# Backlog - voxelizer

## Table of Contents

## 3D Testing Model <span style="color:green">DONE</span>

A 3D model should be created to be a able to test the system.

It needs a relatively high level of complexity.

It should be textured in a way to showcase the coloring functionality of the Voxelizer system.

## Resolution <span style="color:green">DONE</span>

As a user, I want to be able to set the wanted resolution of the voxelized output.

| Relates | |
|---|---|
| relates to | Shell voxelization |
| relates to | Solid voxelization |

## Restructure code base <span style="color:green">DONE</span>

As a developer, I need the core codebase to have a good structure and be easy to maintain, so that other functionality that builds upon the core is easy to develop with high quality.

## three.js raycasting optimization <span style="color:green">DONE</span>

three.js itterates all faces during raycasting. This needs to be drastically reduced. It can most likely be implemented with a spatial index.

## Surface voxel coloring <span style="color:green">DONE</span>

As a user, I want to be able to produce color voxelizations.

| Blocks | |
|---|---|
| is blocked by | Shell voxelization |

## MTL file format import support <span style="color:red">CLOSED</span>

| Blocks | |
|---|---|
| is blocked by | OBJ file format import support |

## Solid voxelization

`DONE`

As a user, I want to be able to produce a filled volume voxelization of a 3D model.

| Relates | |
|---|---|
| *relates to* | Resolution |
| **Blocks** | |
| *is blocked by* | Shell voxelization |

## Shell voxelization

`DONE`

As a user, I want to be able to produce a shell voxelization of a 3D model.

| Relates | |
|---|---|
| *relates to* | Resolution |
| **Blocks** | |
| *blocks* | Solid voxelization |
| *blocks* | Surface voxel coloring |

## SCHEMATIC file format export support

`TO DO`

As a user, I want to be able to export the voxel data to the SCHEMATIC file format, so that i can import it into the game Minecraft.

## BINVOX file format export support

`DONE`

As a user, I want to be able to export the voxel data to the BINVOX file format.

## XML file format export support

`DONE`

As a user, I want to be able to export the voxel data to an XML file.

## VOX file format export support

`TO DO`

As a user, I want to be able to export the voxel data to the VOX file format, so that i can import it into the MagicaVoxel editor.

## Octree export support                                    `TO DO`

As a user, I want to be able to export the voxel data to an octree data structure.

## 3D array export support                                  `DONE`

As a user, I want to be able to export the voxel data as a normal nested JavaScript array.

## STL file format import support                           `CLOSED`

## glTF file format import support                          `CLOSED`

## OBJ file format import support                           `CLOSED`

| Blocks | |
|--------|--------|
| *blocks* | MTL file format import support |

## Automatic testing                                        `DONE`

As a repository maintainer, I want all new code changes to be automatically tested.

## Automatic publishing                                     `DONE`

As a repository maintainer, I want the publishing of new modules to be automated.