COL781 Assignment 4

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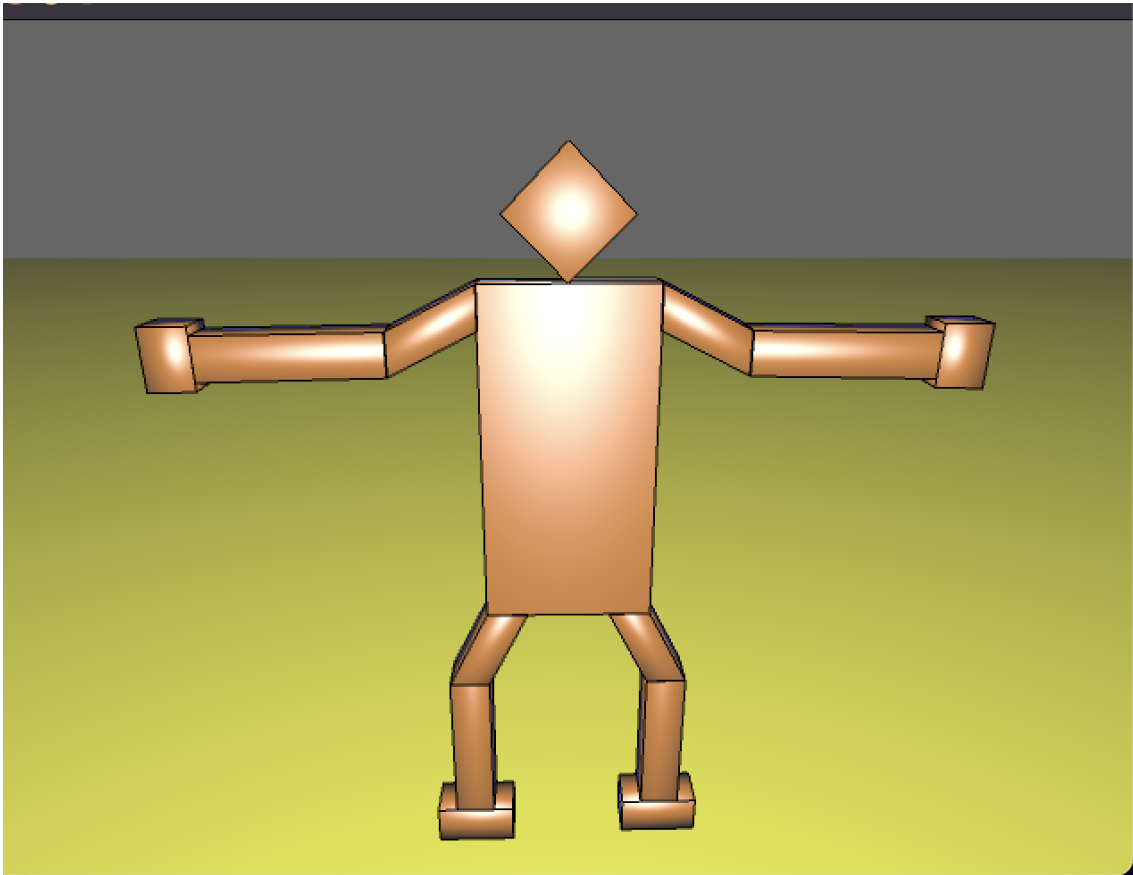**April 2025**

1 Designing an articulated character

Figure 1: How our stationary skeleton looks like?

Our skeleton consists of 14 bones as follows :

- **Torso** : This is the root bone of the body.

- **Head** : Torso is the parent bone.

- **Upper Left/Right Leg** : Torso is the parent bone.

- **Lower Left/Right Leg** : Upper Left/Right Leg is the parent bone.

- **Left/Right Foot** : Lower Left/Right Leg is the parent bone.

- **Upper Left/Right Arm** : Torso is the parent bone.

- **Lower Left/Right Arm** : Upper Left/Right Arm is the parent bone.

- **Left/Right Hand** : Lower Left/Right Hand is the parent bone.

