

Assignment 6

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1 Implementing structured-light triangulation

Per-pixel shadow time estimation

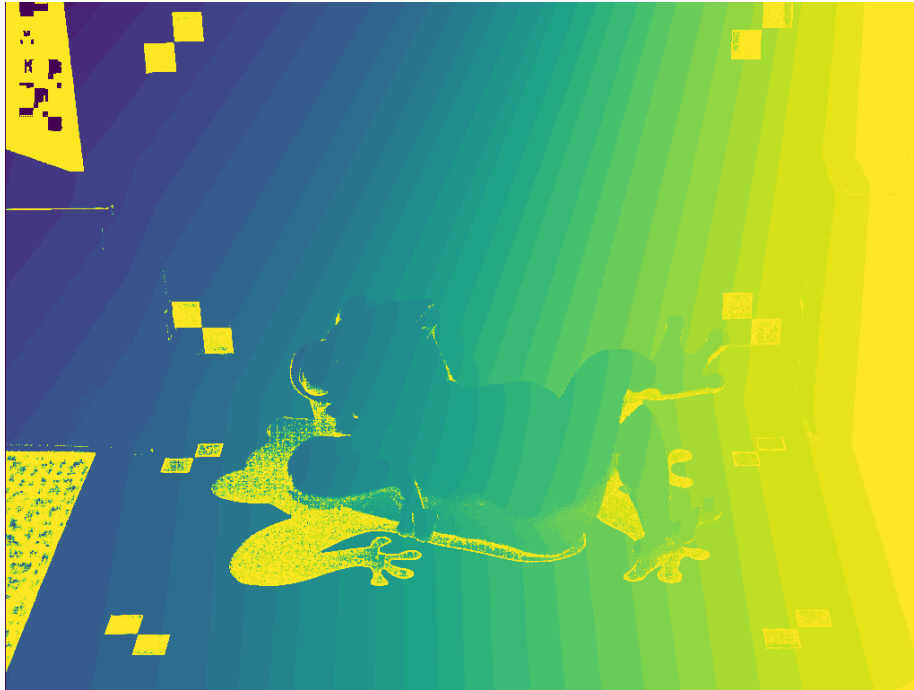
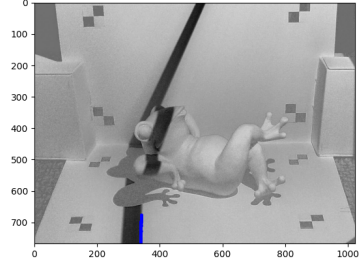
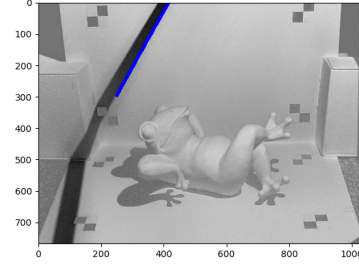


Figure 1: per-pixel shadow time estimates



(a) Horizontal line estimate



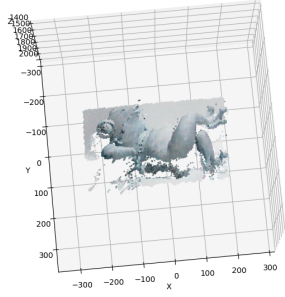
(b) Vertical line estimate

Figure 2: per-frame shadow edge estimates

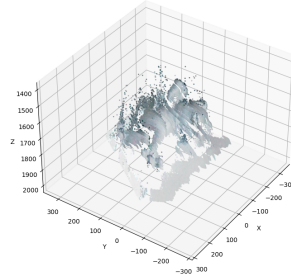
Reconstruction

Several choices I made to improve my reconstruction includes: Filtering out frames that have unstable shadow transitions using a threshold of 0.25, and only use frames that have stable shadow transitions.

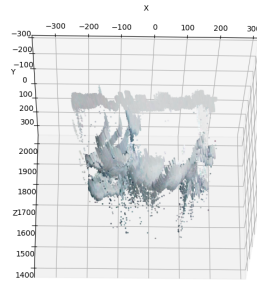
Since I know the model would not be too deep, so I can also threshold the z values to remove the outliers.



(a) View 1



(b) View 2



(c) View 3

Figure 3: Reconstruction of frog at different views

2 Building your own 3D scanner

Scene 1

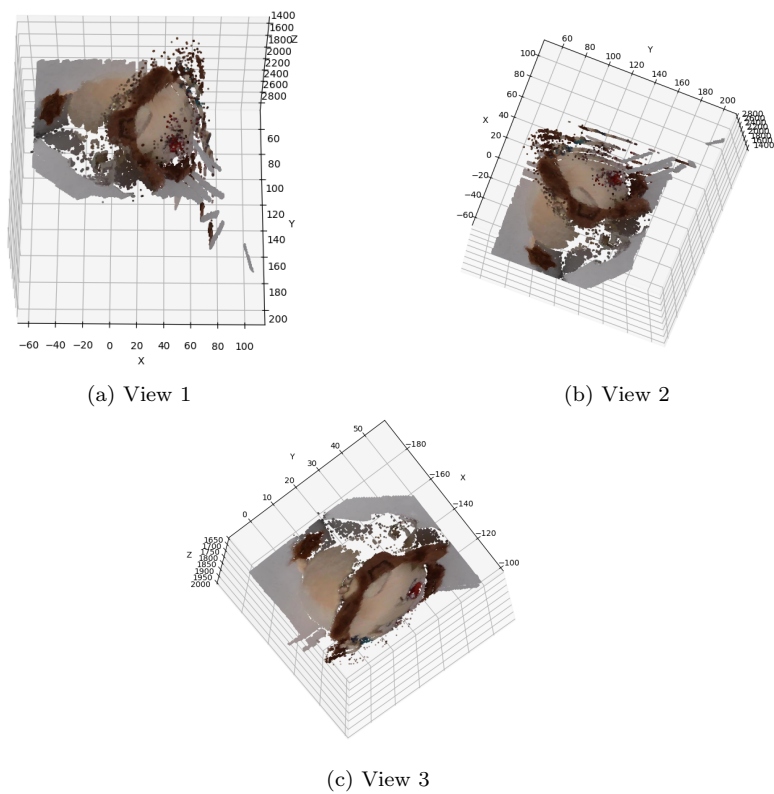
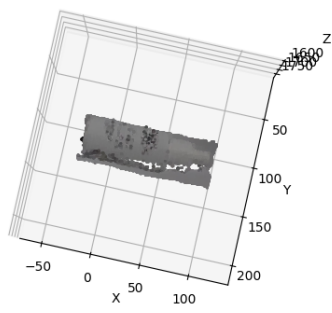
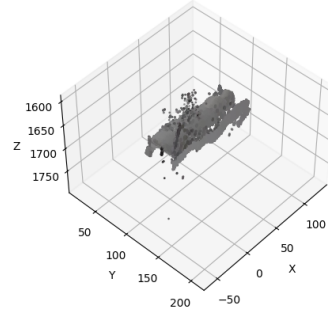


Figure 4: Reconstruction of object 1 at different views

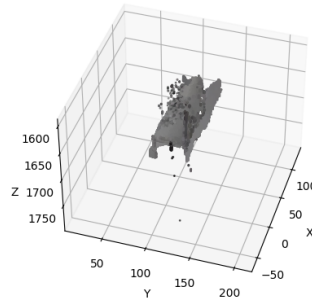
Scene 2



(a) View 1



(b) View 2



(c) View 3

Figure 5: Reconstruction of object 2 at different views