

Honey Ham

Gameplay:

The bears are targeting the honey ham (or the player if close enough). When a bear touches the honeyham or the player, they will lose health. If either the Life of the Honey Ham or Player reaches 0, you lose the game.

In order to win (and continue to the next level with more bears), you have to shoot all bears before running out of life and ham.

Free movable camera:

It is possible to fly through the world (C) or play in a FPS (P) way.

Moving objects:

The bears are spinning their arms while they move to the honey ham or the players direction.

Texture Mapping:

Every object (honey ham, trees, stone, bear, house) has a texture.

Transparenz:

If N is pressed there appears a rectangle in front of the house where you can test the transparenz really easy.

Lighting and materials:

There is one lightsource at the moon, and one spotlight as the players flashlight. If you press N, the moon light comes near the house and can be moved with the arrow and K, L keys (for debugging purpose).

Viewfrustum-Culling:

Everything not in the players view will be culled. You can test this when you switch to the Debug Camera with C and viewfrustum culling is on.

Input:

WASD - Movement

Shift - Sprint

C - Switch to Debug Camera (fly)

P - Switch to Player (FPS cam)

Left Mousbutton - Shoot

R (ingame) - Reload
R (GameEnd) - Restart / next LV
M - "Pause" Menu
Space - Jump
N - Debug

in Debug:

Arrowkeys - move Lightsource
K - lower Lightsource
L - raise Lightsource

F1 - vsync on/off
F2 - Frame Time on/off
F3 - Wire Frame on/off
F4 - Textur-Sampling-Quality: Nearest Neighbor/Bilinear
F5 - Mip Mapping-Quality: Off/Nearest Neighbor/Linear
F8 - Viewfrustum-Culling on/off
F9 - Transparency on/off

Effects:

- Motion Blur 1.5
Sprinting (Shift + W/A/S/D)
https://wiki.delphigl.com/index.php/shader_radial_blur
- Shadow Maps (with PCF) 1.5
Target trees, bears, parts of the house or the honey ham with your flashlight to see the shadows.
<http://www.opengl-tutorial.org/intermediate-tutorials/tutorial-16-shadow-mapping/>
- Spotlights 0.5
The flashlight of the player.
<http://www.tomdalling.com/blog/modern-opengl/08-even-more-lighting-directional-lights-spotlights-multiple-lights/>
- GPU-Particle System (+Compute Shader,Instancing) 1
After shooting a bear you see "blood particles".
First we created a CPU particle system and then we migrated the calculation to the GPU using a Compute Shader.
<http://www.opengl-tutorial.org/intermediate-tutorials/billboards-particles/particles-instancing>

Features:

When in menu, the crosshair follows the mouse.

After winning you can continue to the next level.

When M is pressed you can move your mouse freely.

When M is pressed and the game is not in Fullscreen Mode, you can change the resolution with the left and right arrow keys.

Bibliotheken:

- GLM OpenGL Mathematics
<http://glm.g-truc.net/0.9.7/index.html>
- GLEW OpenGL Extensions
<http://glew.sourceforge.net/>
- GLFW OpenGL Window
<http://glew.sourceforge.net/>
- PhysX Physik
<https://github.com/NVIDIAGameWorks>
- FreeImage Imagerloader
<http://freeimage.sourceforge.net/>
- Assimp Asset importer
<http://www.assimp.org/>
- FMOD
<http://www.fmod.org/>
- FreeType
<https://www.freetype.org/>

Tools:

- Models with Blender
- Textures with Paint and GIMP