

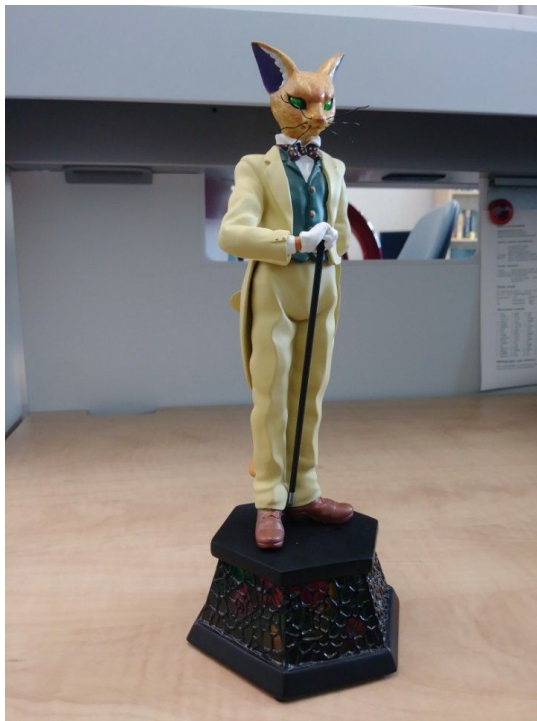
3D Scanning Report (Assignment #3a)

1. Introduction

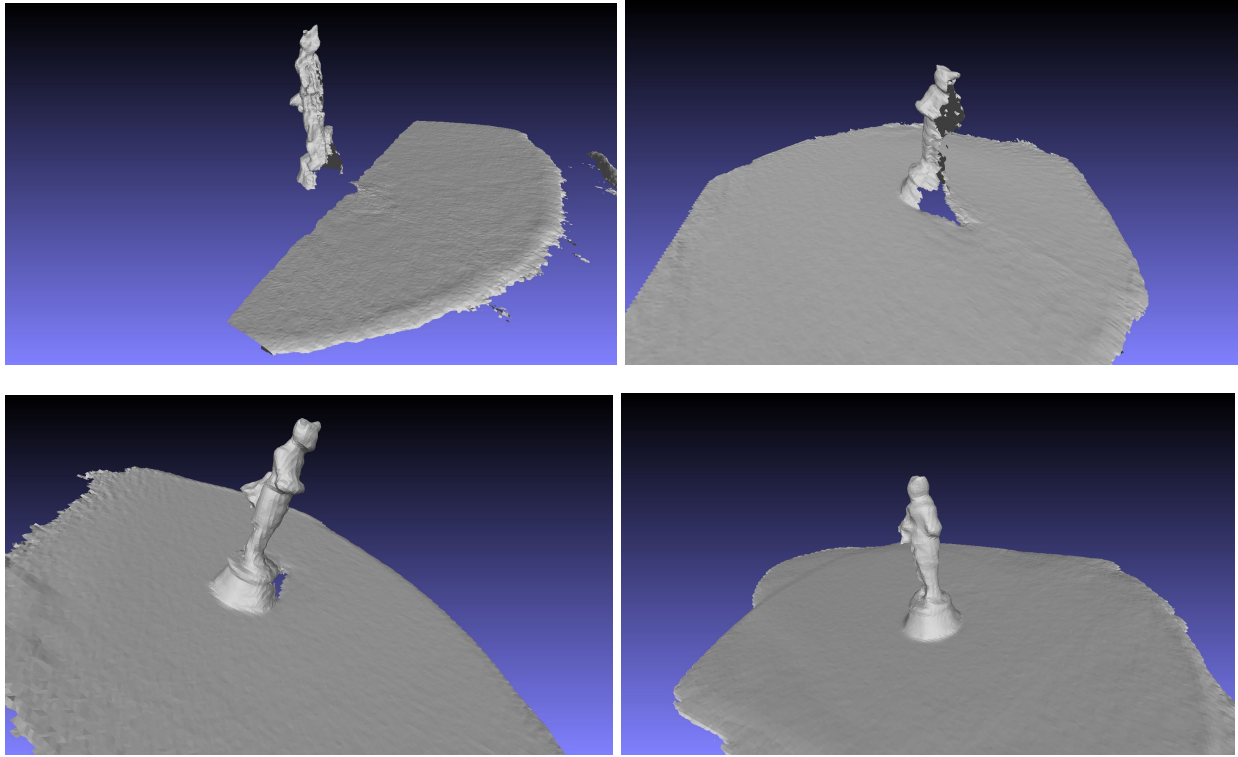
- Team Member: Ying Wang, Yura Hwang
- Used Device: Microsoft Kinect V1
- O/S: Microsoft Windows
- Software Version: Kinect Fusion Explorer-WPF

