THE DUNGEON

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Introduction to Computer Graphics – 2024/2025

Introduction

- Bossfight in dark “dungeon theme”
- Blender usage requires GLTFLoader module
- Project available on:

https://brunommsantos.github.io/ICG_proj_113446/

Scene development

- Scene layout planning
- Division in subareas
- Created Models

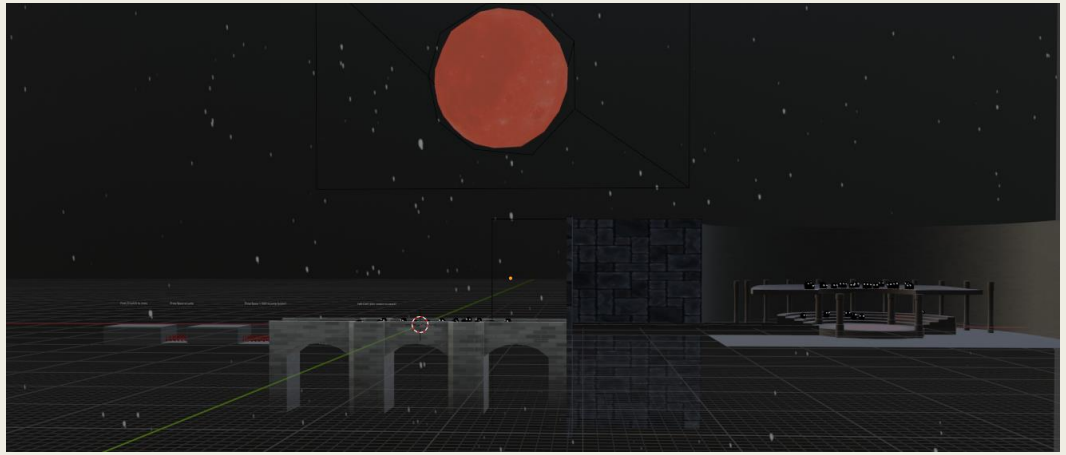

Figure 1 : Scene layout overview

Figure 2 : Arena model

Actor Models

- Boss and player models created in Blender.
- Rigged to enable animations in threejs.
- Blender shading is converted to MeshStandardMaterial in threejs with similar charateristics.

Figure 3 : Player avatar model

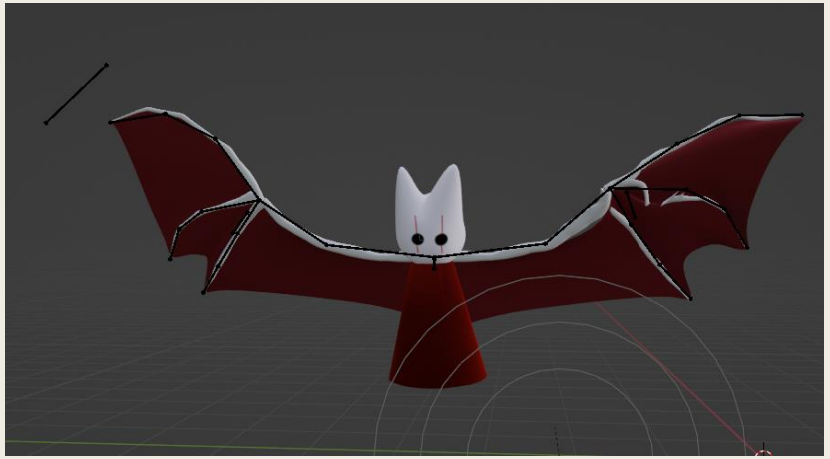

Figure 4 : Boss model

Animation

- Game behavior requires dynamic animation of player and boss.
- Animations created to support diferent scenarios

But how to manage what animation to play?

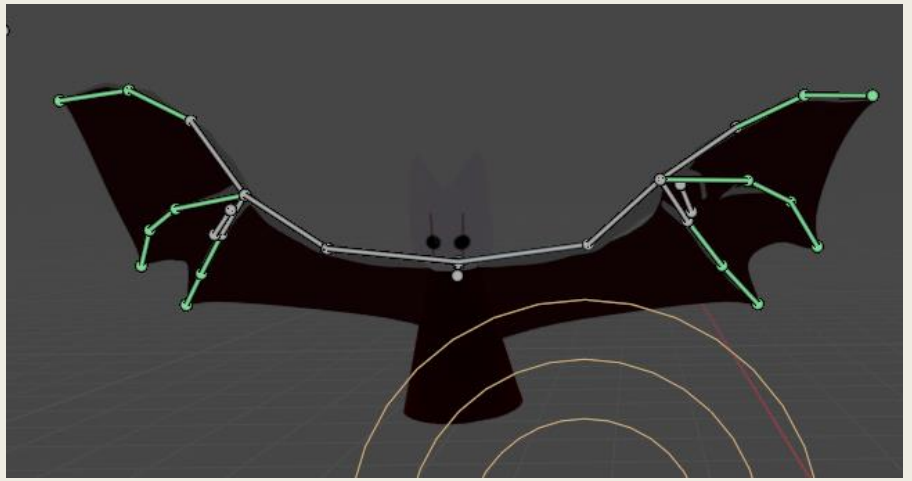

Figure 5 : Boss rig

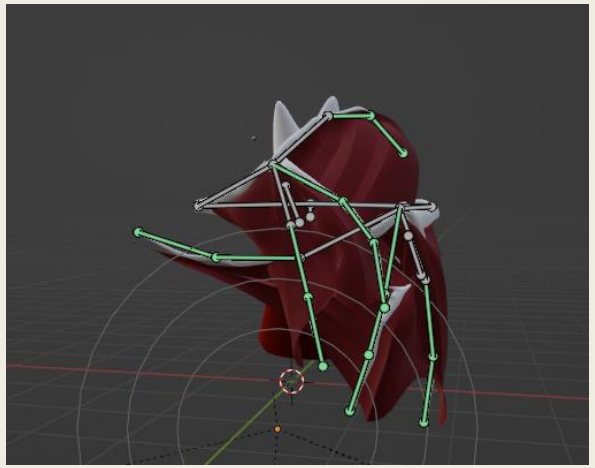

Figure 6 : Pose example

Boss behavior

- State based behavior management
- Various “attacks” with common starting point enable random behavior
- 3 distinct attacks developed

