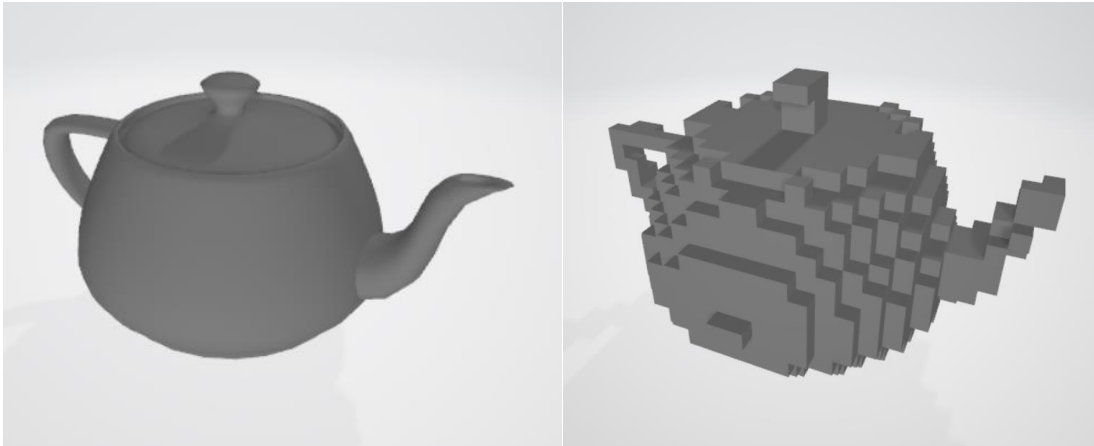


# COM FAB: Assignment 1 Report

Krit Cholapand 6030070521

## Voxelization image



## Reference

- Möller-Trumbore intersection algorithm  
[https://en.wikipedia.org/wiki/M%C3%B6ller%E2%80%93Trumbore\\_intersection\\_algorithm](https://en.wikipedia.org/wiki/M%C3%B6ller%E2%80%93Trumbore_intersection_algorithm)

## Problem and Improvement space

- Can't save empty mesh.
- The ray cast sampling's cast direction is not uniformly distribute
- Use accelerate structure as Extra credit suggest
- Add parameter to configure voxel size, voxel grid dimension etc.

## Extra Credit

- Extra 2 Multi sampling rays for testing the code is here

```
g_voxelGrid->isInside(ii, jj, kk) = false;
int vote = 0;

for (int iii = 0; iii < 4; iii++) {
    for (int jjj = 0; jjj < 4; jjj++)
    {
        CompFab::Vec3 dir(iii - 1.5, jjj - 1.5, 2.5 - iii - jjj);
        dir.normalize();
        if (numSurfaceIntersections(voxelPos, dir) % 2 == 1)
            vote++;
    }
}

if (vote > 4)
    g_voxelGrid->isInside(ii,jj,kk) = true;
```

## Comment

- Let me apologize for turn in this assignment late kub.