

Trickster's Remorse

documentation sheet

Gameplay in 3D

The player character moves on a 3D mesh (floor), changing height while doing so. This effect was achieved with a height map.

Controls

- <F-No>-keys (see below)
- arrow keys to move camera
- RMB to pitch camera
- Mwheel to zoom camera
- LMB or WASD to move player character

Effects

- Lightmapping + separate textures (applied to floor mesh. Remove lightmap texture from “resources” folder to see the difference!)
- Normalmapping (currently applied only to the house in the demo scene. Lightmap texture is located in the resources folder.)
- Water with moving waves + reflection + refraction (as seen on the lake. Reflection is achieved by rendering to a separate FBO and reading texture from there.)
- Environment mapping (we use a skybox cube map, which yields nice reflections on the water.)
- Other effects: atmospheric fog in the fragment shader depending on fragment-camera distance; a separate blendmap to switch between multiple textures on the terrain mesh

Complex Objects

- a hut/house with door, windows, fireplace & chimney and a bed – all UV unwrapped and textured, incl. normalmap
- idealized abstract vegetation (trees, fern)
- a player character consisting of two meshes, both unwrapped and textured

Animated Objects

- the player character's head moves relative to its body, using hierarchical, FPS-independent animation.

View Frustum Culling

- introduced a bug into the latest version, temporarily disabled (tri-count is low, culling was useless)

Transparency

- the hut's windows are semi-transparent, as is the GUI texture.

Experimenting with OpenGL

- FBO used for reflection rendering
- VBO/VAOs used in loading & rendering of mesh assets
- press F2 to switch printing of minimal FPS to console every 0.5sec
- press F3 to render wireframe
- press F4 to switch texture nearest/linear interpolation
- press F5 to switch mipmap nearest/linear interpolation
- press F9 to dis-/en-able alpha blending

Illumination

- multiple point lights

Libraries

- SOIL
- SDL
- glm

Tools

- blender (modeling, UV-unwrapping, lightmap baking, texture drawing)
- gimp (texture drawing/copying/pasting)
- codeblocks + valgrind + vogl / VisualStudio (software development)