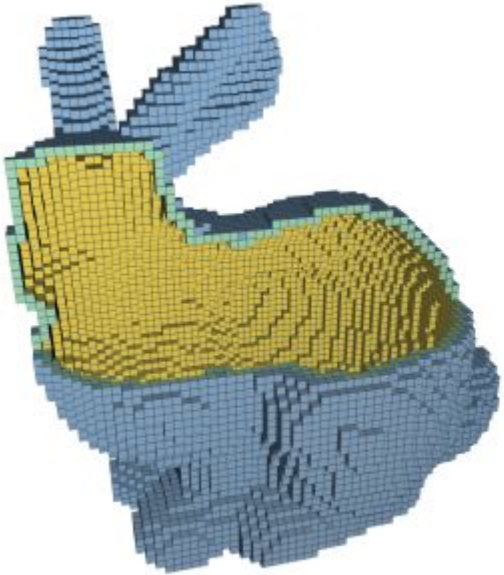
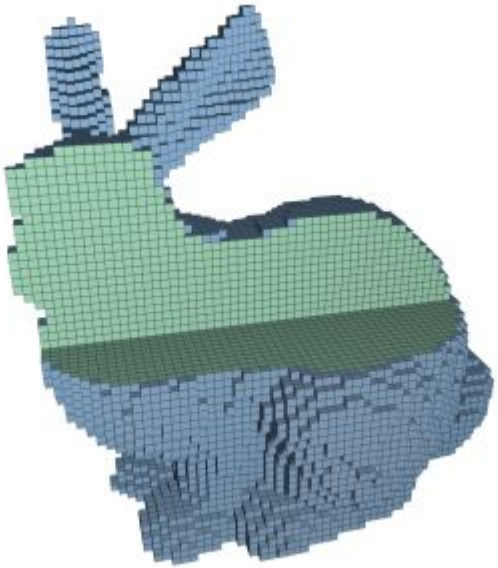
Halfedge Mesh Voxelizer, Constantin Geier

