

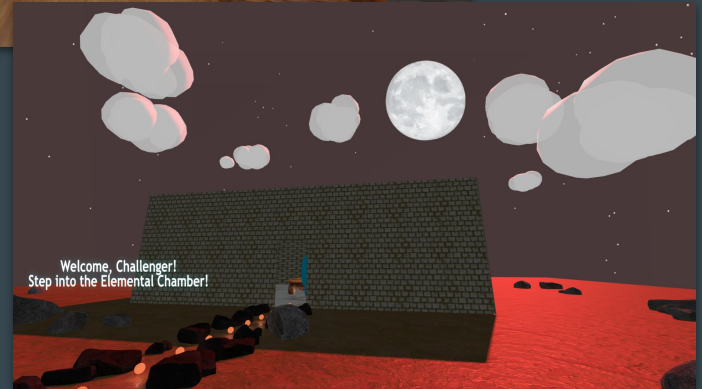
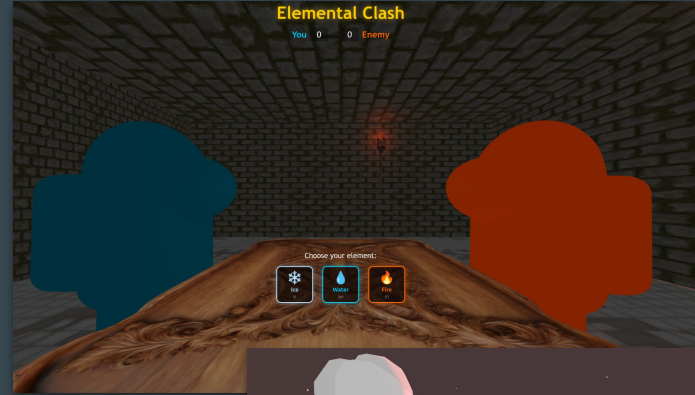
# Elemental Clash



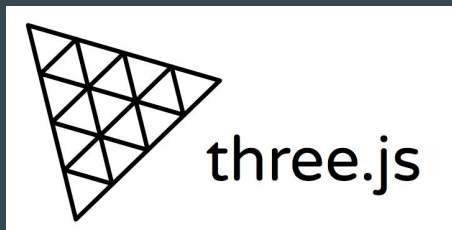
Diogo Silva-nMec: 108212  
Introduction to Computer Graphics  
2024/2025