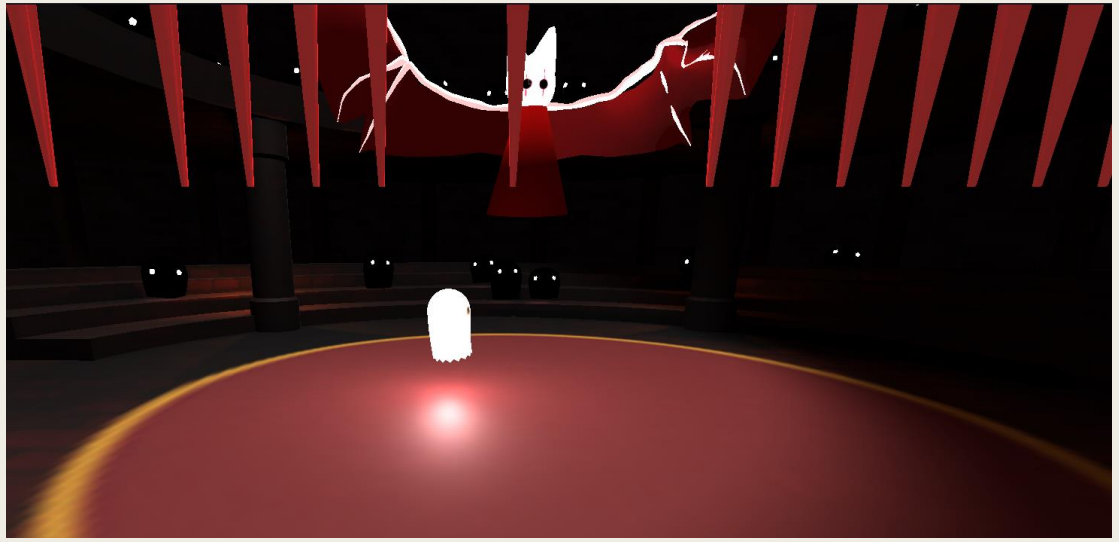

Figure 7 : Boss attack example

User Interaction

- Players introduced to controls in brief tutorial
- 2D movement control
- 4 Keyboard based movement controls
- 1 Mouse based attack control

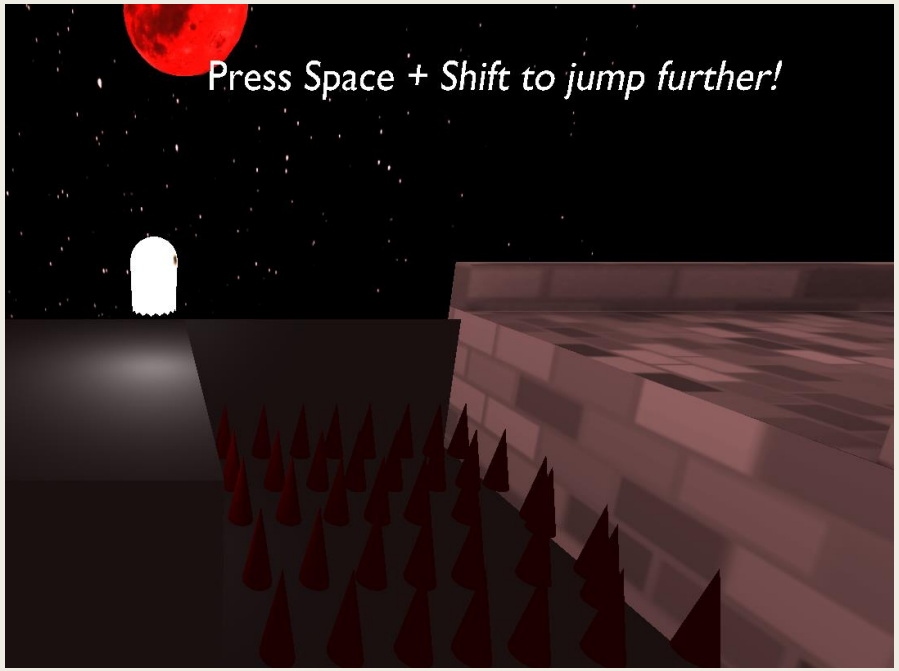

Figure 8 :Movement tutorial example

Player animations

- State machine based animation control.
- Animations change depending on user command.
- Movement control flags allow consistent behavior.

Figure 9 : Move animation

Illumination

- Dark theme without compromising visibility
- Ambient light to set base luminosity
- Dynamic light following player
- Spotlights and point lights to improve visibility in important areas

Figure 10 : Illumination example

Development & Challenges

- Implementation focus on integrating blender imported assets with threejs environment.
- Focus on consistent interaction and “bossfight” behavior without using a physics/collision engine (coordinate based).
- Efficient management of model animations.

Conclusion

- Bossfight interaction achieved using state machine logic for random boss behavior.
- Integration of blender assets with threejs creating a coherent environment.
- Animation management for improved interaction.

Demo

References

- Threejs Documentation
- Threejs examples
- https://www.blenderguru.com/tutorials