Final Presentation, Geometry Processing

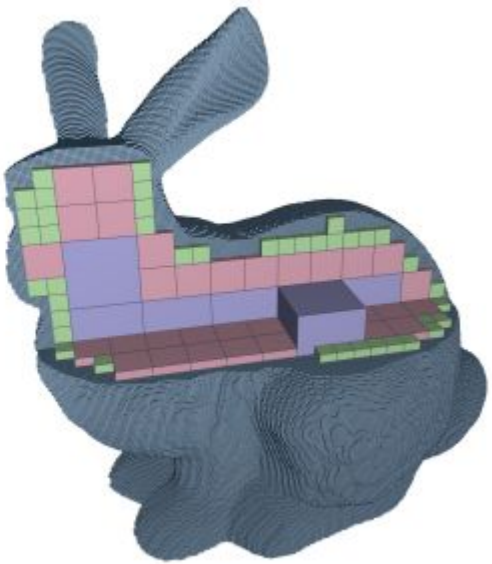
Surface Voxelization - repetition



Surface voxelization



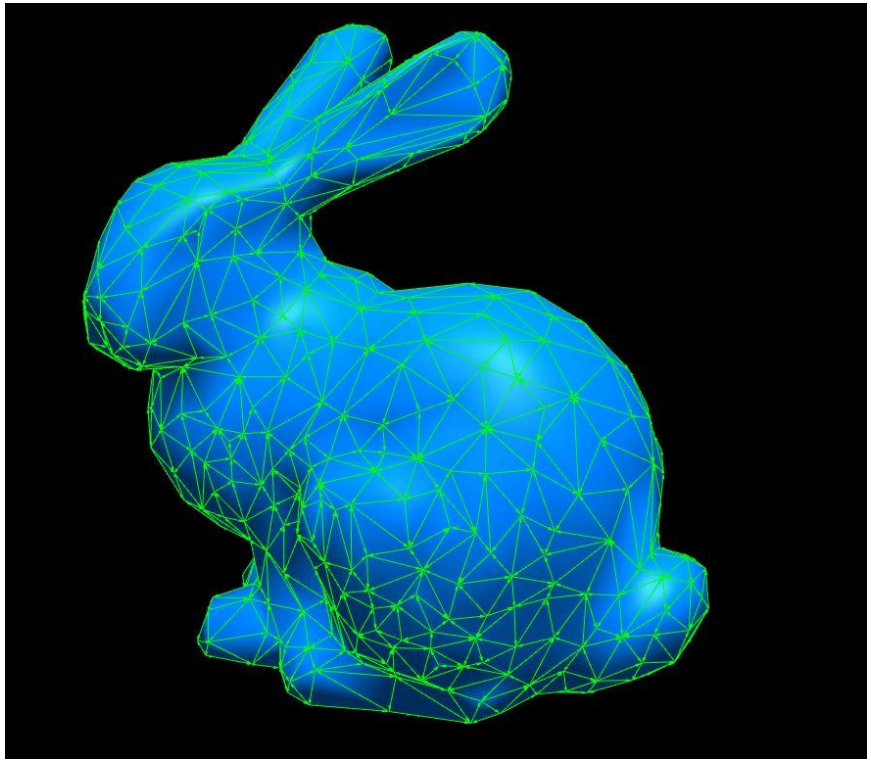
Solid voxelization

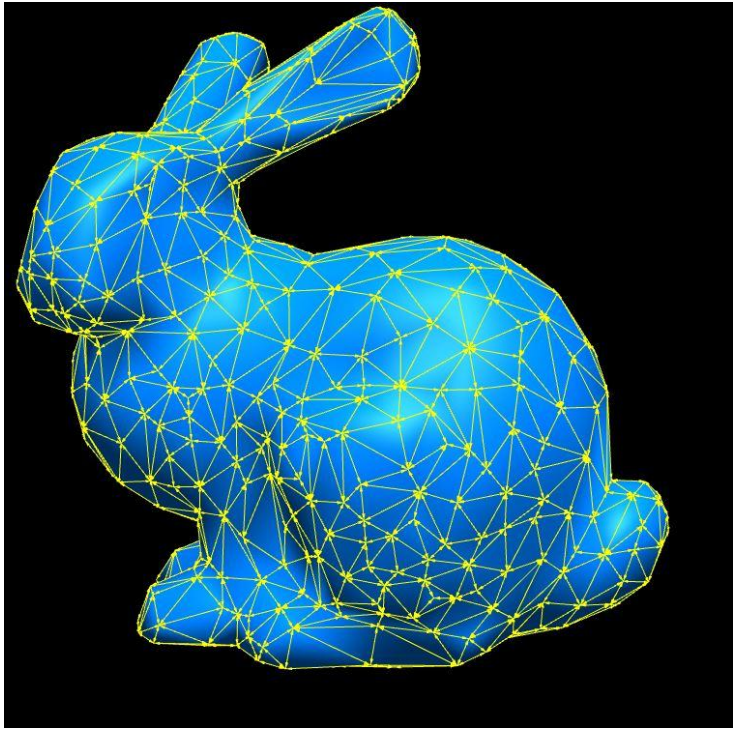


Octree-based solid voxelization

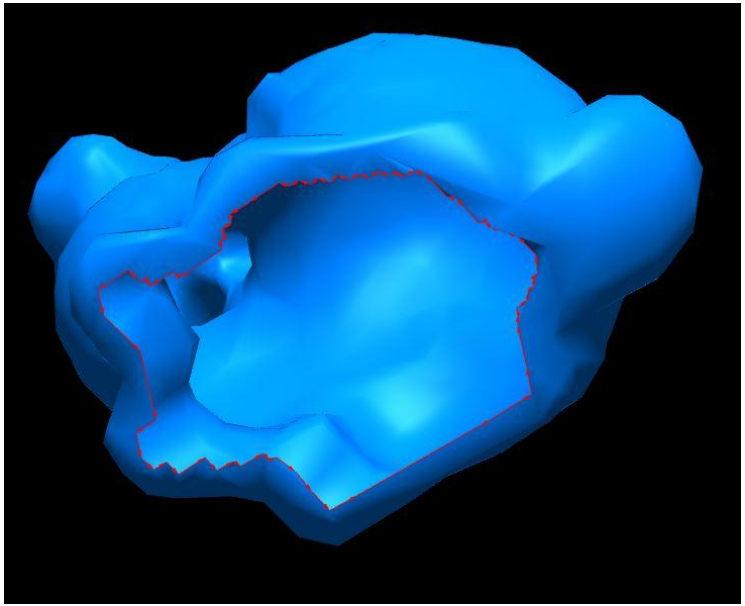
http://research.michael-schwarz.com/publ/2010/vox/