2. Scanning Difficulties

- Statue of Baron

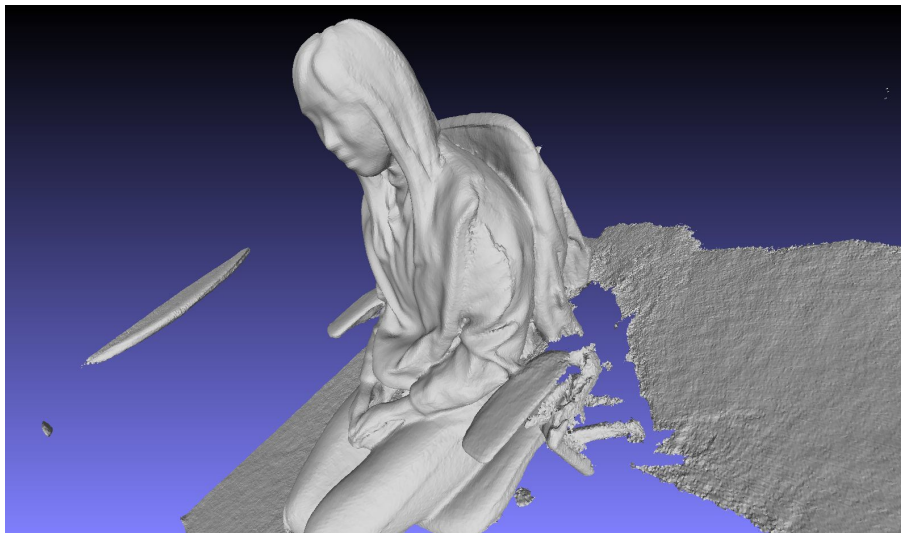
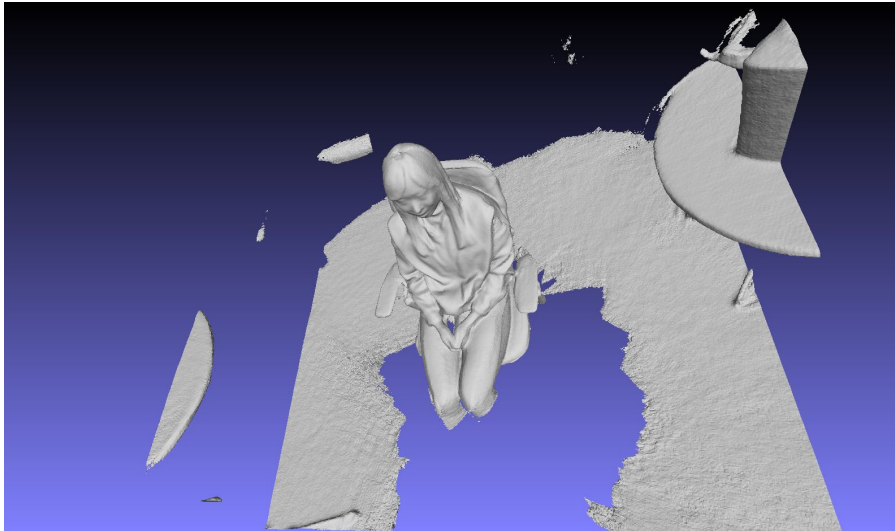
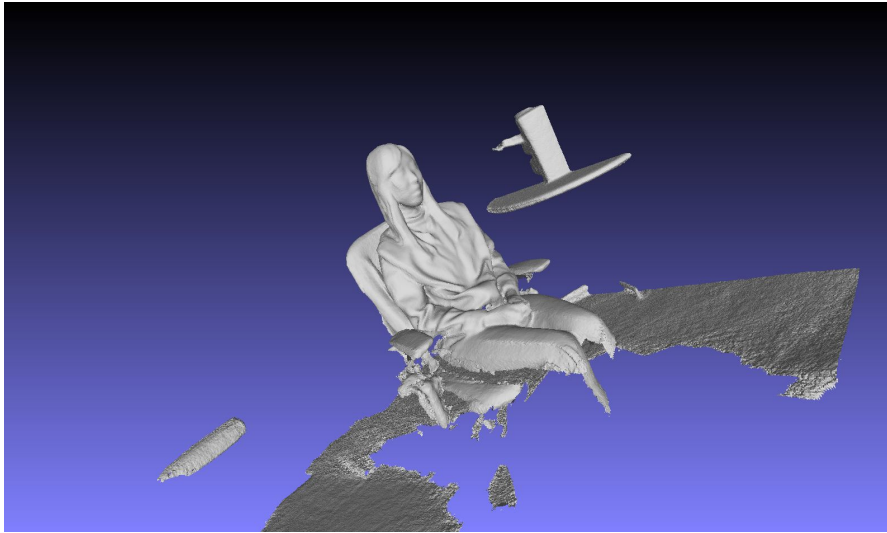