We were unable to implement Catmull-Rom splines due to a shortage of time. The animation recording is at https://drive.google.com/file/d/1BNi0Au3D730F9uRYwemp7HCXJ2WrLayd/view?usp=sharing.
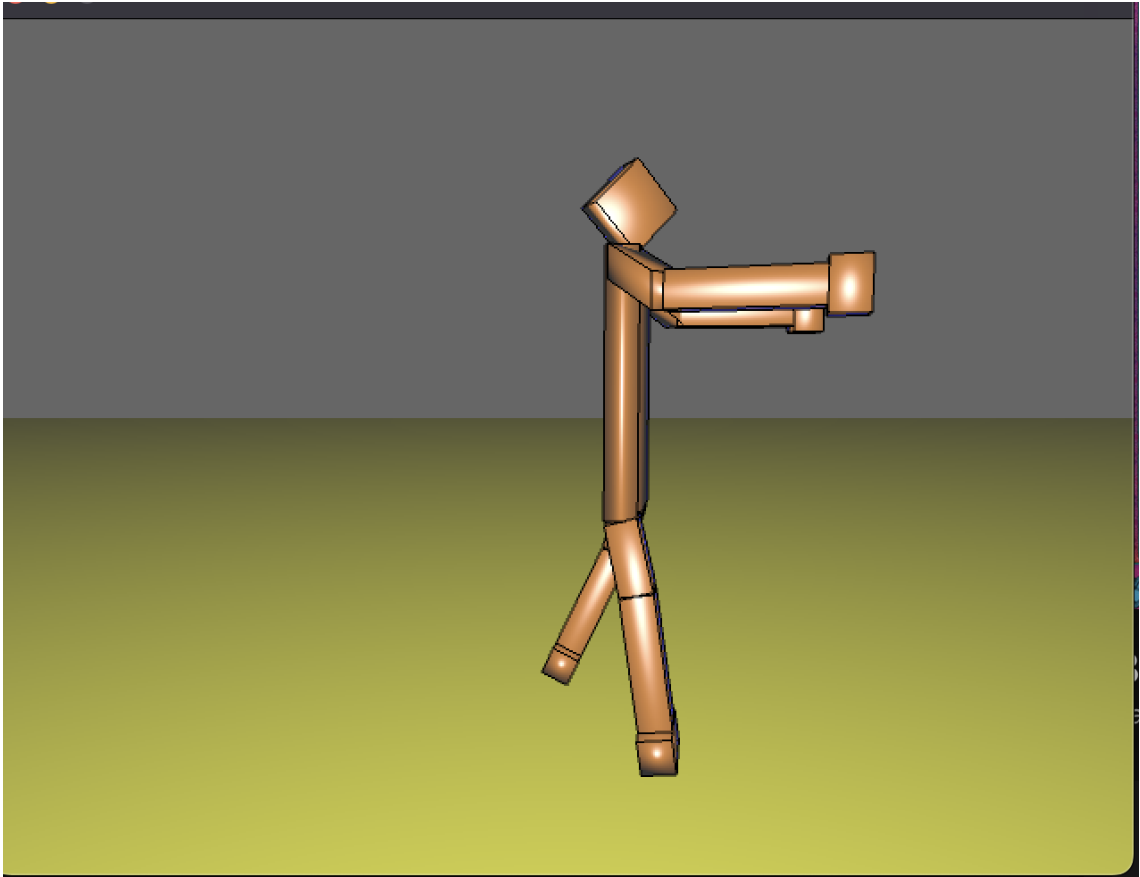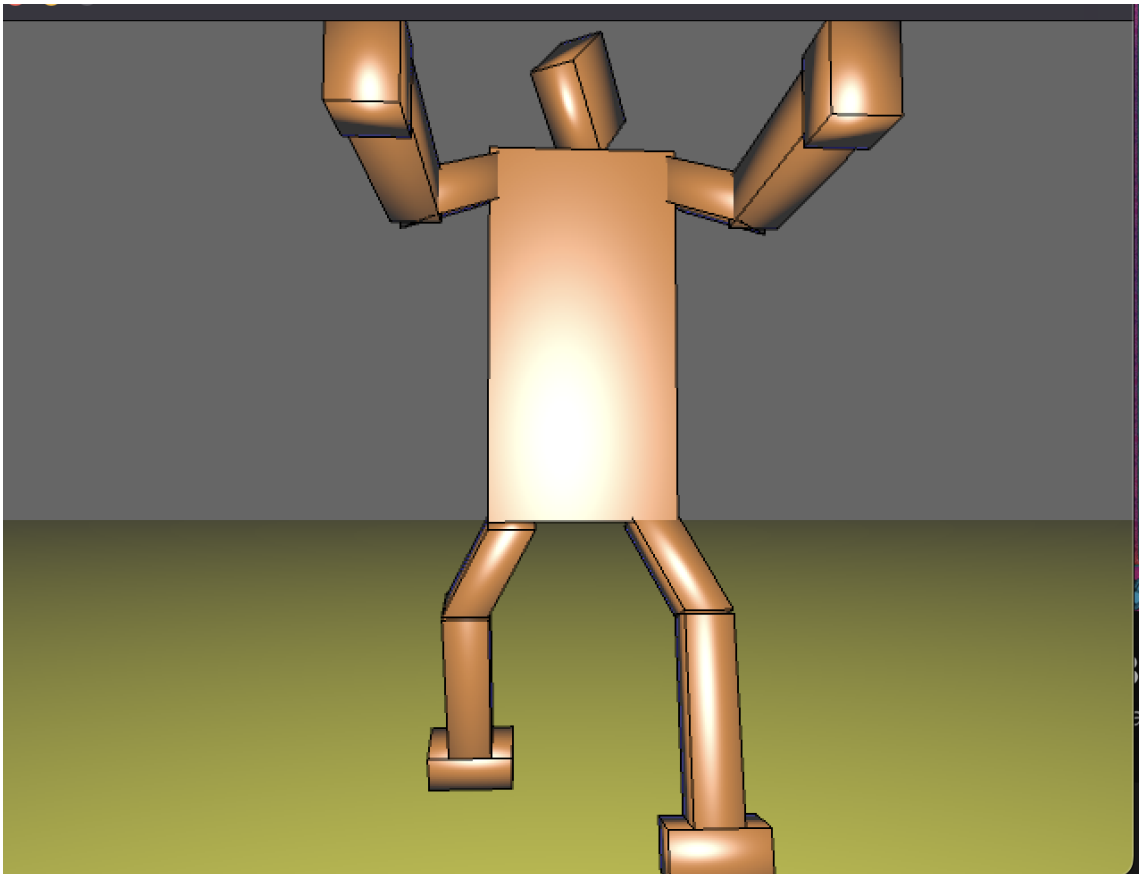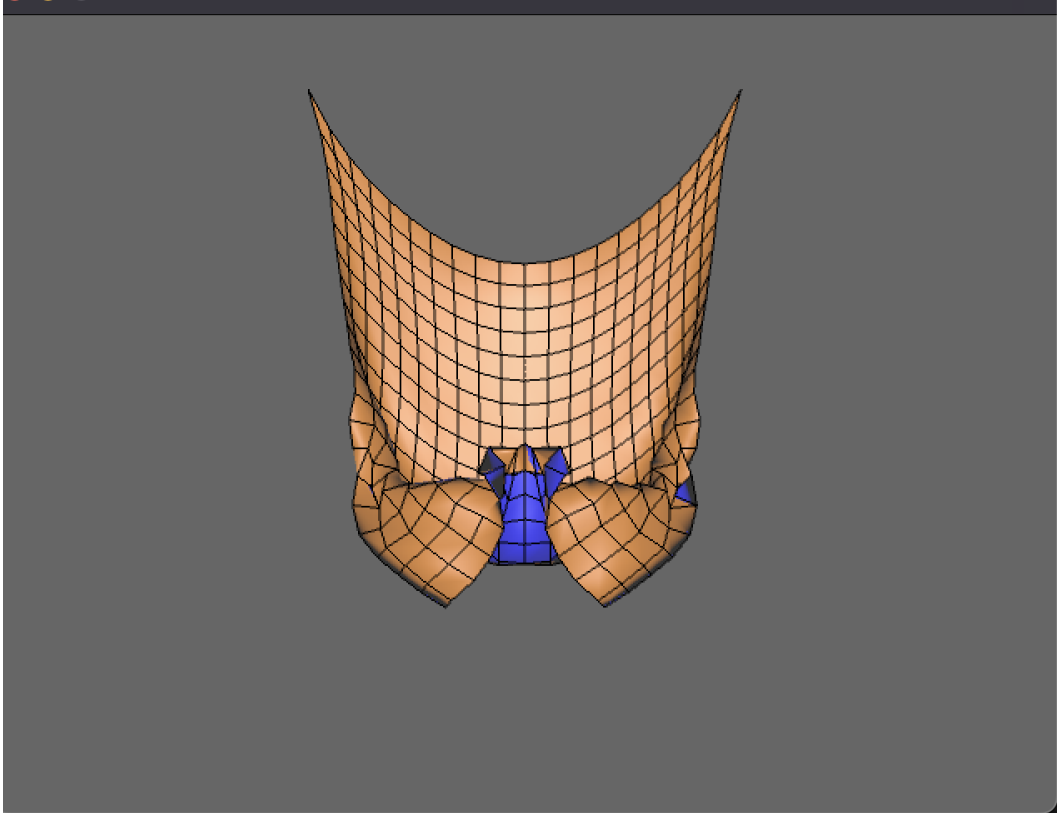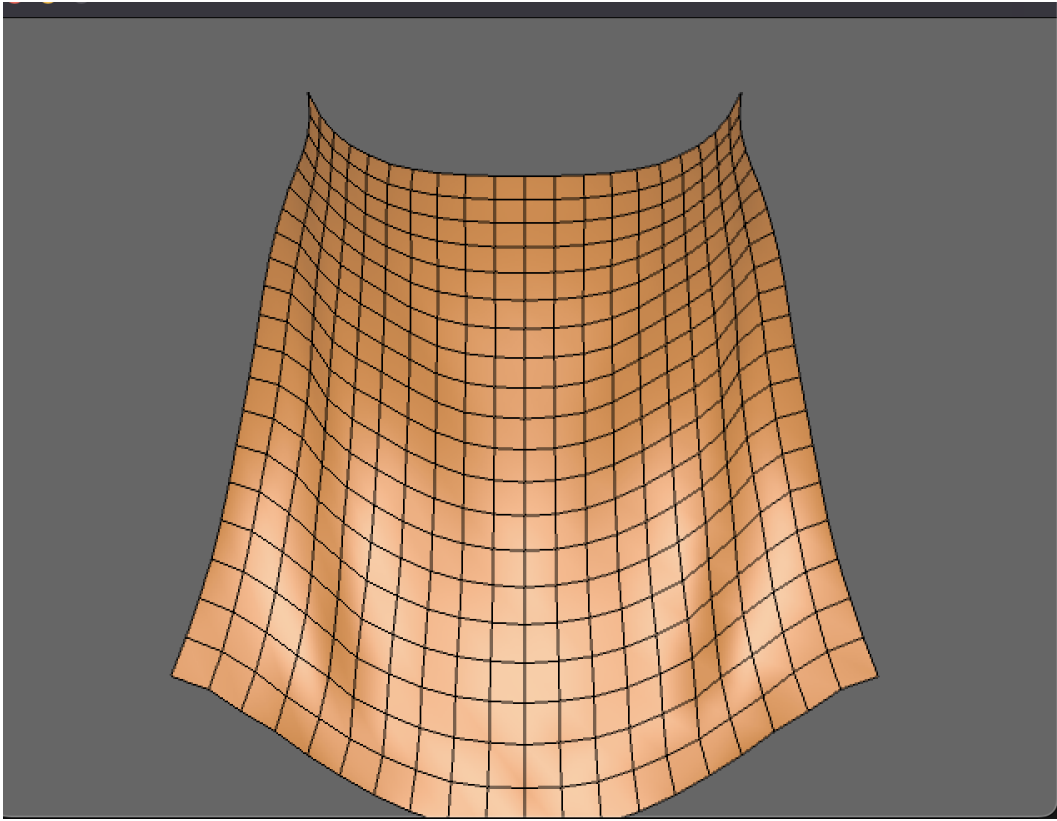
Figure 2: How our moving skeleton looks like?