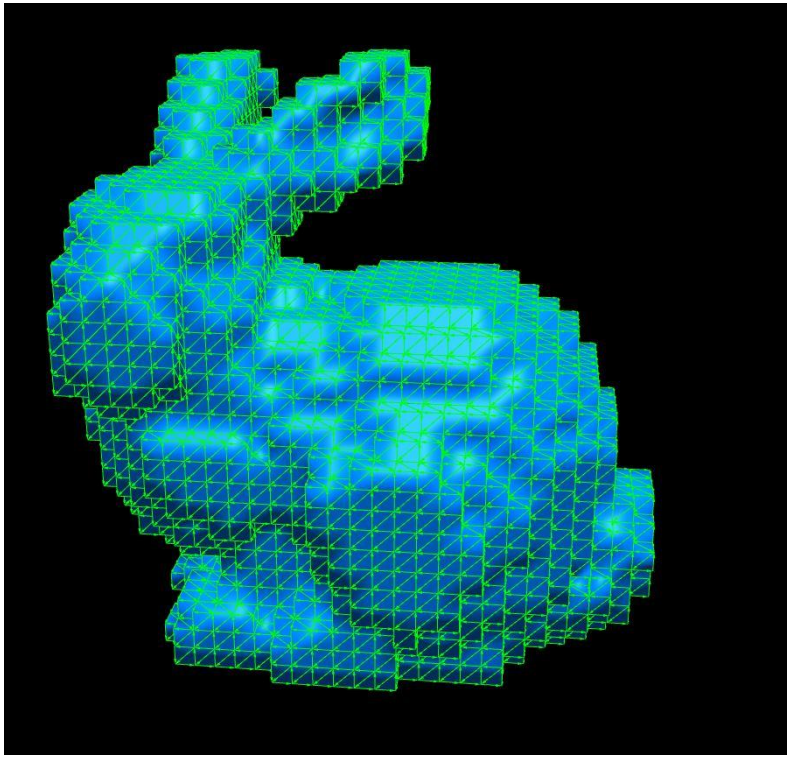
Visualization of h.e.d.s



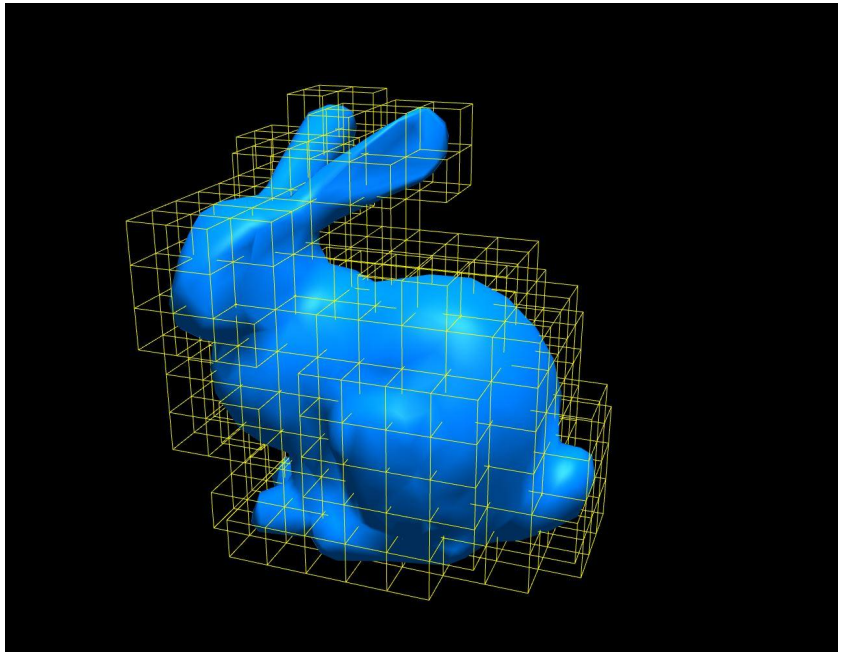


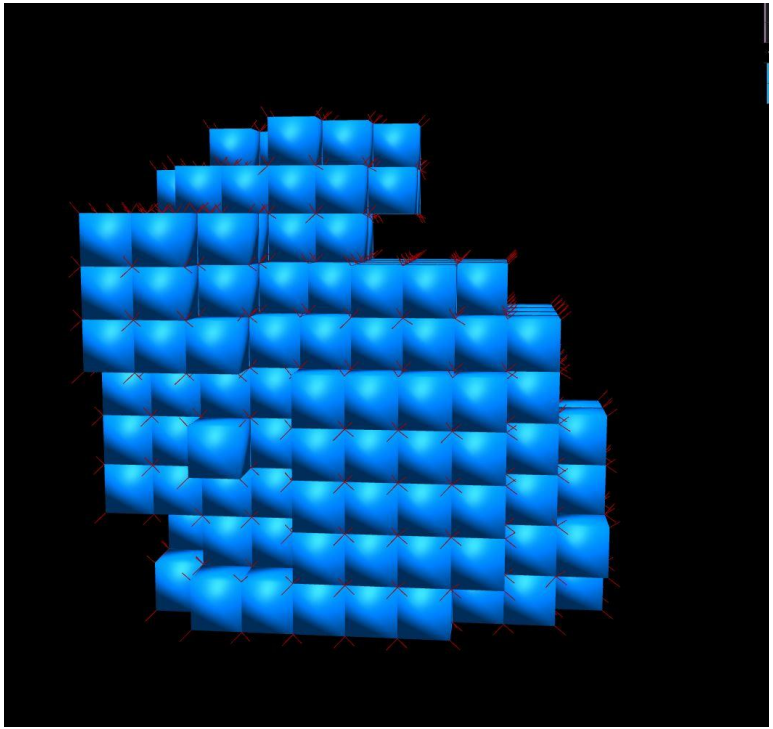
Visualization of h.e.d.s