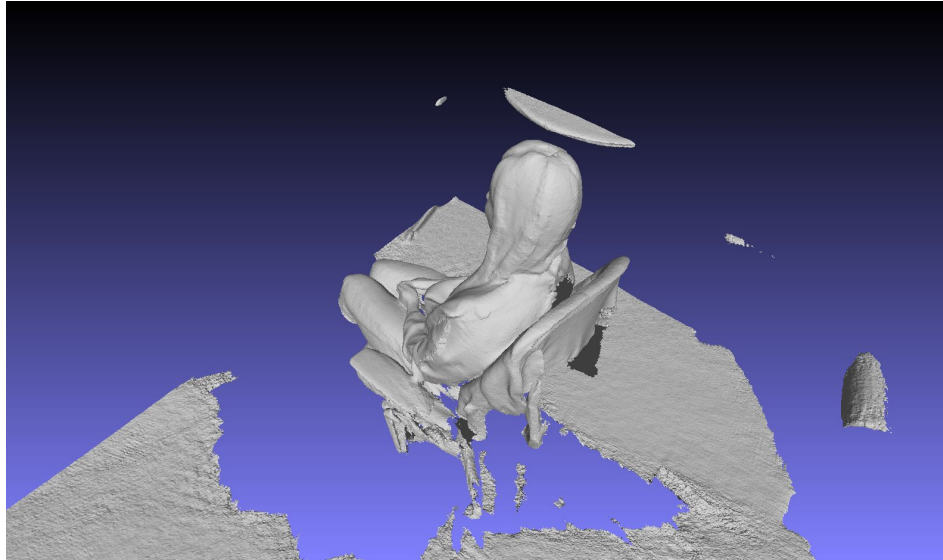
- Statue of Baron (from one of Miyazaki's films)
- Small sized, with various subtle details
- Fairly easy to scan (small scanning range)
- However most details were lost during the scanning process (whiskers, cane, top hat, etc.)
- Very hard to adjust distance and depth along with parameters
- Often produce an indistinguishable 'lump'
- Team's need for bigger objects for scans



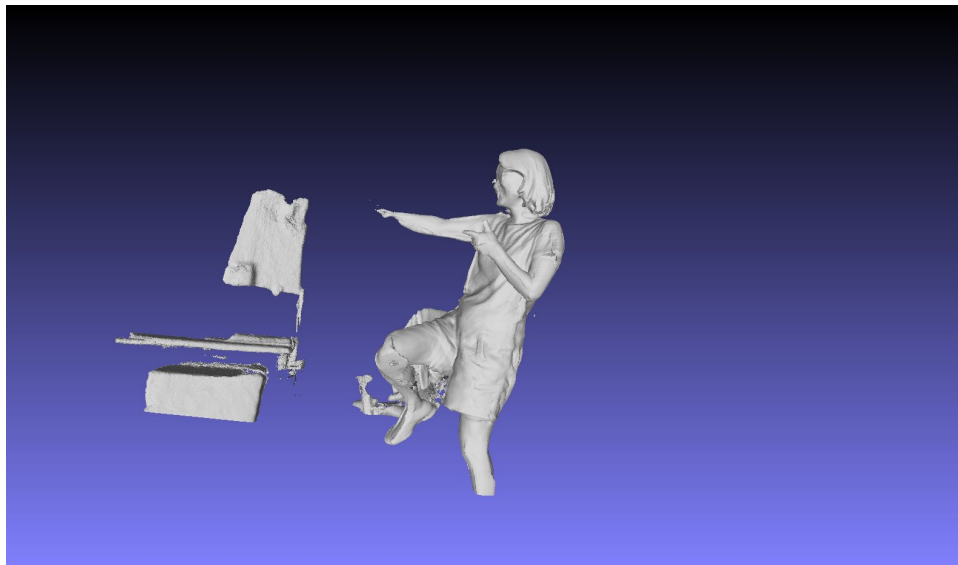
- Ourselves
 - Inspired by our need for bigger objects for scans
 - If stayed motionless (seated), the outcome was decent
 - If it was an unstable pose (standing on one leg) the outcome was also unstable, resulting in more holes and cracked surfaces
 - Nevertheless, both outcomes contained holes in blind spots (spaces between torso, spots between hair and neck, wrinkles from clothes)
 - Harder to scan, compared to Statue of Baron (large scanning range)
 - Lots of parts were being cut off, and the system would crash or freeze easily in the middle of scanning process
 - Too many unnecessary scans from background

