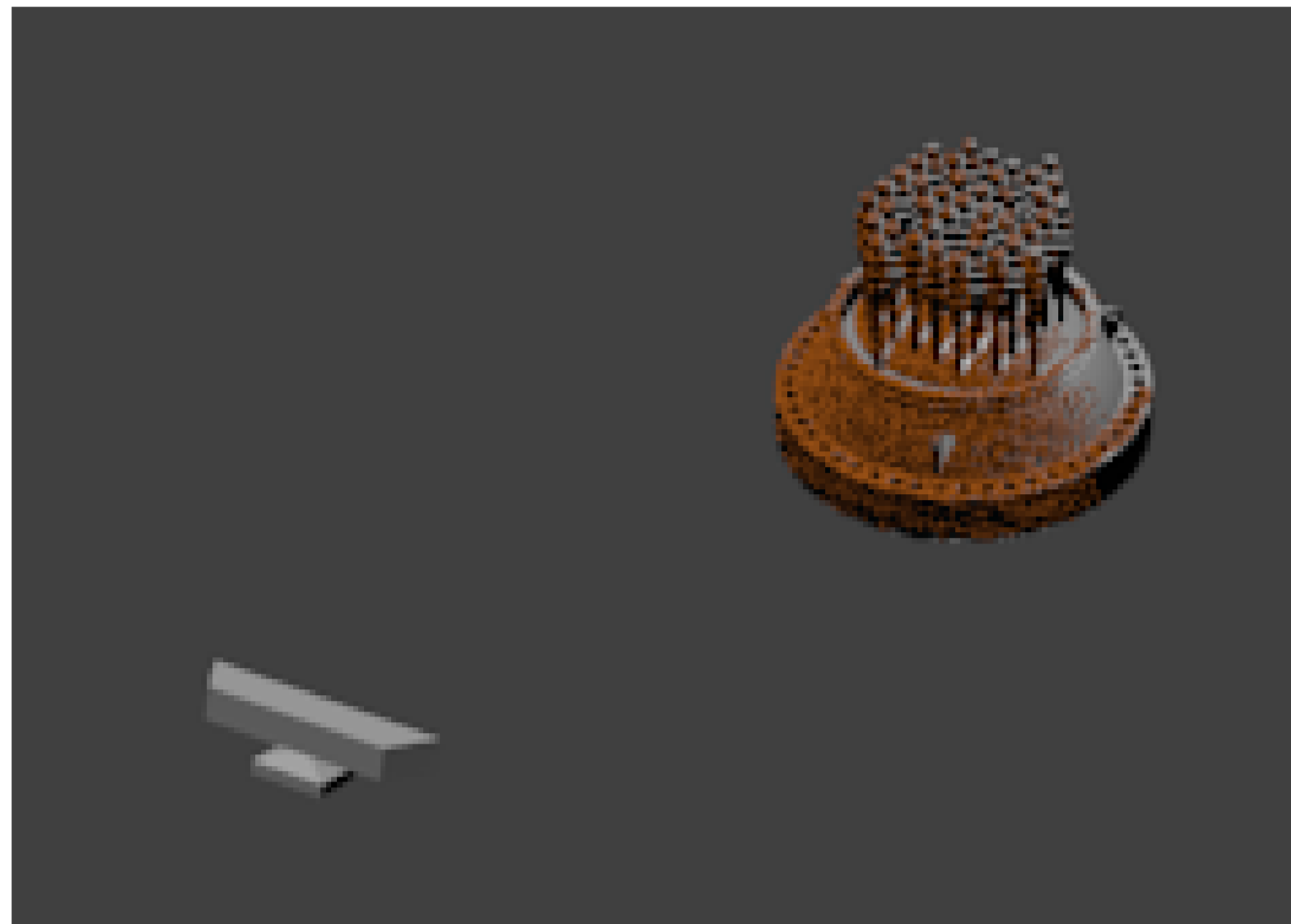


Animation of Laser Scanning Process for Deep Learning-based Reactor Parts Classification

Hyeji Na*, Sungmoon Joo and Jonghwan Lee
 Korea Atomic Energy Research Institute, Daedeok-daero 989-111, Yuseong-gu, Daejeon, Korea
 *Corresponding author: nahyeji@kaeri.re.kr

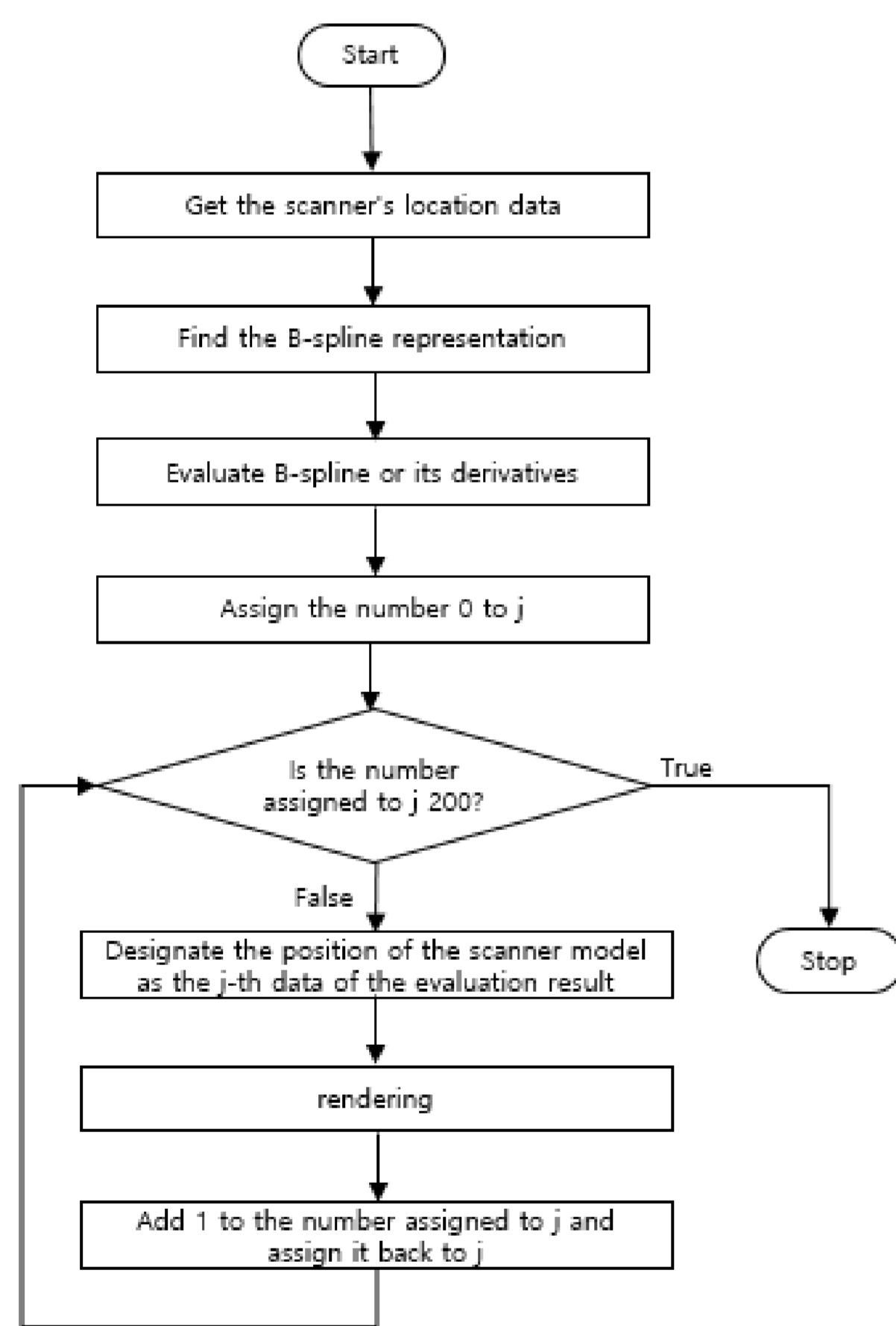
I Introduction

- The point cloud scanning process animation is created by splicing the images as in the picture below.
- It is a means to easily convey information about the pose of the scanner and resulting point cloud overlaid on a target object.
- It is needed to help others understand the scanning process and how synthetic point clouds for deep learning are obtained.