# 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:

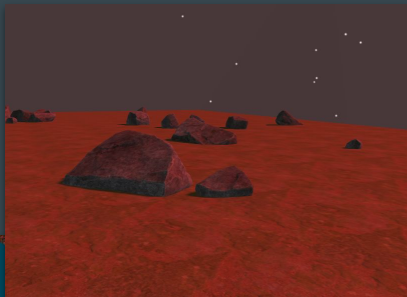
- lightning.js
- physics.js

## Player Navigation:

- controls.js
- config.js

# Models and Textures

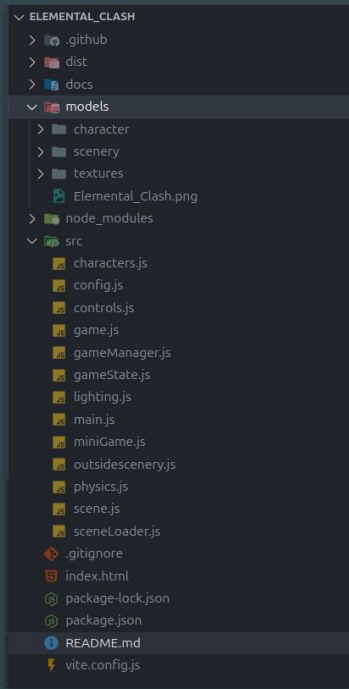
Wall Torch  
Rocks  
Table  
Characters



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

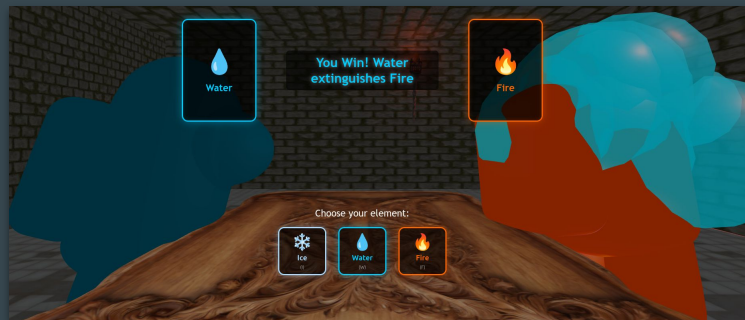
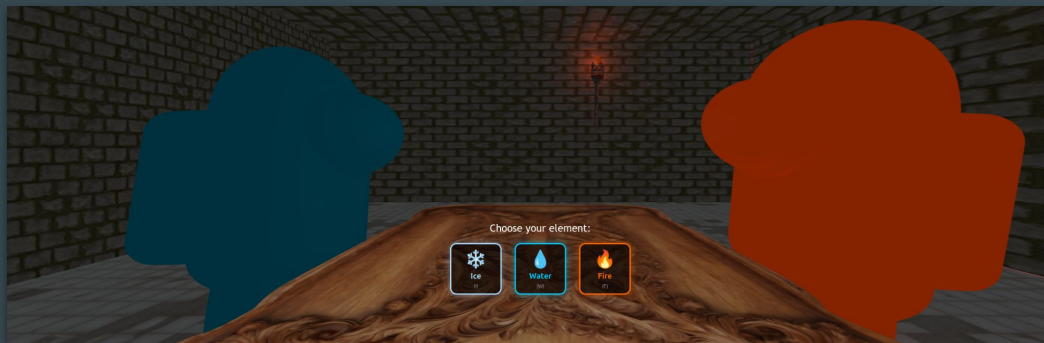
Character:

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

miniGame:

- updateCard()
- makeChoice()
- 

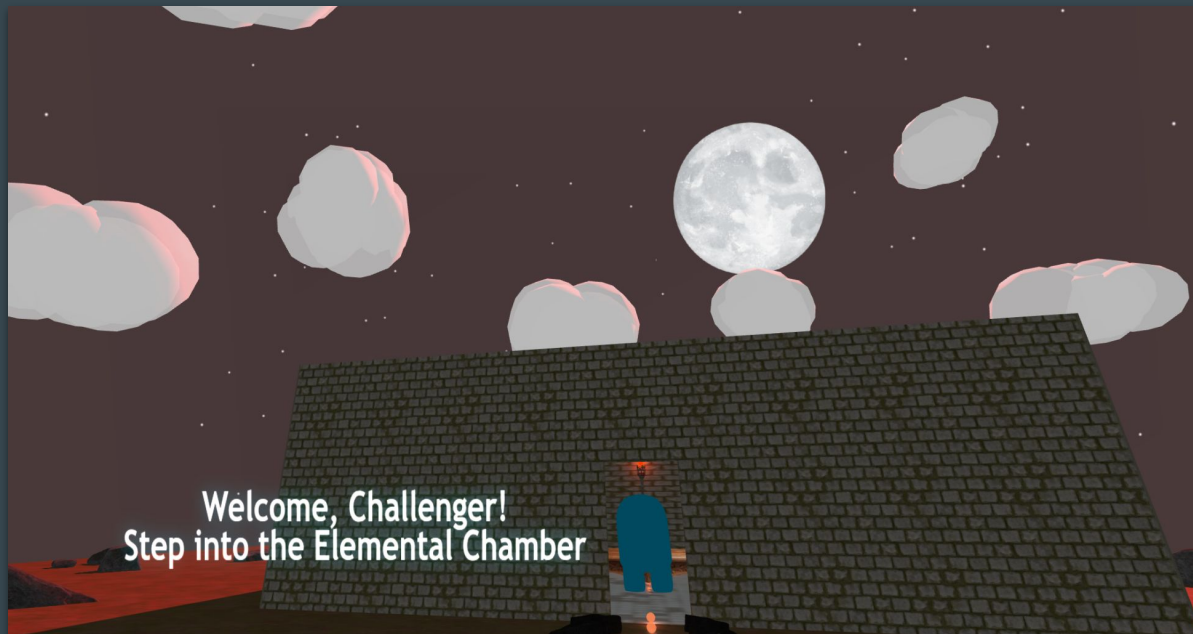
- startVictorySequence()
- showDefeatOverlay()