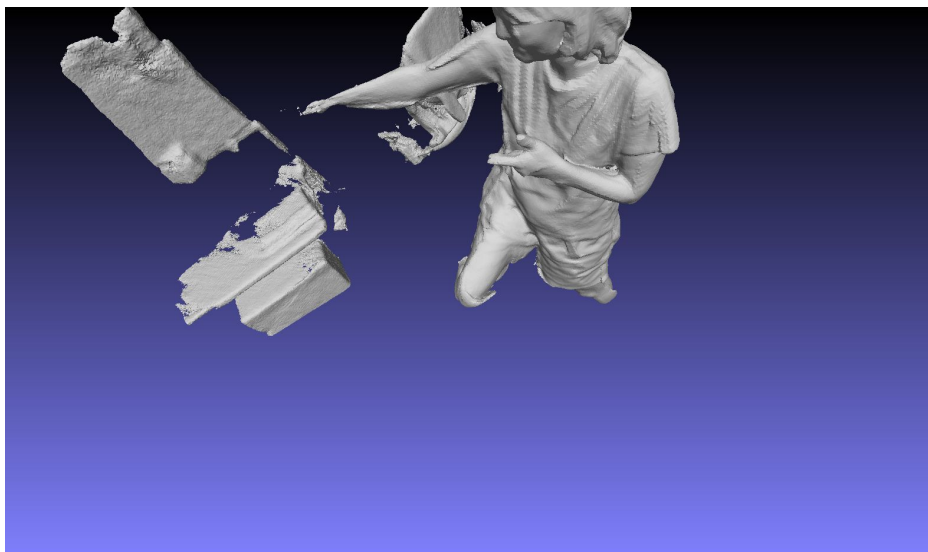
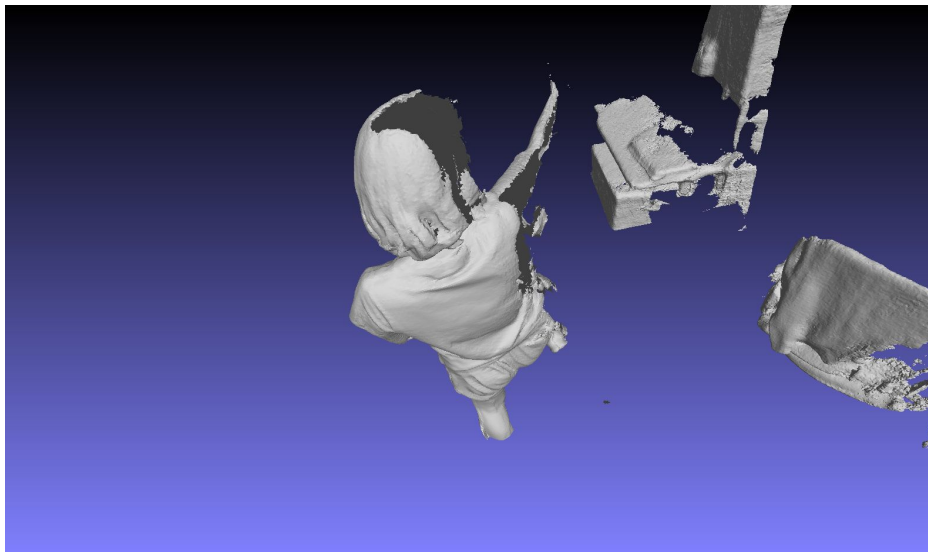
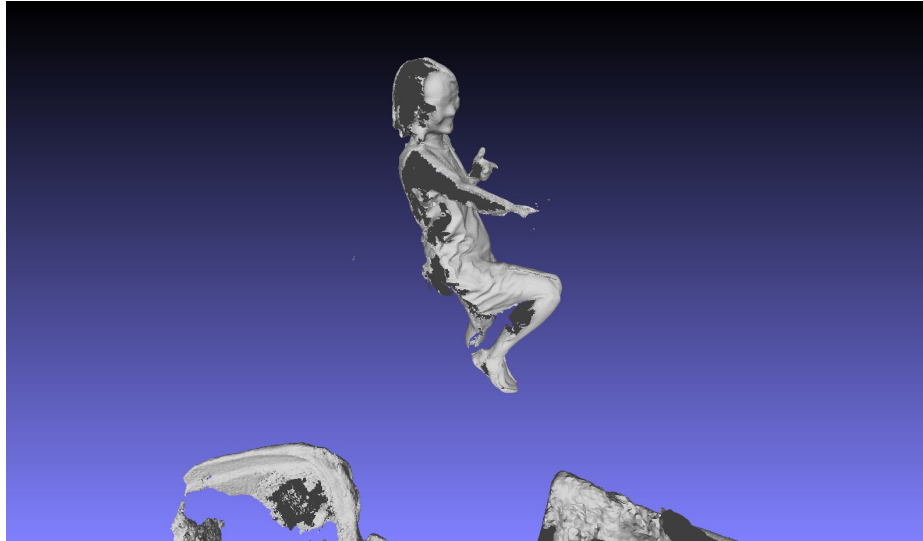
➤ Ying





