

Documentation	
Group Name / Game Name	Infinite Skate
Students	Linda Gan, 11905178 Barbara Weilgony, 11776615
Description	<p>Implemented interaction:</p> <ul style="list-style-type: none"> • Enter: start • G: toggle gamemode between normal and hardmode • H: toggle HUD • AD: left and right player movement • Space: jump • ESC: quit • F3: toggle debug camera <ul style="list-style-type: none"> ◦ Arrow keys: move debug camera • F: set debug camera position to player <ul style="list-style-type: none"> • Model.h, Mesh.h for loading blender models with textures [1][2], rigid body (track) can be generated from a model [3] • ModelAnimation.h, MeshAnimation.h, Animation.h, Bone.h, AnimData.h, AssimpGlmHelpers and Animator.h for loading animated models with bones and animation sequence (Collada-DAE), animated models successfully rendered alongside normal models [4] • GLDebugDrawer.h for drawing collision objects [5] • modified Camera.h to be third person camera with look at matrix calculation [6] • CameraDebug.h, a debug camera which can be moved freely [7] • Skybox.h for loading and storing and displaying cubemaps [8] • bullet physics used for collision detection and gravity after jumping, detection if player falls from the platform • additional shaders for animated model and debug drawing • Display.h for displaying game title, instructions, score and win/lose [9] • stb_image.h for loading image textures [10]
Features	<p>Heads-Up Display: displays text and can be toggled with H</p> <p>Collision Detection: able to detect collision with obstacles and hearts (points)</p> <p>GPU Vertex Skinning: Model with bones and animation sequence can be read and animated (skater)</p> <p>Environment Map: skybox and spheres which simulate absolute reflection</p> <p>Advanced Physics: spheres on the platform at the end of the</p>

	track get pushed away at collision with the player and fall off the platform
Libraries	Assimp Bullet Physics FreeType

Code sources

- [1] https://learnopengl.com/code_viewer_gh.php?code=includes/learnopengl/model.h
- [2] https://learnopengl.com/code_viewer_gh.php?code=includes/learnopengl/mesh.h
- [3] <https://pybullet.org/Bullet/phpBB3/viewtopic.php?t=4513>
- [4] <https://learnopengl.com/Guest-Articles/2020/Skeletal-Animation>
- [5] <https://pybullet.org/Bullet/phpBB3/viewtopic.php?t=11517>
- [6] https://learnopengl.com/code_viewer_gh.php?code=src/1.getting_started/7.6.camera_exercise2/camera_exercise2.cpp
- [7] <https://learnopengl.com/Getting-started/Camera>
- [8] <https://learnopengl.com/Advanced-OpenGL/Cubemaps>
- [9] <https://learnopengl.com/In-Practice/Text-Rendering>
- [10] <http://nothings.org/stb/>