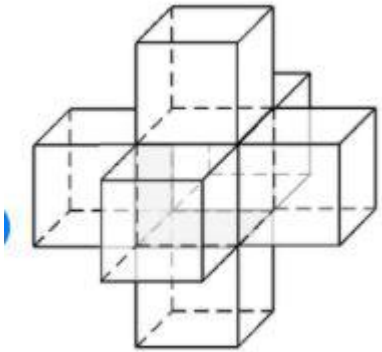
Challenges 1 - Indexed Vertices



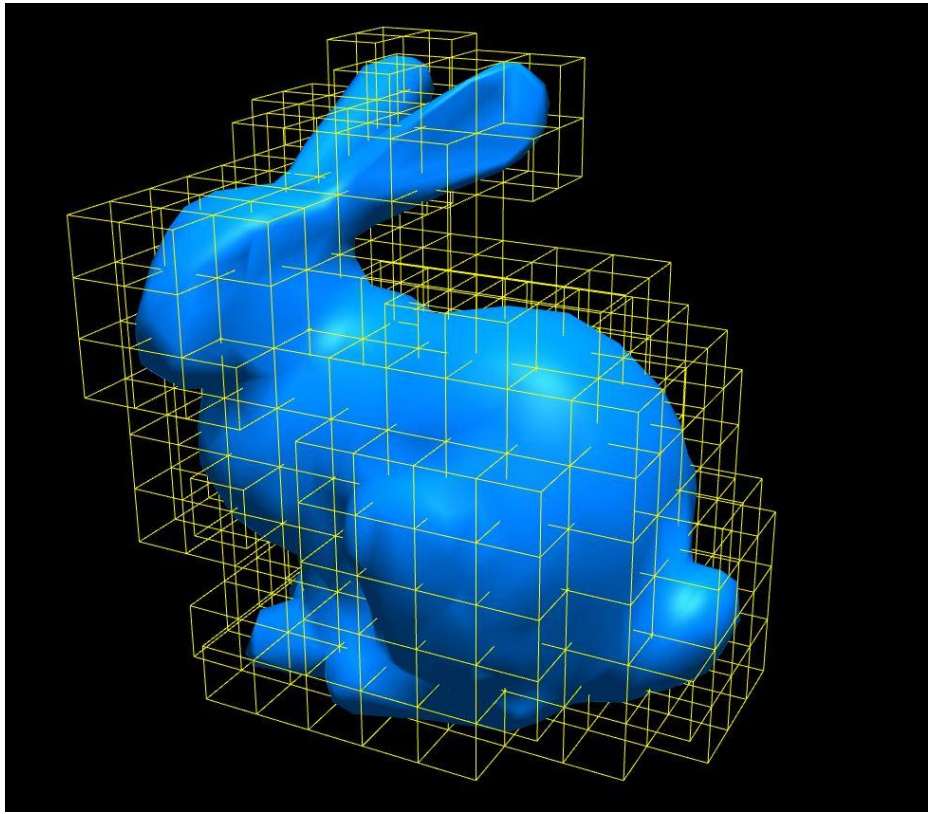


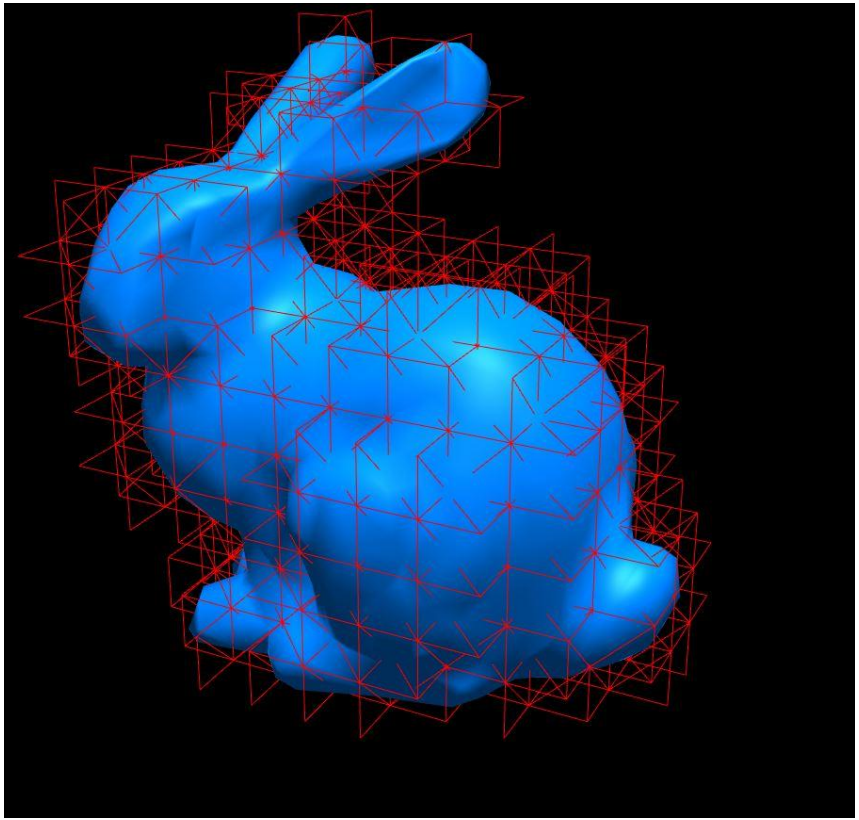
Challenges 1 - Indexed Vertices