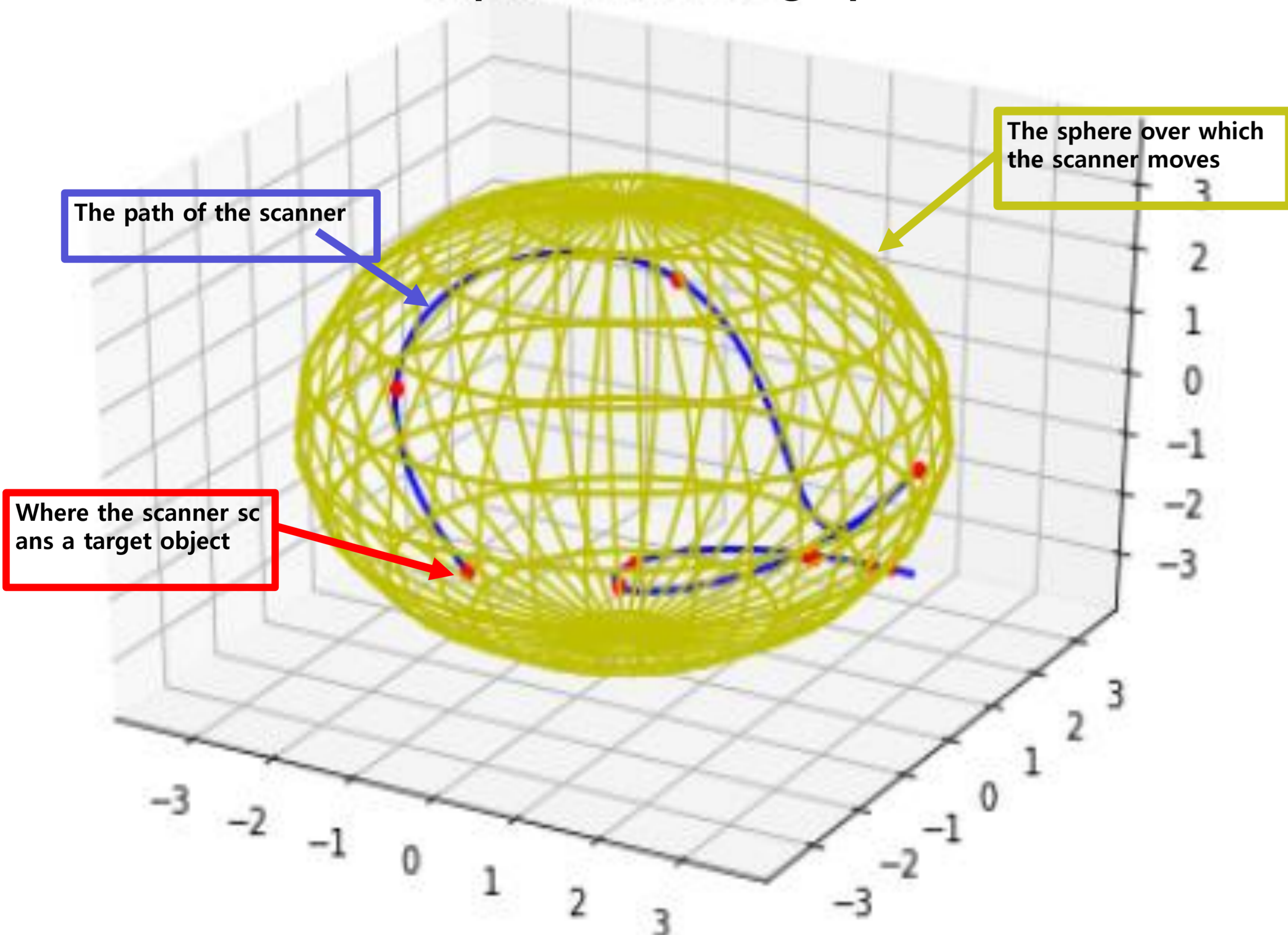


II Interpolation

- In case of using still images, interpolation is needed to generate a smooth path between adjacent scan poses.
- Use the scipy module to interpolate.
 - splprep & splev