Figure 3: How our scary skeleton looks like?

2 Mass-Spring system of a single sheet of cloth

The various spring constants and damping constants were adjusted by trial and error to give a smooth animation of the cloth. The animation recording is at
https://drive.google.com/file/d/1CE7enNWNYlLzIrKeV7oMJlQmd5eu8scQ/view?usp=drive_link.

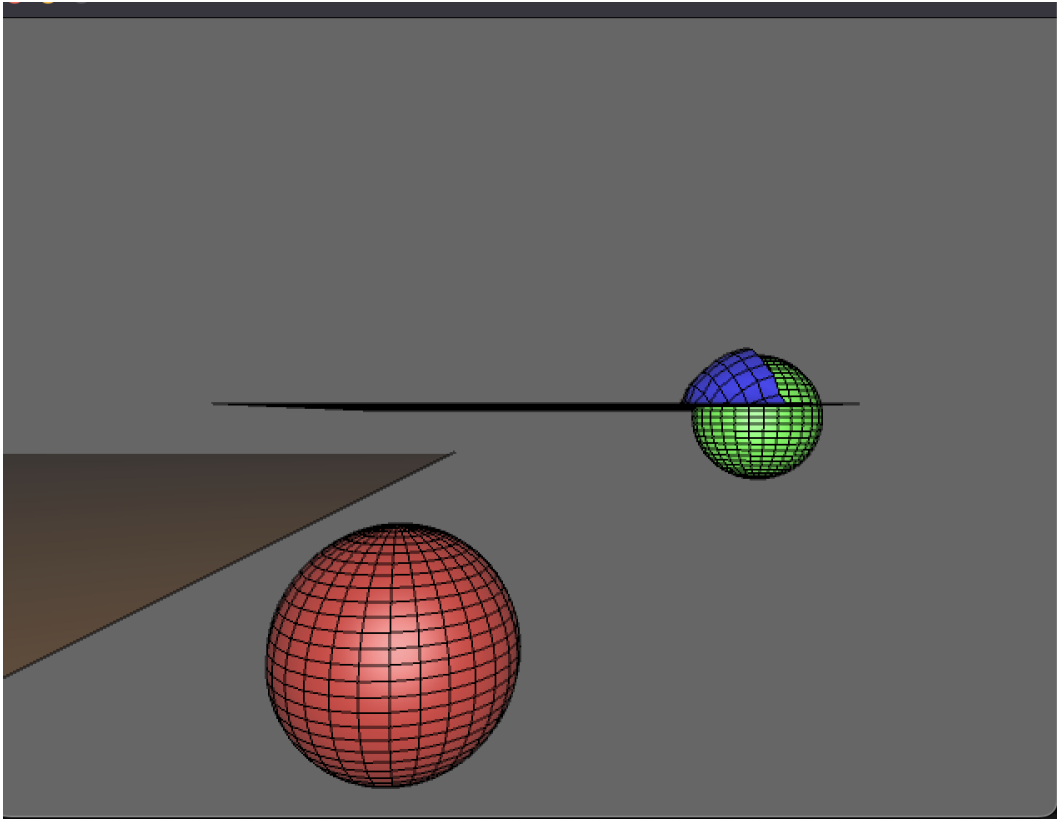# 3 Collision of particles with moving obstacles

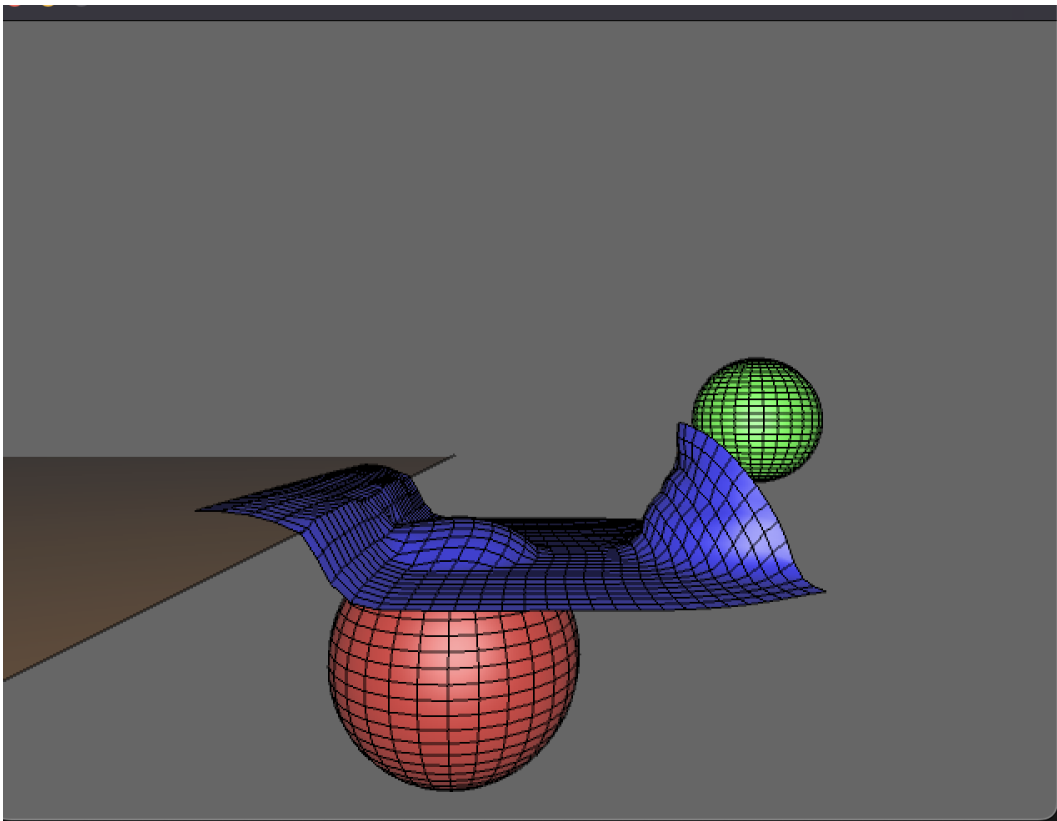
Figure 4: Cloth collides with static sphere

