

ISS Docking Simulator

Igor Coelho - 113532

April 10, 2025

0.1 URLs

Github Repository: <https://github.com/iavcoelho/ICGProject>

Live Project: <https://iavcoelho.github.io/ICGProject>

0.2 Overview

The objective of this project is to make a game similar to the ISS Docking Simulator (<https://iss-sim.spacex.com/>), developed by SpaceX and NASA. In this game, there is a capsule that spawns at a random distance from the ISS, having equally random (within a defined interval) pitch, roll and yaw angles. The objective of the player is to correctly align the capsule with the ISS, in order to successfully dock. The interaction between the player can be made with keyboard, where different keys control the velocity of the capsule in a specific direction (For example, using the WASD keys to move up, down, left, right and the Q and E keys to accelerate/decelerate towards the ISS). The capsule will be able to move/rotate along all 3 axis

0.3 Objectives

Creation of a game similar to the one present in <https://iss-sim.spacex.com/>

- Have the International Space Station in Space
- Player is located on a separate module
- Player must control the module in order to dock on the ISS
- All axis of movement and rotation can be controlled
- Position, rotation and absolute velocity must be below a threshold (to be successful)

0.4 What is done

Currently the models have been added to the scene, the camera has been anchored to the module and the module moves up. There have also been placed BufferGeometries to simulate stars

0.5 What is missing

The movement of the module needs to be controlled by the player, which must be able to do so by a widget and by using the keyboard. There needs to be some widget that displays the current rotation, position and velocity values. Texture and environment must be added. The first person camera must also be added, for the user to have a 1st person view from the module.