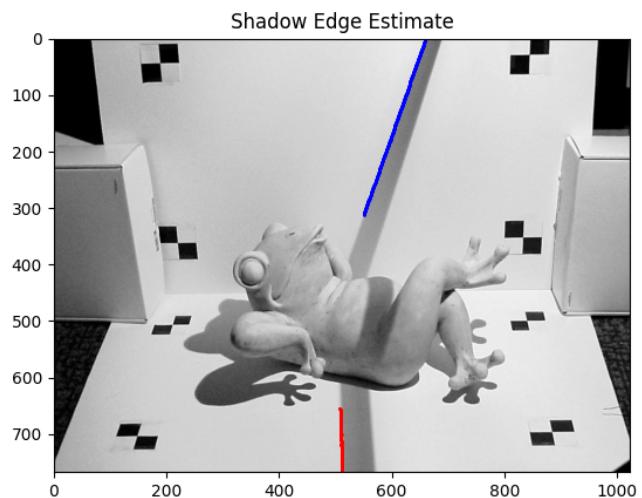
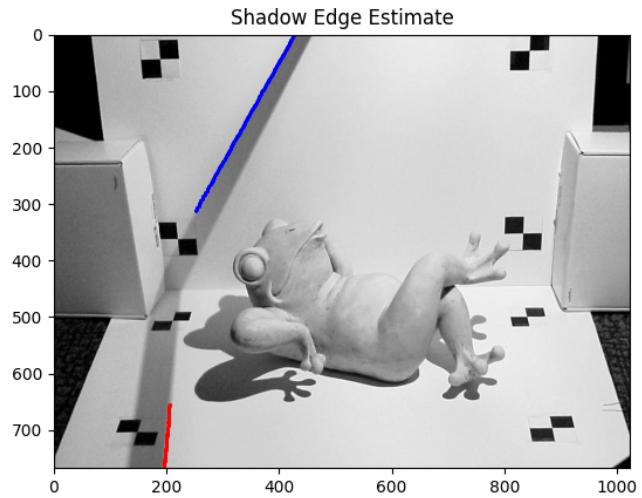


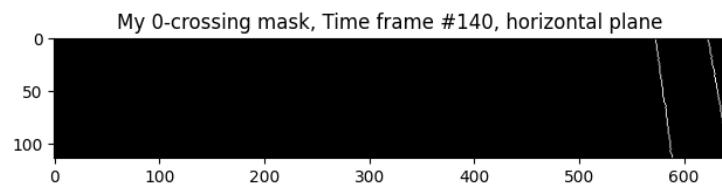
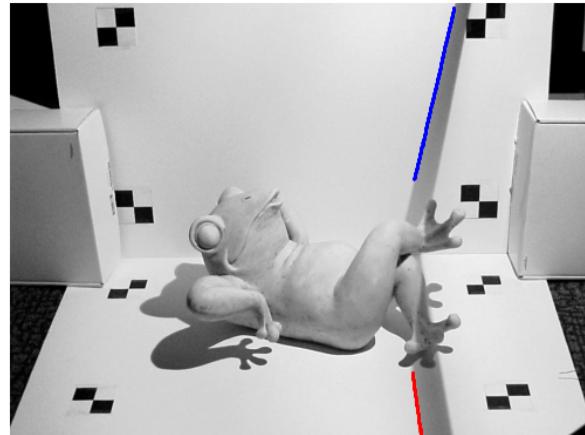
# Assignment 6, 15-663

(Prachi Garg)

