Scene

Environment (scene.js + sceneLoader.js)

- createTilesFloor() ← sceneLoader.js
- createWallEnvironment() ← sceneLoader.js
- createMetalCeiling() ← sceneLoader.js
- createTable() ← sceneLoader.js

Outside Scenery (outsidescenery.js)

- createOutsideScenery()
- createRocks()
- addClouds()
- create Moon()
- updateMoonBillboard()

Lighting (lighting.js)

- setupBaseLighting()
- addWallTorches()
- updateTorchLights()

Characters (characters.js)

- setupCharacters()
- animateCharacter()
- getCharacters()

Player Controls (controls.js)

- initControls()
- updateMovement()
- updateCameraRotation()

Game UI & Overlays (scene.js, miniGame.js)

- createTextTexture() ← scene.js
- updateFloatingText() ← scene.js
- createSimpleVictoryDisplay() ← miniGame.js
- createVictoryOverlayWithCountdown()
- showDefeatOverlay()

Mini-Game Logic (miniGame.js)

- initGame()
- makeChoice()
- determineWinner()
- resetGame()

Game Flow Manager (gameManager.js)

- registerMiniGame()
- registerExitGame()
- startMiniGame()

Game Logic and Transitions (game.js)

- startGame()
- updateCameraTransition()
- startVictoryTransition()

Game State (gameState.js)

- checkTableProximity()
- updateGameLighting()
- onRoomEntry()

Physics (physics.js)

- setTableReference()
- isCollidingWithWalls()
- isInDoorway()

Animations

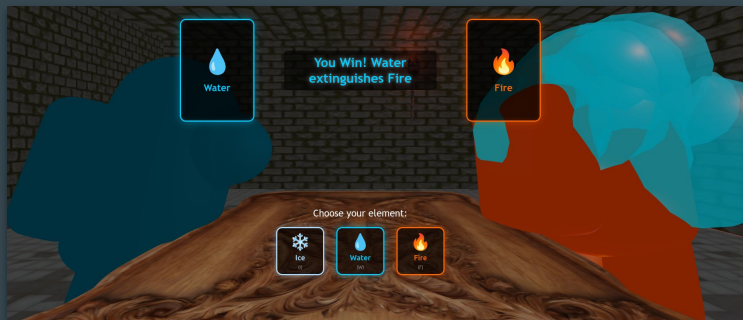
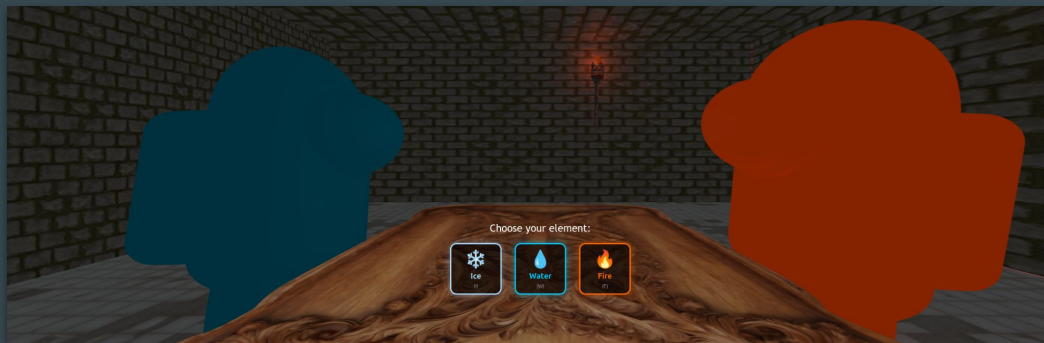
Character:

- bobAnimation()
- thinkingAnimation()
- tiltAnimation()
- jumpSpinAnimation()
- slumpAnimation()

miniGame:

- updateCard()
- makeChoice()
-

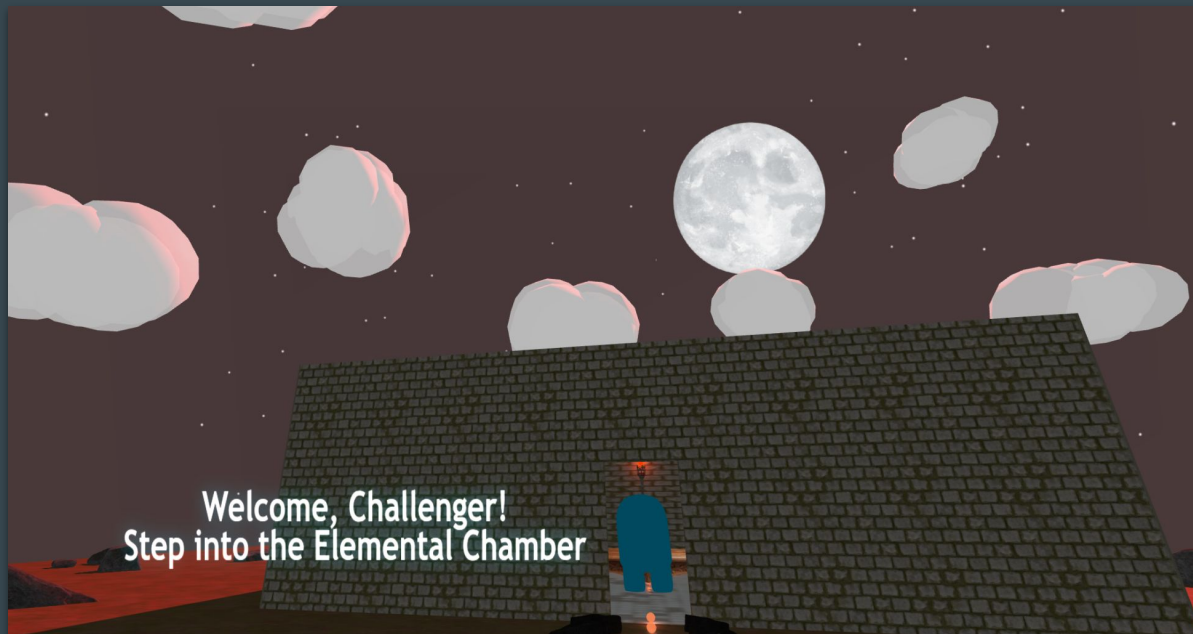
- startVictorySequence()
- showDefeatOverlay()