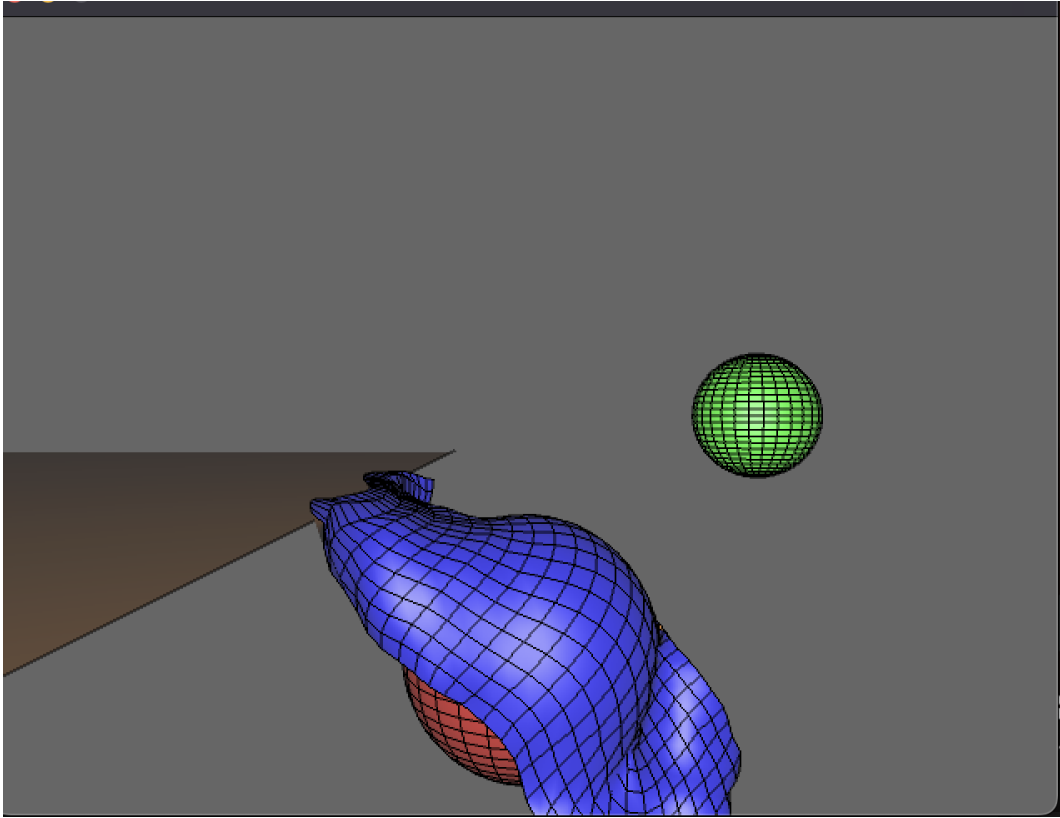Figure 5: Cloth collides with infinite half plane

Figure 6: Cloth collides with rotating and translating sphere

The animation recording is at
https://drive.google.com/file/d/10CD_aoFiY9w8FEKb-4s_5JjSyraOefQ9/view?usp=drive_link

Finally, we have **not** implemented any optional tasks due to a shortage of time.