## 1 Weakley structured light triangulation

### 1.1 Reconstruction

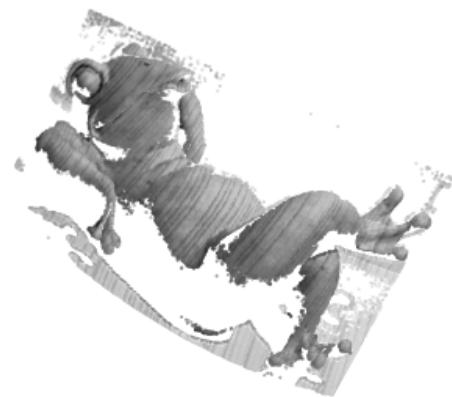




Taking 1st zero crossing



Intensity contrast threshold=0.32, using 1st -ve value



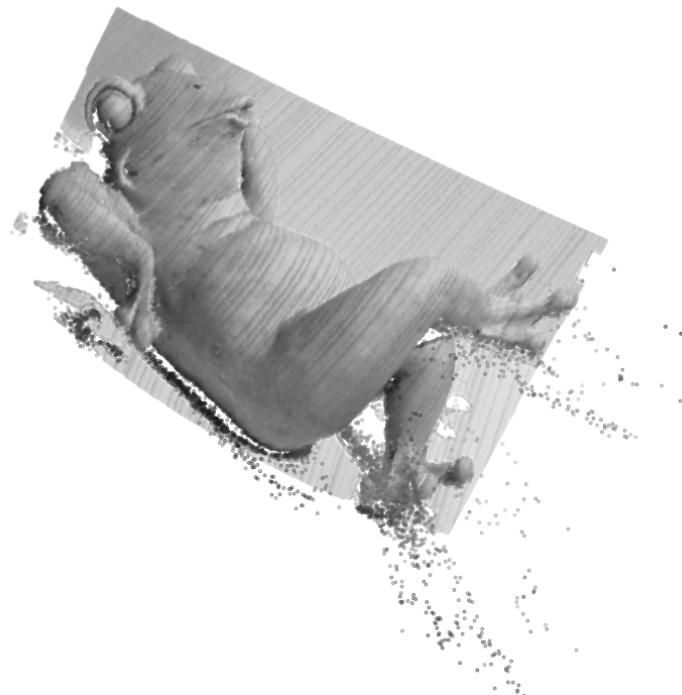


Figure 1: intensity contrast threshold = 0.1 in the final result. I only used frames where stick shadow intersects with the object in more than 2 points.

## 1.2 My setup and results



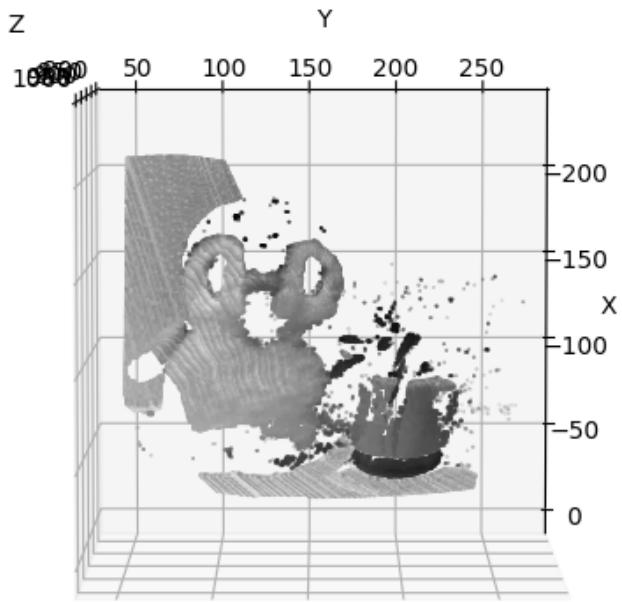
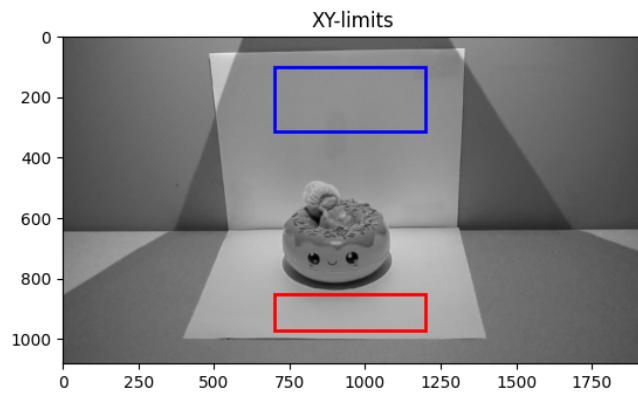
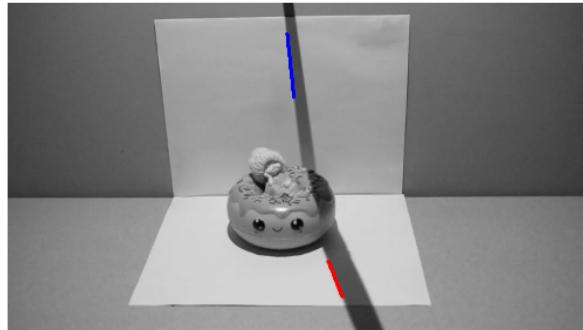


Figure 2: Note it reconstructed some of the leaves also, only the black parts of the image could not be reconstructed like the penguins head (as the shadow cannot be detected on black parts).



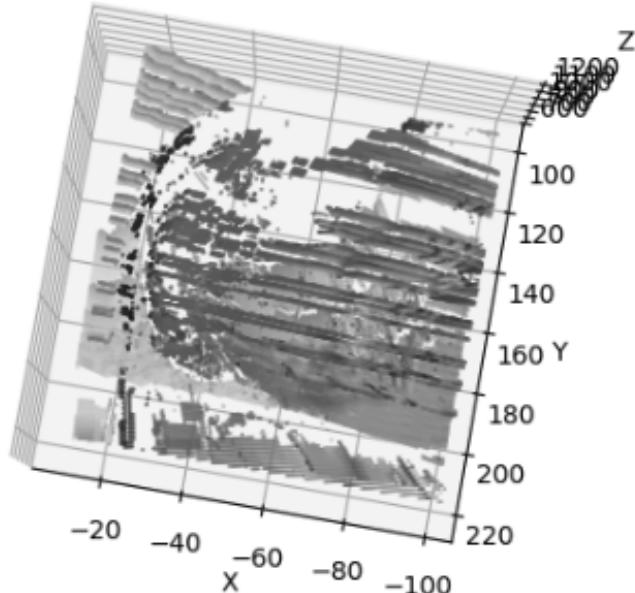


Taking 1st zero crossing



Figure 3: Notice the texture is very fine, the object on top of the doughnut is really small and the shadow lines are not able to distinguish the features on top.

