# This instruction is used to guide readers how to reproduce the research results of this paper.

## Voxelization based on topological perception&Extraction and exaggeration for voxels of topological perception

### Matlab

Input: \*.obj

Step 1. Running code bolck1 Calculate resolution and voxelization

Step 2. Running code bolck2 Topology exaggeration and optimization

Step 3. Running code bolck3 Mesh generation based on MarchingCubes algorithm

### MeshLab

Input：topo.objbuilding.obj（Output of Matlab Part）

Convert the two output obj files to off files using meshlab

Step 1. File -> Import Mesh -> Select topo.obj and building.obj

Step 2. Exprot Mesh AS -> Select “\*.off” -> Output topo.off and building.off

## **Meshes simplification and symbol generation.**

### C++

Input：topo.off,building.off（Output of MeshLab Part1）

\*need CGAL\*

Step 1. Modify the parameters on line 57，Recommended parameters range from 0.05 to 0.01

Step 2. Using Cpp code to process two off files topo\_s.off and building\_s.off

### MeshLab

Input：topo\_s.off,building\_s.off（Output of C++ Part）

Use meshlab to perform Boolean operations and obtain the final 3D symbol in obj format

Step 1. File -> Import Mesh -> Select topo\_s.off and building\_s.off

Step 2. Mesh Boolean: Difference -> Select topo\_s.off and building\_s.off

Step 3. Exprot Mesh AS -> Output output.off or output.obj