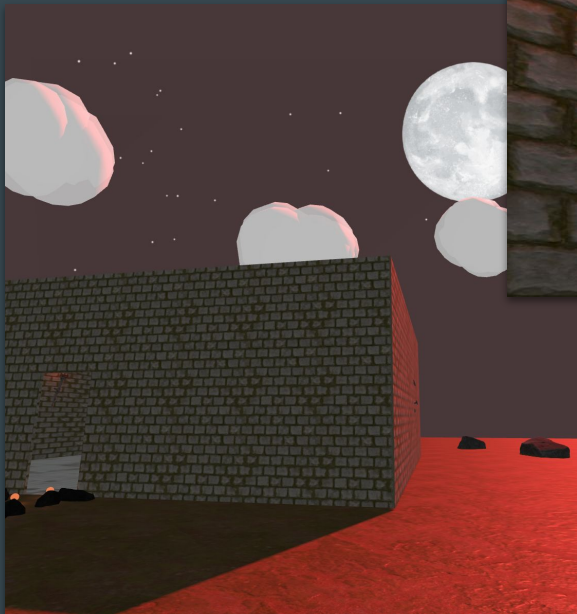
Animations

outsideScenery:

- animateClouds()
- updateMoonBillboard()
- updateFloatingText()

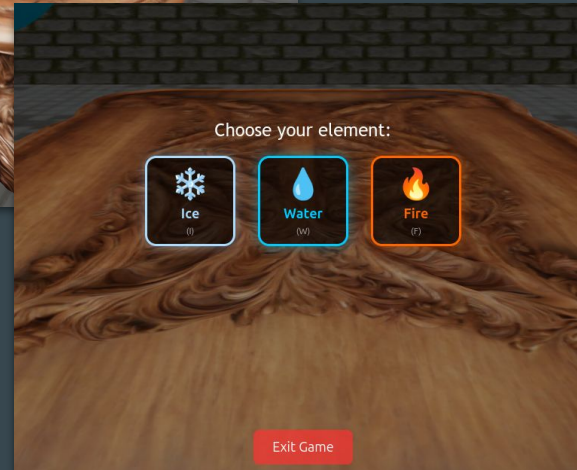


Lightning



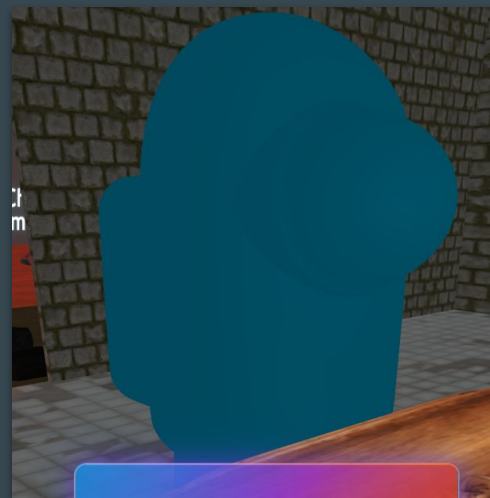
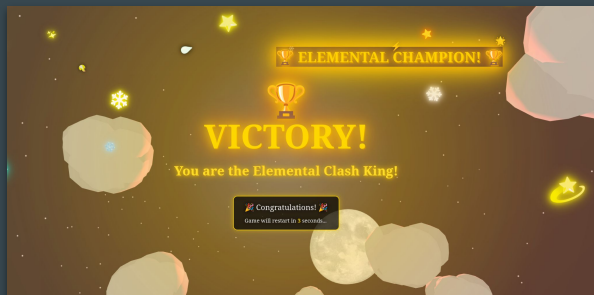
- `THREE.AmbientLight`
- `THREE.PointLight`
- `updateTorchLights()`
- `updateMoonBillboard()`

User Interaction



Difficulties

- Criação de Textos e Modelos 3D através de Canvas HTML, convertidos em THREE.Texture [Texturas/Modelos muito pesados]



Conclusion

Main Reference: https://g0ncalocunha.github.io/wizard_showdown/index.html



https://diogozeca.github.io/Elemental_Clash/