

Subject of diploma thesis

3D model editor based on voxels

SUMMARY

Graphics in modern usage is mainly associated with computer representation of data. We most commonly distinguish between two types of graphics: 2D (two-dimensional) and 3D (three-dimensional). 2D graphics involve presenting a visual output based on a two-dimensional object, while 3D graphics, involve a three-dimensional object.

A voxel is a representation of a point in a three-dimensional space. The name voxel originated from a combination of the words, volume and element and is similar to a picture and an element in the case of a pixel.

Interested in these topics, the author decided to trace the creation of 3D graphics back to the model editor, creating one from scratch as part of this work. This editor is intended to allow the user to create a voxel-based 3D model using built-in editing mechanisms.

The motivation for writing this thesis was to create a simple functional 3D engine, along with tools for creating models using this engine. Later on, I plan to extend this project by creating a fully functional 3D game.