100



105

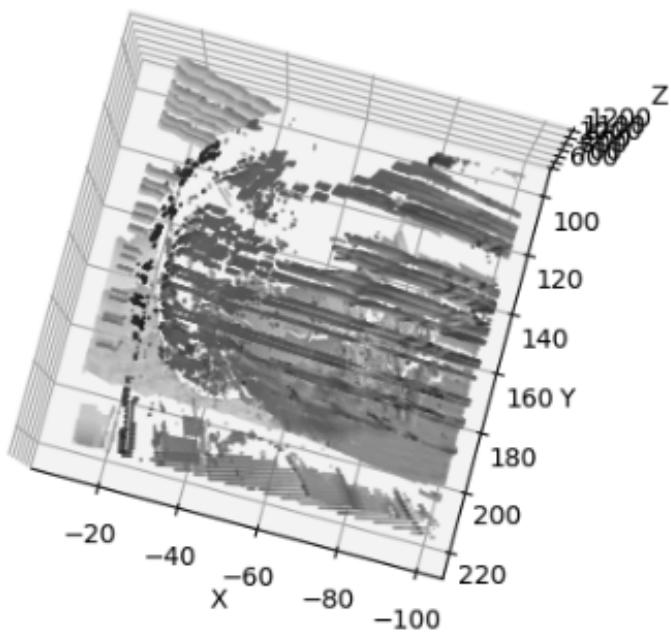


Figure 4: This is a failure case, the range of values was very skewed and after denoising and clipping also I was able to not get a good reconstruction. Some texture on the surface is visible.

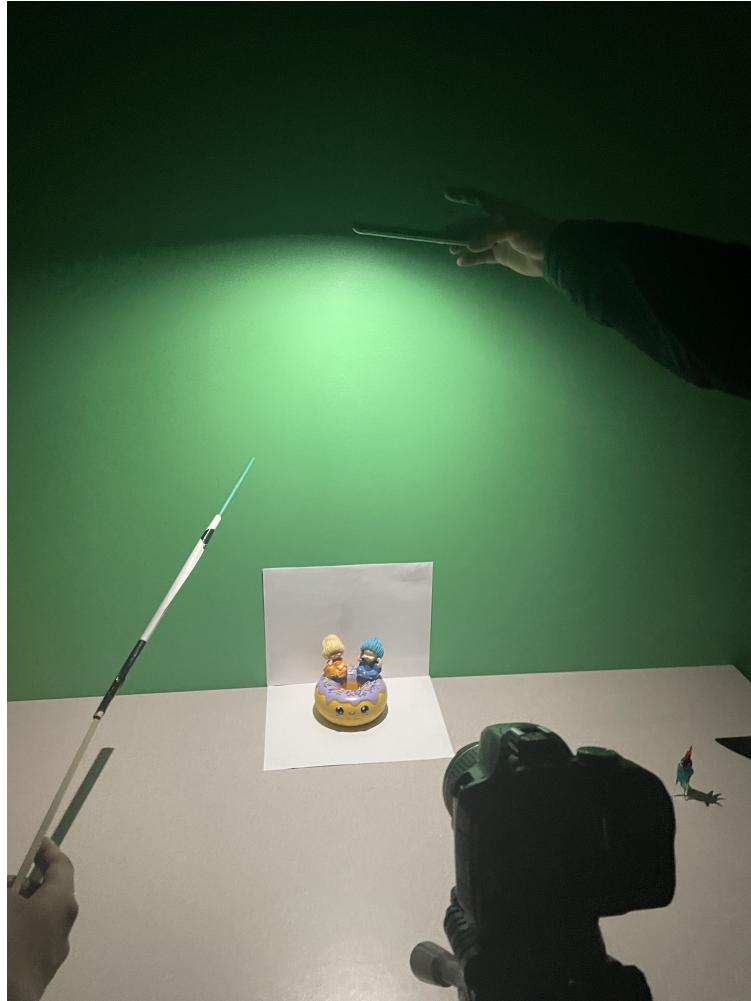


Figure 5: I used ISO 200, point light source in the form of camera flash light, A4 sized sheet of known dimensions. The setup itself works, the failure case is as shadow lines could not capture the fine texture and detail on the object (as it was too complicated).