Adjacent cubes - edges with !=2 faces unless inner faces removed

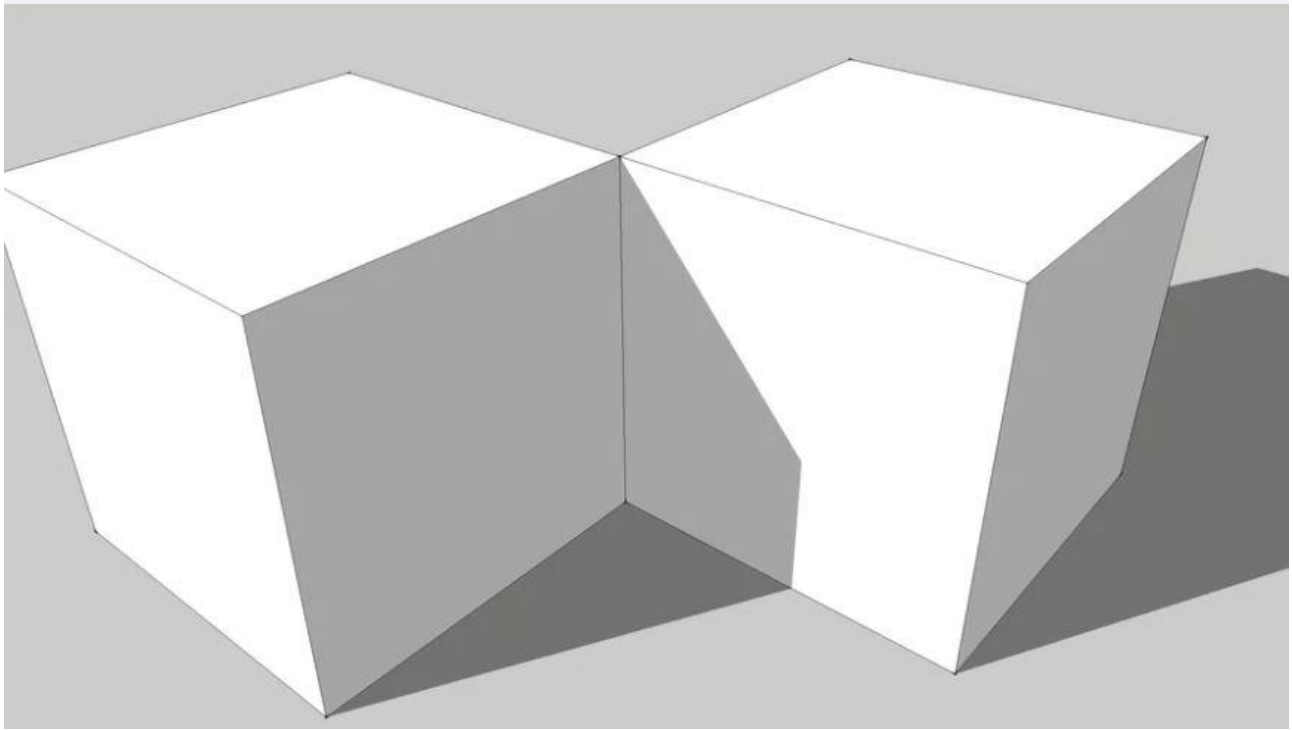


Removing inner faces

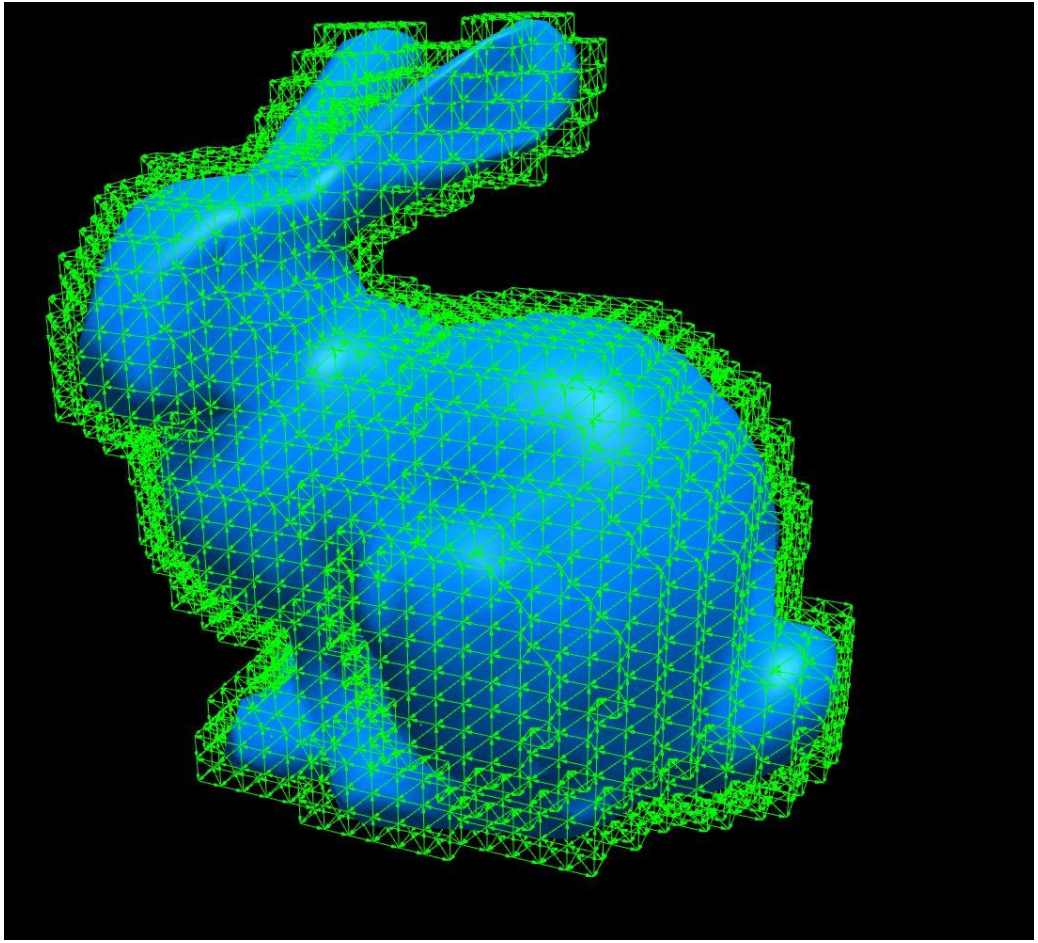




Challenge 2 - special case