# Animations

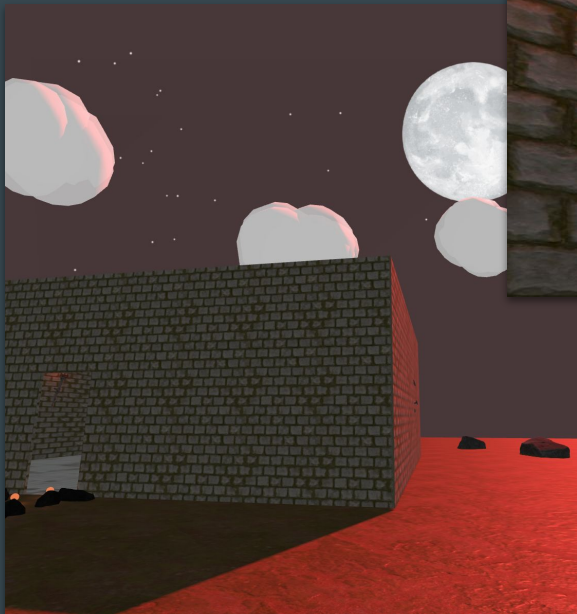
outsideScenery:

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





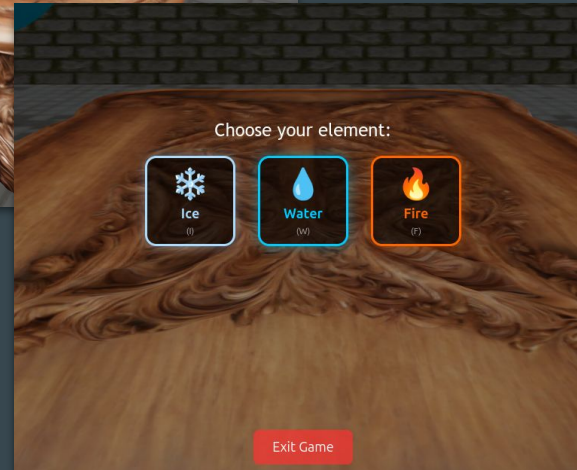
# Lightning



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

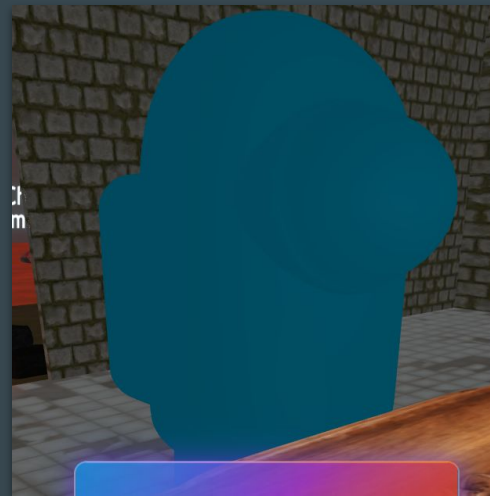
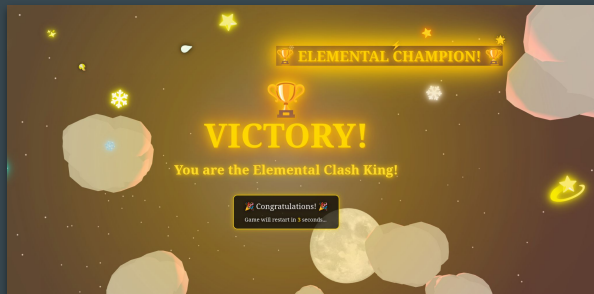


# User Interaction



# 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://g0ncalocunha.github.io/wizard_showdown/index.html)

[https://diigozeca.github.io/Elemental\\_Clash/](https://diigozeca.github.io/Elemental_Clash/)