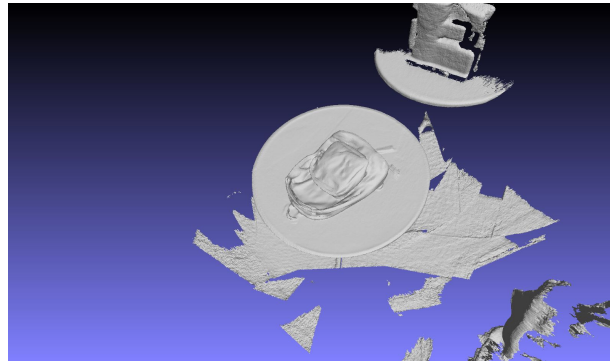
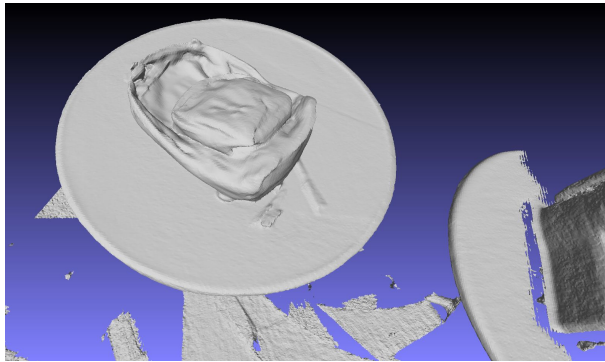
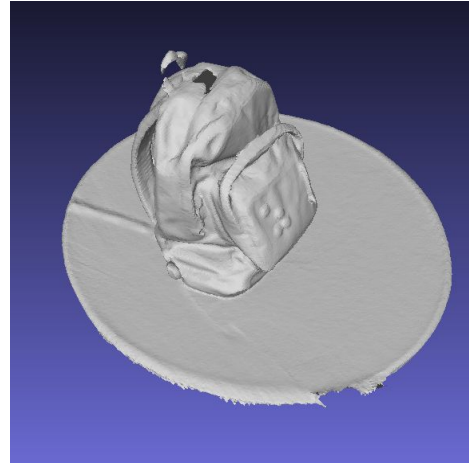
➤ Yura





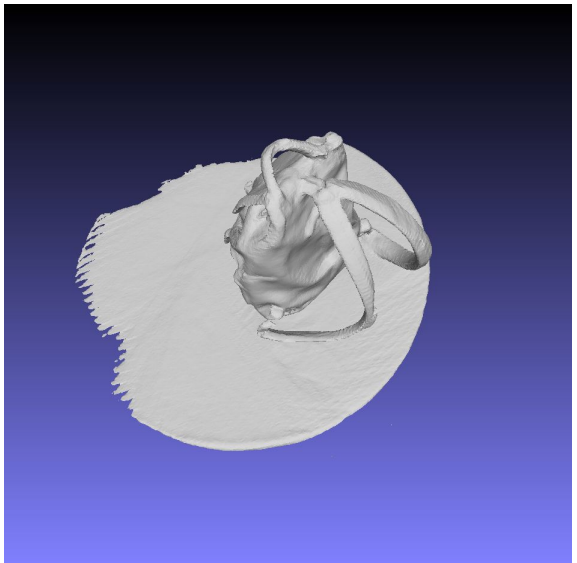
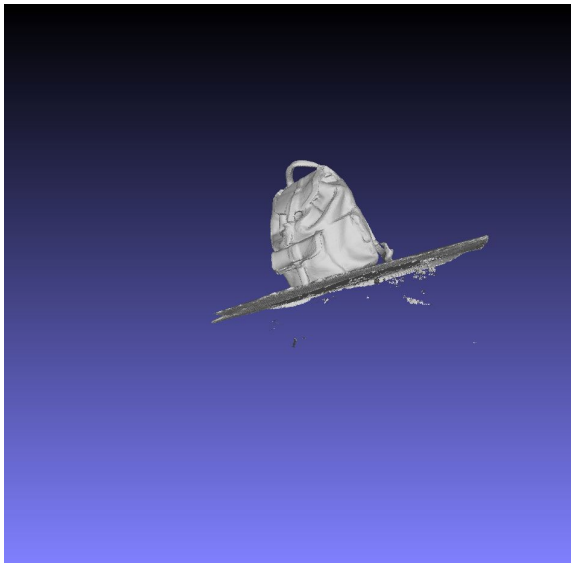
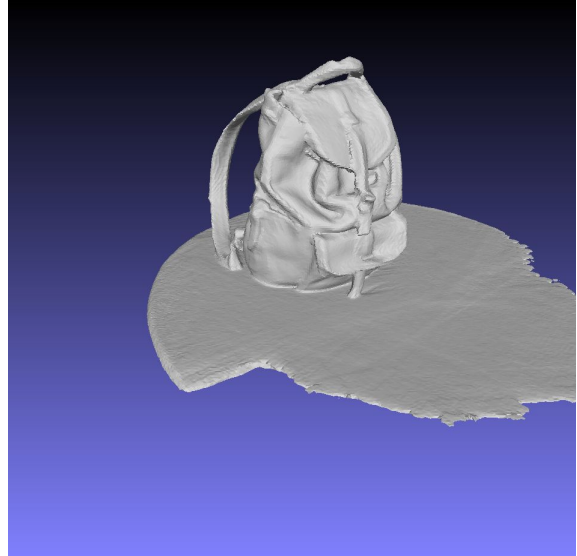
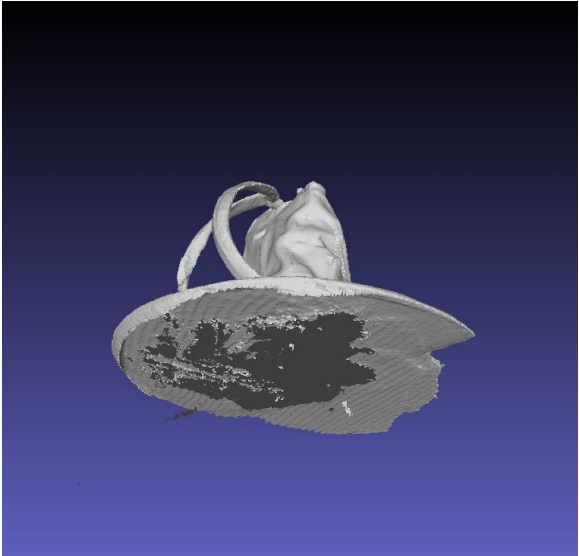
- Backpack

- Inadvertently scanned a backpack
- Great outcome which was unexpected!
- Decided to choose it as our final object

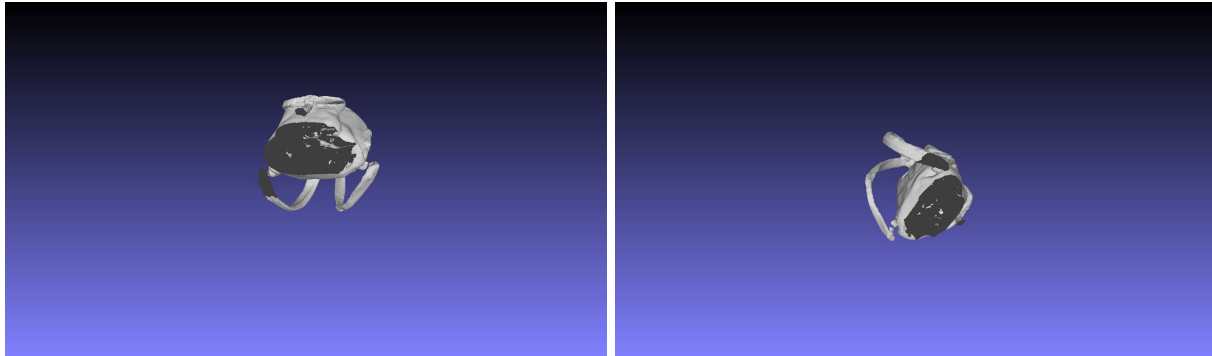


- Our final resort
- Appropriate size (about 17 inches)
- Included number of details (wrinkles, pockets, belts, etc.) which was appropriate for scanning
 - Temporarily encountered an error after Poisson Surface Reconstruction (generated strange hole at the bottom), but we were able to get a correct outcome by overgoing Mesh-Clean Up stages from the beginning

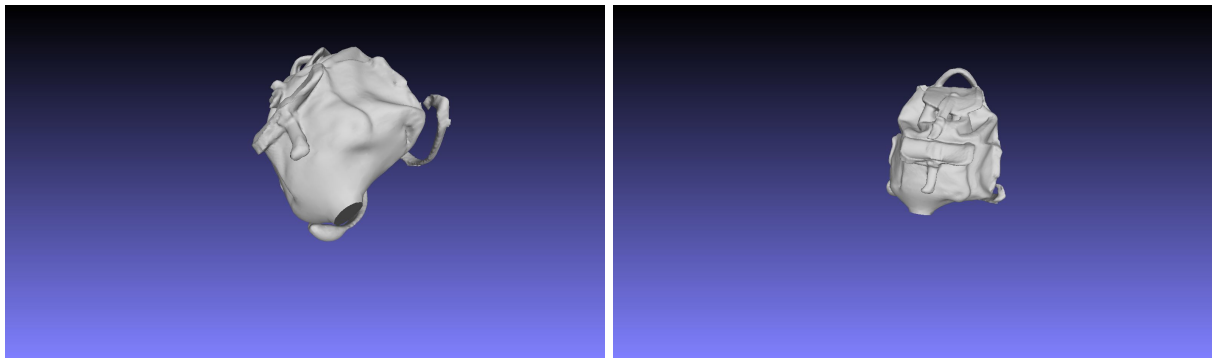
➤ Raw



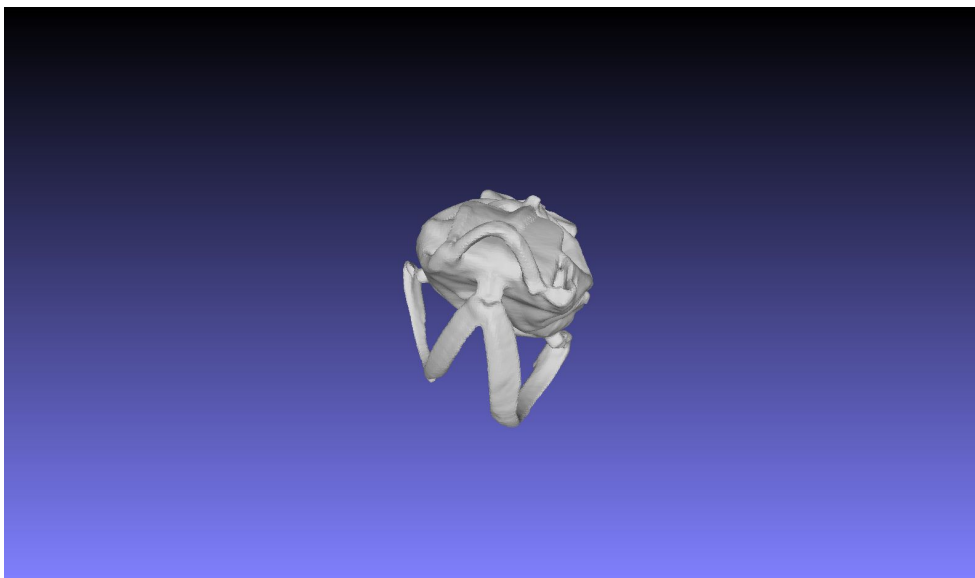
➤ Unnecessary Vertices/Triangles Removed