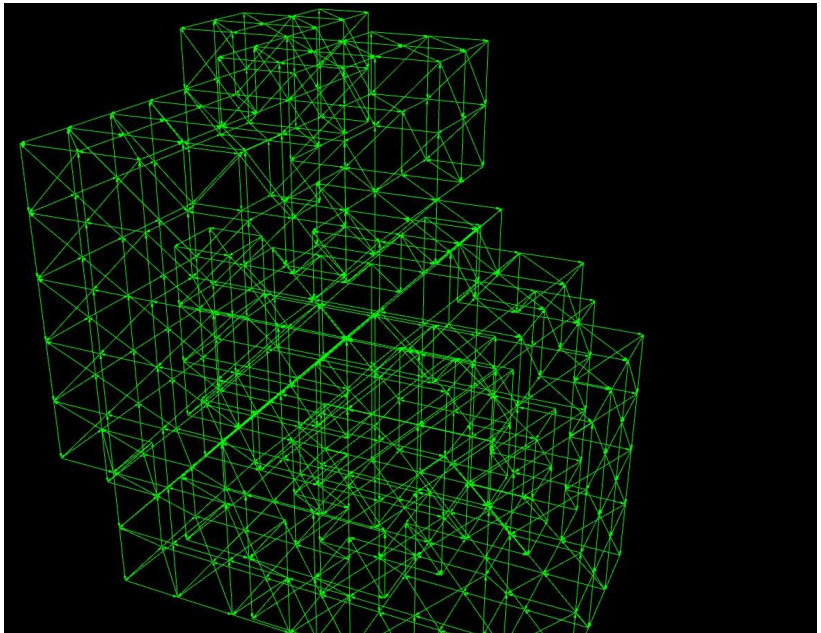


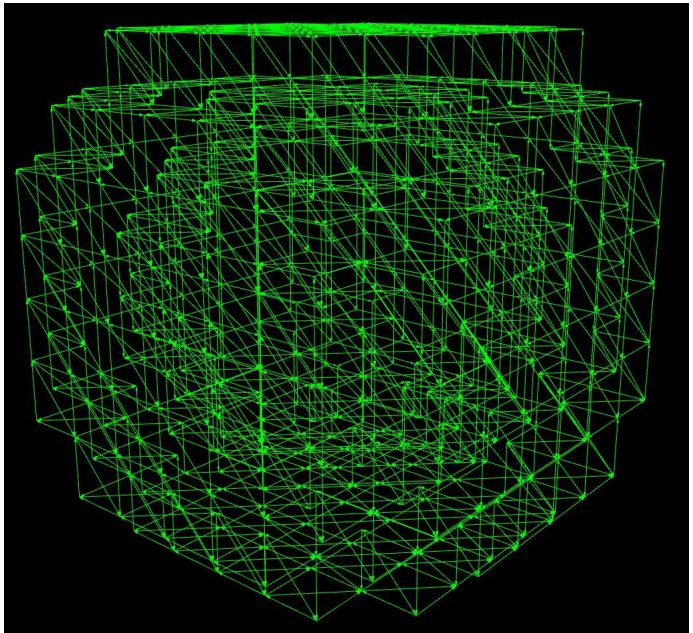
Fixed by adding another edge

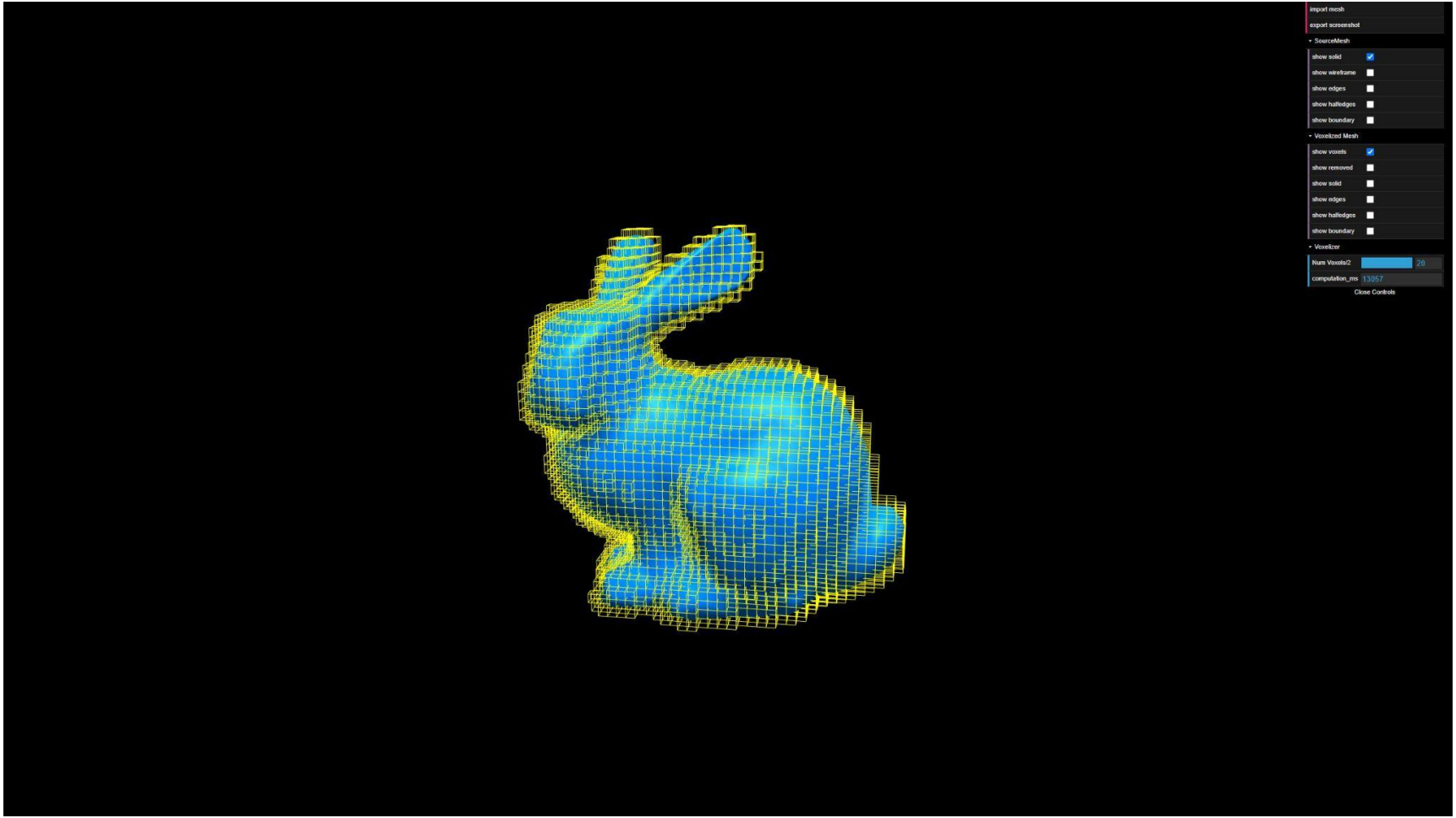


Final surface Voxelized Mesh is

- Watertight & manifold if input mesh is non-manifold (e.g. Bunny)
- Watertight if input mesh is a manifold (e.g. Sphere), no link between inner and outer surface






import mesh
export screenshot
SourceMesh
show solid
show wireframe
show edges
show halfedges
show boundary
Voxelized Mesh
show voxels
show removed
show solid
show edges
show halfedges
show boundary
Voxelizer
Num Voxels/2
20
computation_ms
13057
Close Controls