

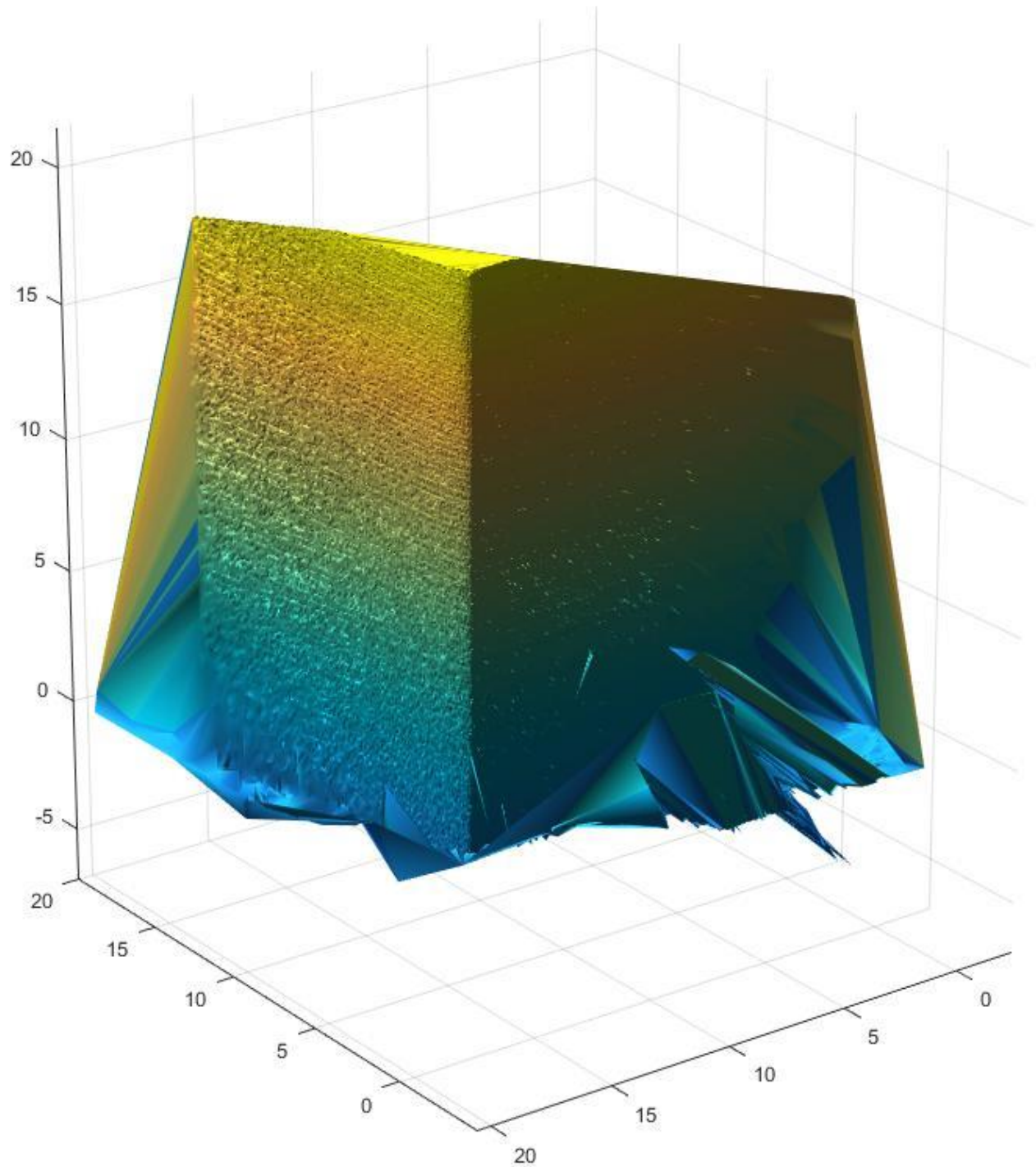
Write Up

1. My mesh was cleaned up by pruning points outside of the bounding box of the object, and by removing triangles with long edges. The way I pruned points was by looking at the min and max points for each X, Y, Z dimensions, and double checking that by using the data cursor tool on my mesh figure. The data cursor tool let me visualize where the outliers were and I could confidently exclude those points from my final object mesh. The other method compared the triangle edges against a threshold length that I set. I plotted the edge lengths in sorted order on a bar graph to see what the outlying values were. I decided on setting the threshold to be an average of the 99.95 percentile of the triangle edges, because every other point below the percentile did not differ as drastically. The procedures fail if I remove negative X points. It leaves a hole in the center of the object, because some points in the center are a bit less than 0. To fix that I only removed X points less than -.15. I think the cleanup could be better if I moved the percentiles a bit lower and then interpolated the data across the missing holes.
2. a) We are creating the mesh using the left image and that shows in the generated mesh. The left side of the box object is a lot denser and has more points to show than the right side. This is due to the majority of the camera and projector code being shown onto the left side.

b) There are plenty of artifacts in the uncleaned mesh, because of ambient lights, projector spillover, color of the background material, etc. placing the cameras and projector closer to the center of the object would make the mesh cleaner, because more of the background will not be in the way to add noise. We could also black out the entire background, so that when making a good pixel mask there will be no confusion as to what is the object and what is not.

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Assignment 4

Un-optimized:



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Optimized:

