
Thank you for your comments on our manuscript. These comments are precious and helpful for great improvements to the manuscript. In this revised version, each of the comments has been carefully addressed, and **changes made for corrections are marked up using the “Track Changes” function in the manuscript**. The following is the response to the reviewer’s comments.

Reviewer #3:

Major Comments:

Thank you for providing the revised version of the paper. In many aspects it is significantly improved, however after studying the corrections made to paragraph 2.2.1 I found that the 3D traversal algorithm presented in your paper is in great extent similar to the algorithm presented in:

Amanatides J., Woo A. (1987). A Fast Voxel Traversal Algorithm for Ray Tracing. Eurographics. Vol. 87(3), pp. 3-10,
http://www.cse.chalmers.se/edu/year/2012/course/_courses_2011/TDA361/grid.pdf

and its later modifications, but you do not provide any citations nor discussion why you have chosen this particular algorithm to search for intersected voxels or what makes your 3D traversal algorithm significantly different to Amanatides and Woo algorithm.

The present version of the paper requires then providing the proper citations and the discussion on selection of the traversal algorithm before publication.

Response:

The two algorithms need to compare variables in the judgment, but the definition and variation form of variables are different. The Amanatides and Woo algorithm through a 3D space partition and the 3D traversal algorithm through a 2D projection auxiliary. Specific instructions are as follows:

- a) Amanatides and Woo algorithm (i.e., A Fast Voxel Traversal Algorithm for Ray Tracing) find the minimum of t_{MaxX} , t_{MaxY} , and t_{MaxZ} during each iteration to determine the increase or decrease of the voxel coordinate index. The method at the initialization phase only considers the variables are initialized to either 1 or -1. It results that only one passing voxel can be determined during each iteration.
- b) The 3D traversal algorithm in the paper classified the type of line for ray tracing. It results that each iteration can determine one or two passing voxels. Classification of lines in advance is beneficial to the later multi-step calculation, especially if more voxels need to be determined in the later stage. In our study, the 3D traversal algorithm results are obtained by using the 2D traversal algorithm.

The relevant changes made are as follows:

- 1) The following has been added:

The 3D traversal algorithm belongs to one algorithm for ray tracing [Amanatides and Woo, 1987]. We classified the type of line for ray tracing. It results that during each

iteration can determine one or two passing voxels. Classification of lines in advance is beneficial to the later multi-step calculation, especially if more voxels need to be determined in the later stage. In our study, the 3D traversal algorithm results are obtained by using the 2D traversal algorithm.

2) A new reference is added:

Amanatides, J.; Woo. A. A Fast Voxel Traversal Algorithm for Ray Tracing.

Eurographics. **1987**, 87(3), 3-10,

http://www.cse.chalmers.se/edu/year/2012/course/_courses_2011/TDA361/grid.pdf