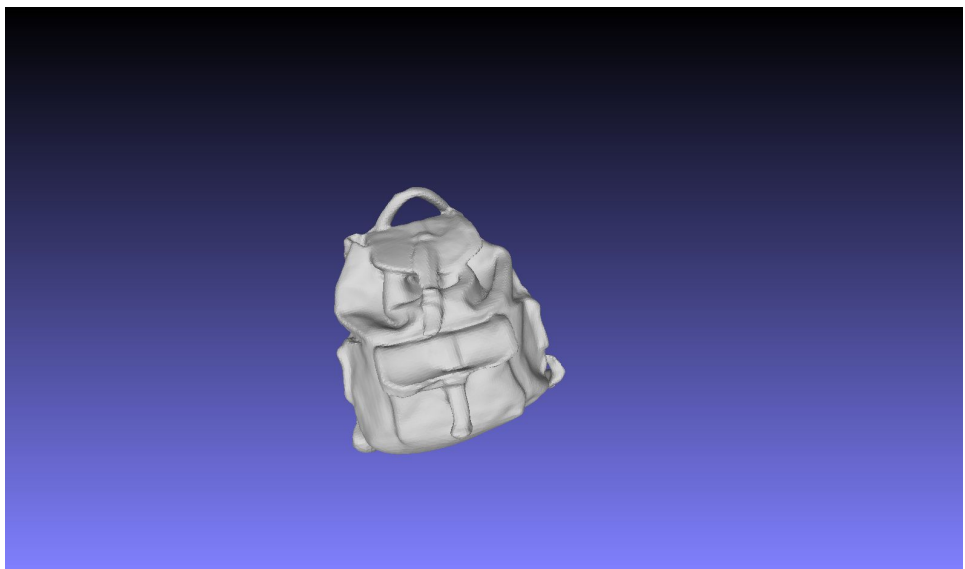
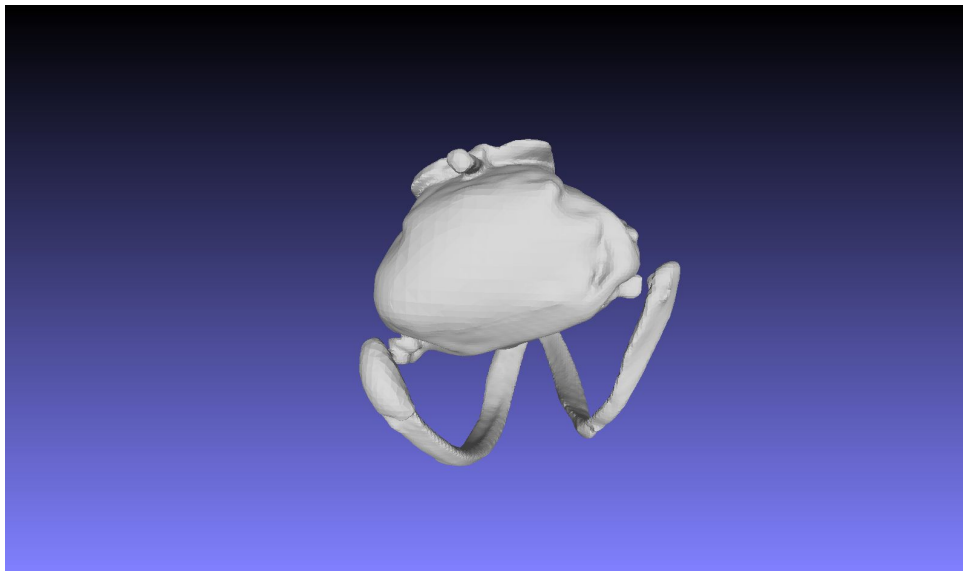
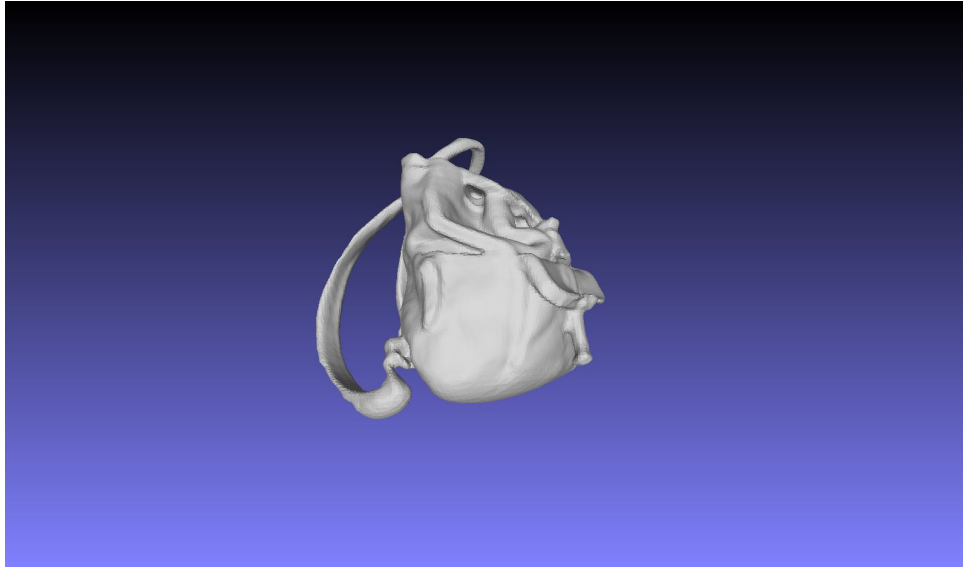


➤ Poisson Error



3. Final Results





4. Final Comments

- Had a great fun scanning various objects
- Learned scanning process could be affected by various factors which we normally considered not important (depth, distance, details, sizes, etc.)
- Learned not every scanning process was automated--there came a time that user's control was essential to get a more desired outcome (such as cleaning up the vertices manually)