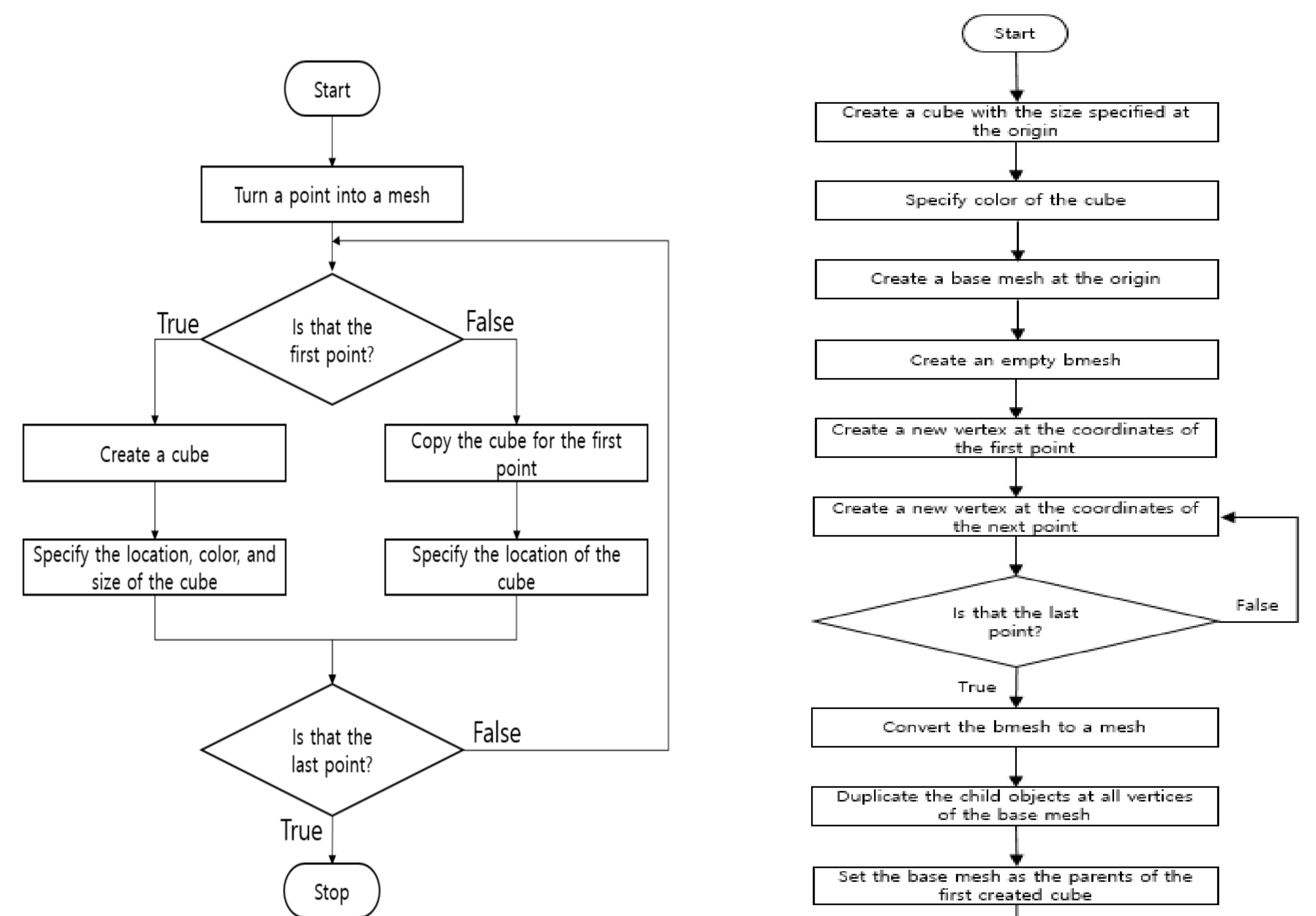


Interpolation result graph



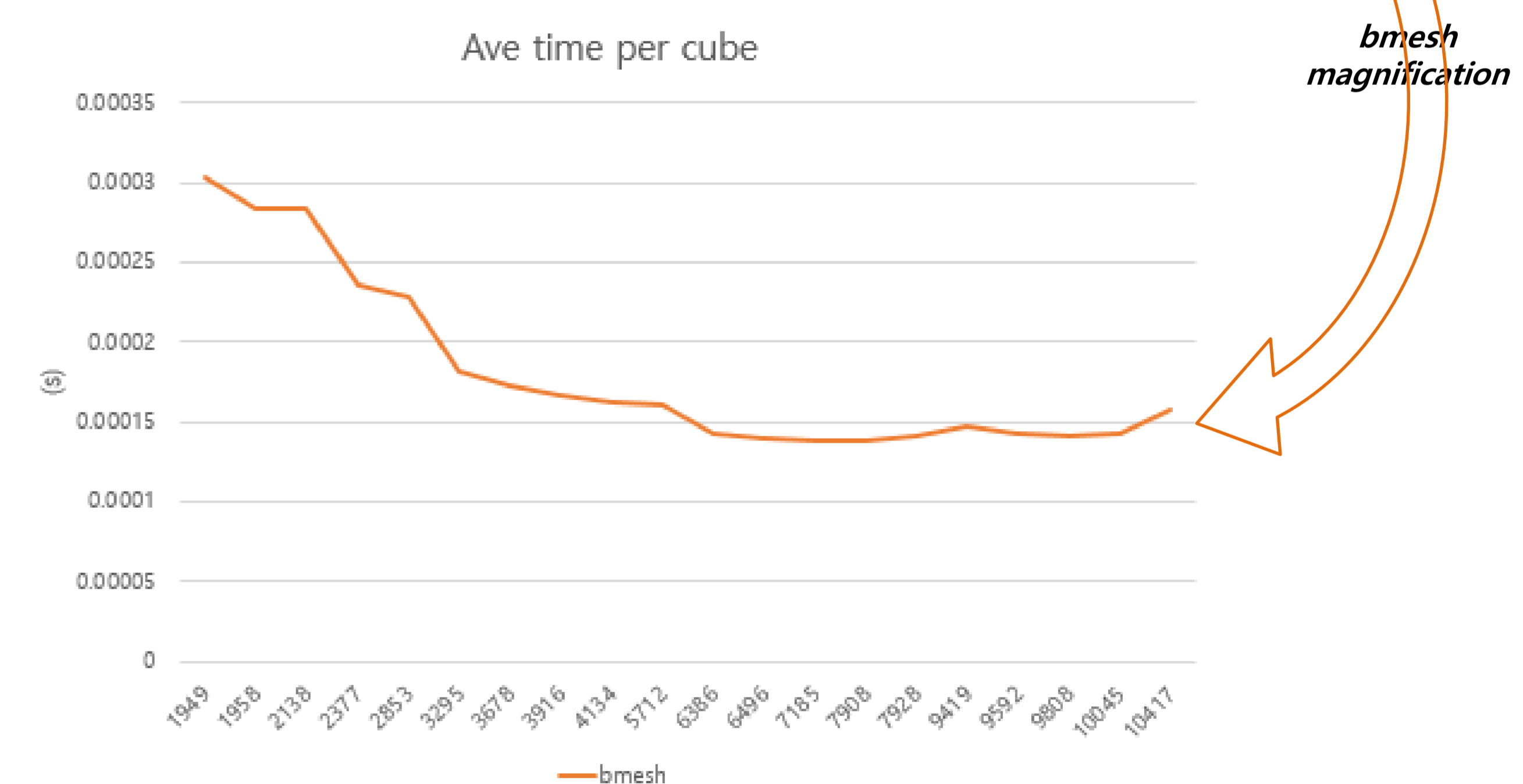
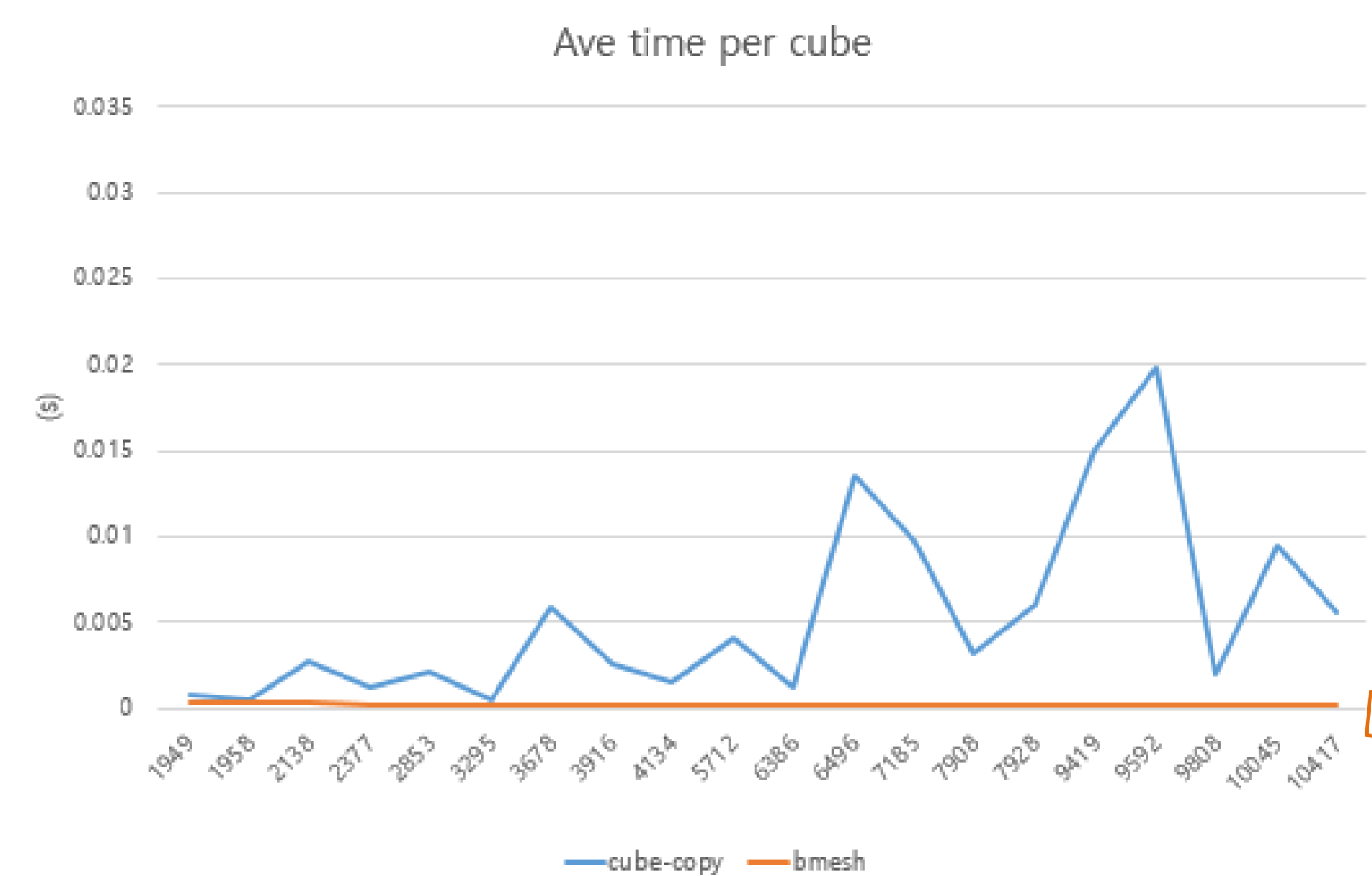
III Methods of converting point clouds into meshes

- Method1 to turn a point cloud into a mesh to create a small cube and copy that cube repeatedly at each point.
- Method2 is to use the bmesh module.
- The bmesh method saves 96.6% of the time compared to the cube-copy method.



Cube-copy

Bmesh



IV Conclusions

- The problems that occurs when creating point cloud scan process animation are solved with the scipy module and the bmesh module.
- Interpolation problem : the scipy module
- Point cloud to mesh conversion problem : the bmesh module
- The bmesh module saves a lot of time. As a result of the test, it saved 96.6% of the time compared to the cube-copy method